EPHI, National Data Management Center for health (NDMC)
Quick update on COVID-19, 024

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Ethiopia's COVID-19 situation update

As of September 24, 2020 there were a total of 71,083 COVID-19 cases and 1,141 deaths across the country. Compared to the cases and deaths reported a week ago, the cumulative cases have increased by 5% and cumulative deaths by 7%. So far 29,253 cases have recovered from COVID-19 (Fig 1). Of the 40,956 active cases, 269 are critical. The total number of tests stands at 1,226,290 showing a 4% increase compared to last week.

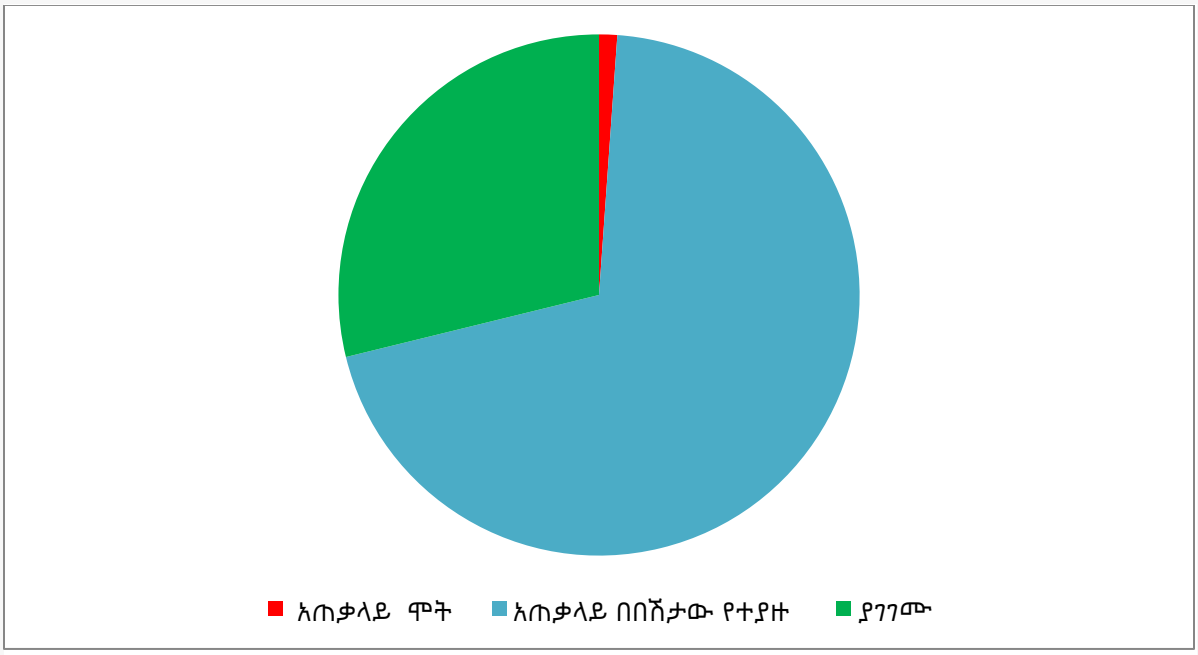

Fig. 1. Showing cumulative cases, recoveries and death as of September 24, 2020.

EPHI and FMOH COVID 19 response highlights of the week

- Since Home Based Isolation and Care (HBIC) have started in Ethiopia, a total 17,100 COVID-19 confirmed cases have been followed as of September 24, 2020. Of which, 11,122 recovered and 6005 cases are currently on follow up. Five COVID-19 related deaths have been reported 135 cases have been transferred to treatment centers while, 164 cases have been transferred from treatment centers to HBIC.
- Four days Home-Based Isolation and Care (HBIC) TOT started on September 18, 2020 for a total 40 health professionals (20 from Benishangul Gumuz region at Asosa town and 20 from Gambella region at Gambella town).
- On September 19, 2020, Orientation on COVID-19 response was given to 12 media institution journalists who visited the Debre-Birhan, Adama and Wolkite COVID-19 treatment centers.

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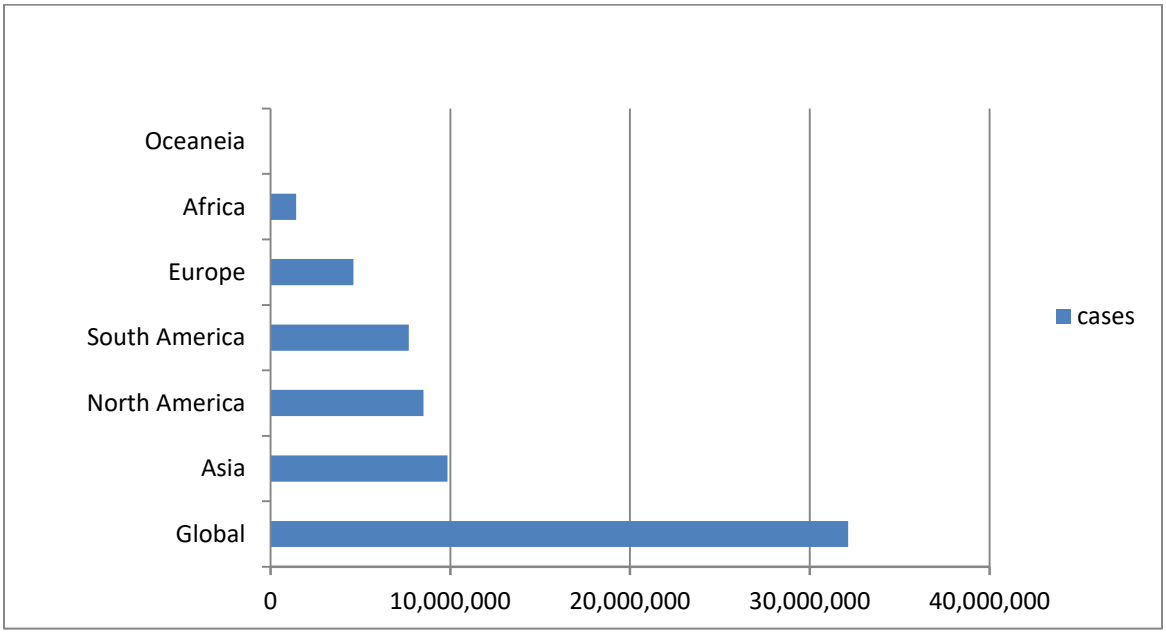
- ***www.covid19.et/covid-19/***
- Public Health Emergency Operations Centers (PHEOC), Ethiopia
- https://twitter.com/lia_tadesse

Global and regional burden of COVID-19

- Globally the total number of cases is extended to 32,136,496 as of September 24, 2020. A total of 23,706,953 cases recovered and 982,715 people died since the beginning of the outbreak. Globally, in a week time, from September 17 to 24, 2020, COVID-19 cases increased by 6.87% and deaths by 3.9%. Asia is the leading in terms of cases followed by North and South America. North America leads the number of deaths followed by South America and Europe (Fig 2).



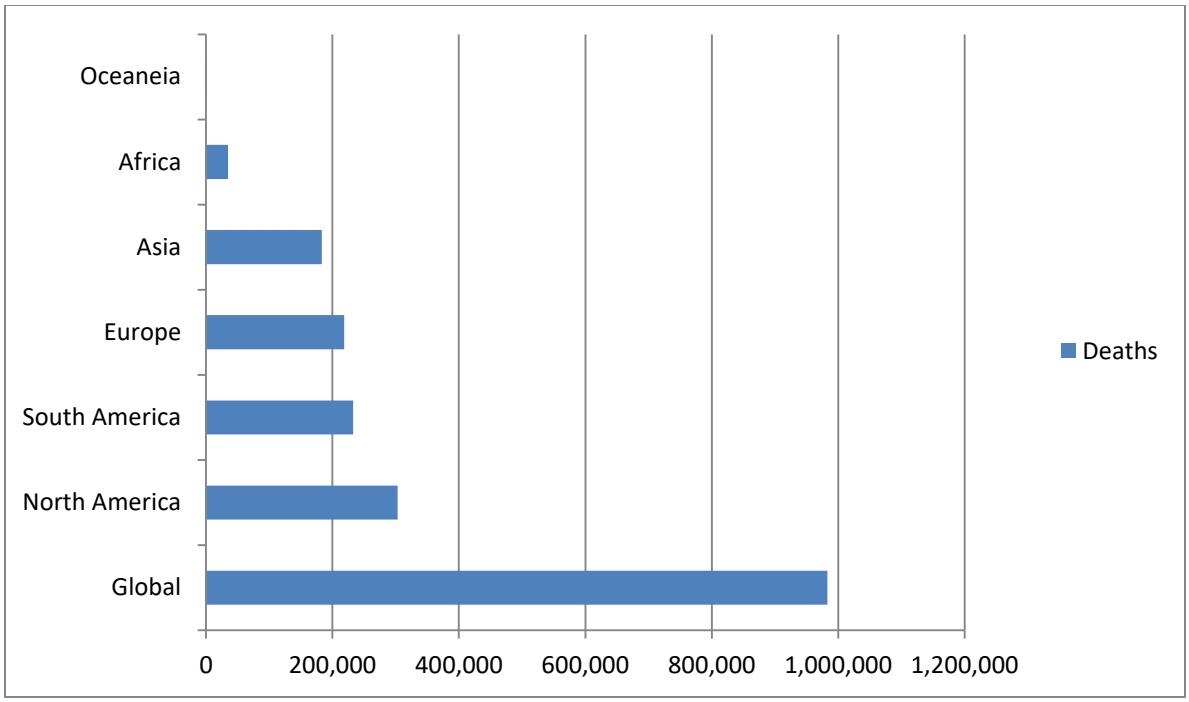
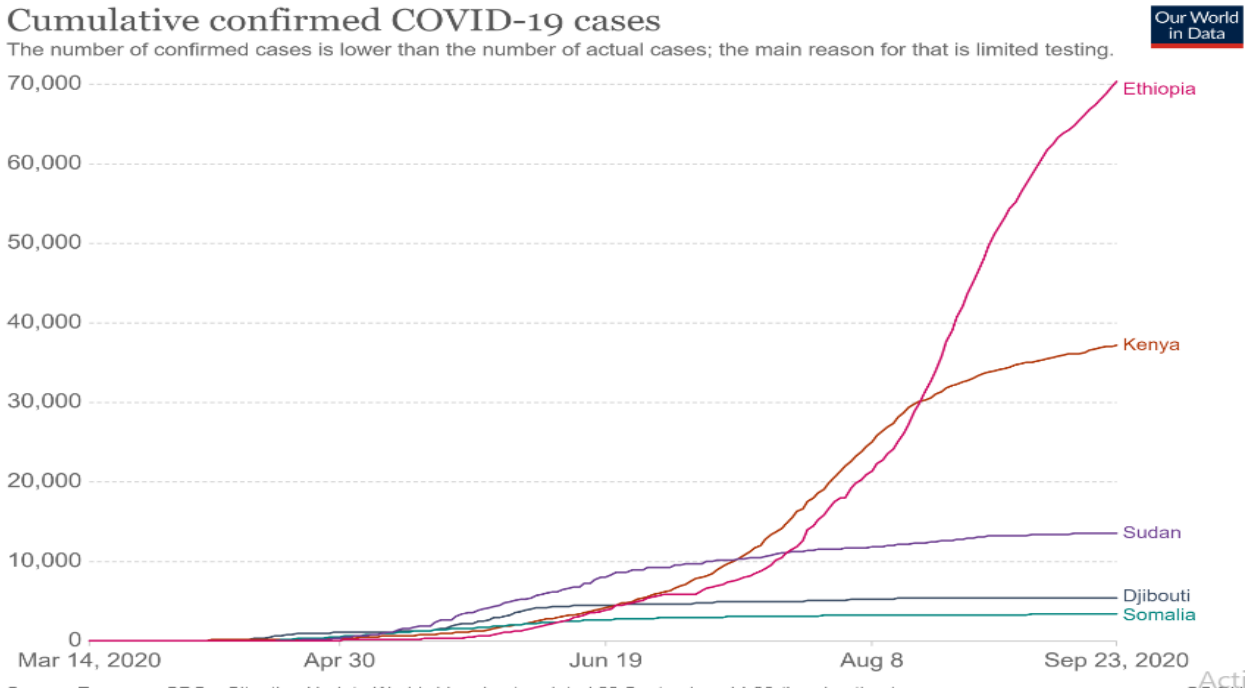


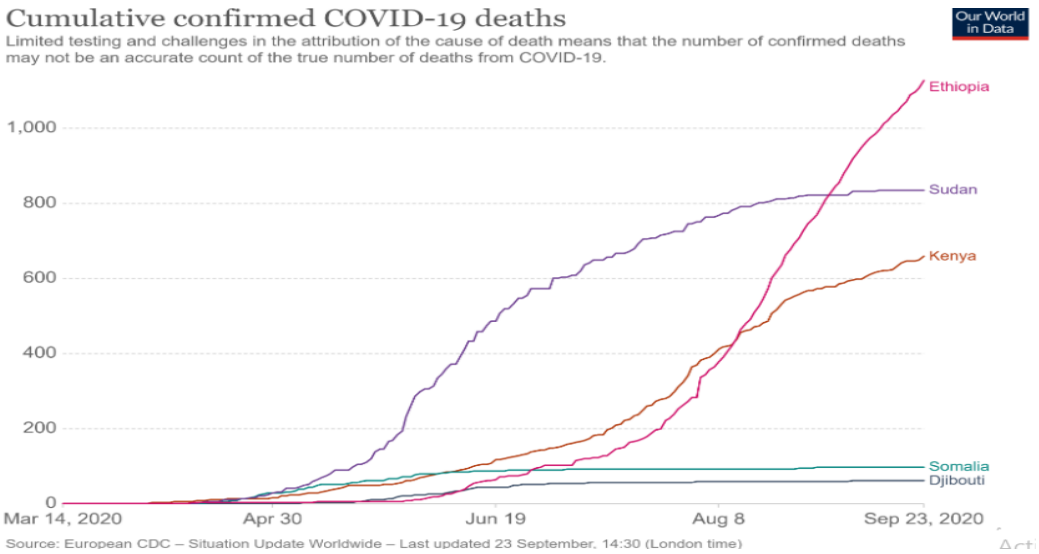
Fig 2. Global cases (top) and deaths (bottom) reported as of September 24, 2020.

- USA has recorded the highest number of cases (7,140,137cases, 206,598 deaths) that accounts 22.21% of the total global cases and carried 21.02% of global deaths as of September 24, 2020.
- India became the 2nd in terms of cases following USA. The number of cases in India has increase in a week time by 11.99% (5,122,846 to 5,737,197) and deaths by 9.54% (83,257 to 91,204).
- The number of cases in Brazil has increased by 4.66% (4,421,686 to 4,627,780) and deaths by 3.64% (134,174 to 139,065) in a week time.
- Russia has continued reporting the highest number of cases in Europe, with 1,128,836 cases.
- Colombia ranked 5th in the world with 784,268 cases in a week time.
- The line share of Africa to the global COVID-19 pandemic has still been low (only 4.47% of the global cases and 3.52% of deaths as of September 24, 2020). However, within the continent the number of cases has increased by 4.07% in a week time (from 1,380,233 to 1,436,464 cases). Similarly, the total number of deaths in Africa has increased from 33,308 to 34,584 showing a 3.8% increase in a week time.
- South Africa ranked 9th worldwide in terms of cases and leading in the continent with 665,188 cases and 16,206 deaths. Morocco (107,743 cases, 1,918 deaths), Egypt (102,375 cases, 5,822 deaths), Ethiopia (71,083 cases, 1,141 deaths), and (Nigeria (57,724 cases, 1,102 deaths) are the most four leading countries next to South Africa in reporting COVID-19 cases in the continent as of September 24, 2020. (See table below).

Africa	September 17		September 24	
	Cases	Death	Cases	Deaths
South Africa	653,444	15,705	665,188	16,206
Morocco	92,016	1,686	107,743	1918
Egypt	101,500	5,696	102,375	5822
Ethiopia	66,224	1,045	71,083	1141
Nigeria	56,604	1,091	57,724	1102

- In East African, COVID-19 cases and deaths have shown fast progress. In a week time, COVID-19 cases and deaths increased by 5% and 7% in Ethiopia and by 2.9% and 4.7% in Kenya. As of September, Ethiopia and Kenya are the major drivers of the COVID 19 burden in east African countries. The epidemic appears plateauing in Sudan showing only 0.3% cases and zero deaths and in Djibouti 0.1% cases and zero deaths. Similarly, 2.2 cases and zero deaths reported in Somalia in a week time.





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4. Our World: https://ourworldindata.org/covid-cases

Reinfection with SARS-Cov-2: Consideration for public health response

- Cases with suspected or possible reinfection with SARS-CoV-2 have been recently reported in different countries. In many of these cases, it is uncertain if the individual's Polymerase Chain Reaction (PCR) test remained positive for a long period of time following the first episode of infection or whether it represents a true reinfection.
- There are different recent published or pre-print case reports from Hong Kong, Nevada, USA, Belgium, Ecuador and India that describe reinfections based on genetic sequencing as confirmation of second infections with SARS-CoV-2, following a first confirmed infection
- SARS-CoV-2 infection detected in mid-August 2020, in Hong Kong, in an immune-competent 33 year old man during routine airport screening, 142 days after the first positive PCR. The patient presented with symptoms of cough, sore throat, fever and headache for three days during the first episode and was hospitalized for isolation purposes, although his symptoms had mostly resolved upon hospitalization. The patient was discharged two weeks later after two subsequent negative SARS-CoV-2 PCR assays on nasopharyngeal and throat swabs. During the second infection, the patient was asymptomatic and was reported to have a slightly elevated C-reactive protein, a relatively high viral load which decreased over time and a sero-conversion of SARS-CoV-2-IgG, all suggesting that the second episode was a new acute SARS-CoV-2 infection.

- In second scenario a 25 year old immune-competent male in Nevada, USA with COVID-19-like symptoms of sore throat, cough, headache and nausea who tested positive for SARS-CoV-2 on 18 April 2020, 24 days post-symptom onset. The patient was isolated and his symptoms resolved nine days after testing. The patient tested negative twice in the weeks following symptom resolution and felt well until 31 May 2020, when the patient sought care for fever, headache, dizziness, cough, nausea and diarrhea. The patient's symptoms worsened five days later, with hypoxia and shortness of breath leading the patient to be hospitalized and to receive oxygen support. A chest x-ray performed at that time indicated viral or atypical pneumonia and RT-PCR was positive for SARS-CoV-2. Seven days post-symptom onset during the second episode the patient was reactive for IgG/IgM for SARS-CoV-2.
- The third scenario is from Belgium in a 51 year old woman who presented with headache, fever, myalgia, cough, chest pain, dyspnea and anosmia to her general practitioner on 9 March 2020. The patient was immune-competent, but took a daily dose of oral corticosteroids for asthma. A nasopharyngeal swab was positive for SARS-CoV-2 with a Ct value of 25.6. The patient self-isolated at home and reported persistent symptoms for nearly five weeks. Three months (10 June 2020) after her initial symptoms, the patient presented with headache, cough, fatigue and rhinitis. Her nasopharyngeal swab was again positive for SARS-CoV-2 (Ct value 32.6).
- Such kind of similar cases were reported in India, Ecuador

Summary of the results of recent published or pre-print case reports

- Commonalities and differences in the six confirmed reinfections were in relatively young and generally immune-competent individuals. Four of the patients reported symptoms during the first episode of their infection while the two asymptomatic cases in India were detected during routine surveillance of health workers. The clinical presentation in the reinfection episode differed across the six cases: three reinfections were likely asymptomatic, one person showed mild symptoms, one showed moderate symptoms and one required hospitalization with oxygen support.

SARS-CoV-2 infection and antibody development

- The protective role of antibodies or T-cell-induced immunity against SARS-CoV-2 is still not understood. However, antibody identification/antibody titres are usually recognized as a reasonable correlate of antiviral immunity, and anti-receptor-domain antibody levels are known to correspond to plasma viral neutralization activity. Binding and neutralizing antibodies to SARS-CoV-2 have been seen to develop in most individuals sometime between day 10 and day 21 after infection. Reviews of the published literature indicate that most patients (>91%) develop IgG sero-positivity and neutralizing antibodies (>90%) following primary infection with SARS-CoV-2.
- It has been discussed that the magnitude of the antibody response appears to be associated with disease severity and there are indications that antibody-related immunity against SARS-

CoV-2 may not be long-lasting in persons that experienced asymptomatic infection or mild illness. Antibody response in such mild illness patients was significantly lower, with lower levels of IgM response and lower levels of neutralizing antibodies, when compared with severe COVID-19 patients.

- These results together indicate that most patients do appear to mount an immune response following a first SARSCoV-2 infection, but that this immunity may wane over time. This appears to be more likely in individuals with a less severe primary infection; which would be the case for the six patients described in the six studies above.

Options for public health response

- Considerations for clinical management, contact tracing, isolation and infection prevention and control
- The possibility of reinfection implies that individuals that have been infected once cannot be definitively considered to be immune. Although so far confirmed reinfections appear to be very uncommon events, more evidence and longer follow-up time is required to better understand duration of immunity, transmissibility and the likelihood and implications of reinfection. Given what is known currently, clinical management, infection prevention/control and contact tracing considerations are not likely to differ for a second infection as compared to individuals infected for the first time**.**

Considerations for PCR/antibody testing and risk management for individuals re-exposed to SARS-CoV-2 following a previous infection

- Due to the very limited number of reported cases of confirmed reinfection, it is not known what the risk of reinfection is among individuals who previously had COVID-19, however it cannot be ruled out. Although there are no documented cases of onward transmission from a re-infected case, knowledge on this is also still evolving. Risk assessment, including relevant laboratory investigations, may be made for re-exposed cases, taking into account the overall immune status of a re-exposed individual, the results of antibody testing, and the level of contact that the individual has with vulnerable populations in order to assess the best method of managing and following them for potential disease development and risk of further transmission.

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Projected Health-care resource needs for an effective response to COVID-19 in 73 Low-income and Middle income countries: a modeling study

- Since WHO declared the COVID-19 pandemic a Public Health Emergency of International Concern, more than 20 million cases have been reported, as of Aug 24, 2020.

- The number of COVID-19 cases was projected for 73 low-income and middle-income countries for each of the three scenarios for both 4-week and 12-week timeframes, starting from June 26, 2020.
- The total cost estimate for the COVID-19 response in the status quo scenario was US$52·45 billion over 4 weeks, at $8·60 per capita.

	Low income (population 685 066 000)		Lower-middle income (population 2 920 000 000)		Upper-middle income (population 2 493 375 000)		Total (population 6 098 441 000)	
	Total cost (billions)	Cost per capita	Total cost (billions)	Cost per capita	Total cost (billions)	Cost per capita	Total cost (billions)	Cost per capita
Total cost (4 weeks)								
Status quo	2·25	3·28	24·74	8·48	25·46	10·21	52·45	8·60
Decrease transmission 50%	1·65	2·41	14·18	4·86	17·24	6·92	33·08	5·42
Increase transmission 50%	3·30	4·82	30·08	10·30	28·54	11·45	61·92	10·15
Total cost (12 weeks)								
Status quo	6·20	9·06	80·97	27·73	66·69	26·75	153·86	25·23
Decrease transmission 50%	2·30	3·36	23·28	7·97	26·53	10·64	52·11	8·54
Increase transmission 50%	10·99	16·04	104·88	35·92	80·98	32·48	196·85	32·28

Costs are in 2020 US$.

Table 1: 4-week and 12-week (after June 26, 2020) cost of COVID-19 response by country income group

- For the decreased or increased transmission scenarios, the total costs were $33·08 billion and $61·92 billion, respectively.
- Costs would triple under the status quo and increased transmission scenarios at 12 weeks. The costs of the decreased transmission scenario over 12 weeks were equivalent to the cost of the status quo scenario at 4 weeks.

	Status quo scenario		Decrease transmission 50%		Increase transmission 50%	
	Cost (billions)	Total (%)	Cost (billions)	Total (%)	Cost (billions)	Total (%)
Pillar of the response						
(1) Country-level coordination	0·05	0·1	0·05	0·1	0·05	0·1
(2) Risk communications and community engagement	0·59	1·1	0·59	1·8	0·59	1·0
(3) Investigation, surveillance, and rapid response	7·07	13·5	2·23	6·7	11·32	18·3
(4) Points of entry	0·04	0·1	0·04	0·1	0·04	0·1
(5) National laboratory system	0·54	1·0	0·43	1·3	0·56	0·9
(6) Infection prevention and control	4·48	8·5	3·57	10·8	5·05	8·2
(7) Case management	28·40	54·1	18·59	56·2	31·47	50·8
(8) Logistics and supply management	0·18	0·3	0·18	0·6	0·18	0·3
(9) Maintaining essential services	11·09	21·2	7·39	22·4	12·65	20·4

Table 2: 4-week (after June 26, 2020) status quo cost of COVID-19 response for 73 countries by pillar of response (2020 US$)

- By percentage of the overall cost, case management (54%), maintaining essential services (21%), rapid response and case investigation (14%), and infection prevention and control (9%) were the main cost drivers.

	4-week status quo	12-week status quo
Cost category*		
HR	42%	63%
Commodities	13%	17%
Capital	41%	16%
Other	4%	4%
HR costs (billions 2020 US$)		
Low income	0·27	2·02
Lower-middle income	10·29	51·58
Upper-middle income	11·27	43·23
Total	21·83	96·84
HR cost components†		
Salaries	51%	68%
Hazard pay	15%	9%
Incentives	34%	23%

HR=human resources. *Percentage of total. †Percentage of total HR.

Table 3: Composition of costs for the COVID-19 response for 4 weeks and 12 weeks (after June 26, 2020)

Interpretation

- The sizeable costs of a COVID-19 response in the health sector will escalate, particularly if transmission increases.
- Instituting early and comprehensive measures to limit the further spread of the virus will conserve resources and sustain the response.

Reference

- Tan-Torres Edejer, T., et al. "Projected health-care resource needs for an effective response to COVID-19 in 73 low-income and middle-income countries: a modelling study." The Lancet Global Health.

Framework to reopening schools

Why reopen schools?

- The impact of extended education disruption is significant. It includes among others: poor nutrition, stress, increased exposure to violence and exploitation, childhood pregnancies, and overall challenges in mental development of children due to reduced interaction related to school closures.
- Disruptions to instructional time in the classroom can have a severe impact on a child's ability to learn. The longer marginalized children are out of school, the less likely they

are to return. Children from the poorest households are already almost five times more likely to be out of primary school than those from the richest.

- Being out of school also increases the risk of teenage pregnancy, sexual exploitation, child marriage, violence and other threats. Further, prolonged closures disrupt essential school-based services such as immunization, school feeding, and mental health and psychosocial support, and can cause stress and anxiety due to the loss of peer interaction and disrupted routines.
- In Eastern and Southern Africa, UNICEF finds that violence rates against children are up, while nutrition rates are down with more than 10 million children missing school meals. For girls, especially those who are displaced or living in low-income households, the risks are even higher.
    - For example, following school closures triggered by the 2014 West Africa Ebola outbreak, pregnancy rates among teenagers in Sierra Leone doubled and many girls were unable to continue their education when schools reopened.
- Interrupting education services also has serious, long-term consequences for economies and societies such as increased inequality, poorer health outcomes, and reduced social cohesion.
- World Health Organization (WHO) and UNICEF, urging governments in Africa to promote the safe reopening of schools while taking measures to limit the spread of the virus.
- A WHO survey of 39 countries in sub-Saharan Africa found that schools are fully open in only six countries. They are closed in 14 countries and partially open (exam classes) in 19 others. Around a dozen countries are planning to resume classroom learning in September, which is the start of the academic year in some countries.
- WHO, UNICEF and the International Federation of Red Cross have issued guidance on COVID-19 prevention and control in schools. The guidance includes recommendations for physical distancing measures such as staggering the beginning and end of the school day, cancelling school events that create crowding, spacing desks when possible, providing hand washing facilities, wearing masks, discouraging unnecessary touching and ensuring that sick students and teachers stay at home
- WHO and UNICEF also recommend a range of hygiene and disinfection measures for schools to reopen and operate safely, including regular hand washing, daily disinfection and cleaning of surfaces, basic water, sanitation and waste management facilities, and environmental cleaning and decontamination.
- However, millions of children attend schools that lack water, sanitation and hygiene services. In sub-Saharan Africa, only a quarter of schools have basic hygiene services, 44% of them have basic drinking water and 47% cent have basic sanitation services, according to a WHO and UNICEF report assessing progress on drinking water, sanitation and hygiene in schools between 2000 and 2019.

- As such, this is the moment to take an opportunity from a crisis, and for investment and innovative thinking. As we seek to get children back into school, WHO and UNICEF stress that there are quick solutions to hand washing in schools, such as a tap, bucket and soap.

When, where and which schools to reopen?

- School re-openings must be safe and consistent with each country's overall COVID-19 health response, with all reasonable measures taken to protect students, staff, teachers and their families
- The timing of school re-openings should be guided by the best interest of the child and overall public health considerations, based on an assessment of the associated benefits and risks and informed by cross-sectoral and context-specific evidence, including education, public health and socio-economic factors.
- Decision-making should be done together with subnational stakeholders so that actions are based on an analysis of each local context.
- Decisions on reopening will require countries to quickly gather critical information on how schools, teachers, students and communities are coping with closures and the pandemic. Rapid response surveys of school and local leaders, teachers, students and parents can help provide this information.
- Decision makers must then assess how learning and wellbeing can best be supported in each context, with special consideration of the benefits of classroom-based instruction vis-à-vis remote learning, against risk factors related to reopening of schools, noting the inconclusive evidence around the infection risks related to school attendance.

How to reopen schools:

- When selected schools have been identified for reopening, six key dimensions should be used to assess their states of readiness and inform planning: policy, financing, safe operations, learning, reaching the most marginalized and wellbeing/protection.
- Policy considerations and financial requirements together create the enabling environment needed to support each of the other dimensions. Contextualization and adaptation will be critical to respond to local needs and conditions, particularly in contexts where there are multiple deprivations (such as densely populated areas, low water settings, conflict, etc.).
- Analysis must be done against pre-pandemic conditions, with an acknowledgement of both existing limitations in low-resource contexts, and current goals to improve operational and learning conditions. The response should serve as a catalyst to improve learning outcomes, in-crease equitable access to education and strengthen the protection, health and safety of children
- Therefore:

- Prior to reopening, prepare with critical policies, procedures and financing plans needed to improve schooling, with a focus on safe operations, including strengthening remote learning practices.
- As part of the reopening process, adopt proactive approaches to reintegrate marginalized and out-of-school children. Invest in water, sanitation and hygiene to mitigate risks and focus on remedial education to compensate for lost instructional time.
- With schools reopened, actively monitor health indicators, expanding focus on wellbeing and protection. Strengthen pedagogy; adapt remote education for blended teaching and learning, including knowledge on infection transmission and prevention.

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Potential Positive Impacts to look forward in post COVID-19 pandemic age

- The COVID-19 pandemic unquestionably presents an era-defining challenge to public health and the global economy.
- The short-term impact of COVID-19 is immediately and effortlessly felt, due to the widespread lockdown and social distancing measures globally. The pandemic will end; it is already set to have prolonged economic, social, political, and cultural effects.
- The health sector which is primarily dealing with the pandemic has been the worst affected. The health systems, in many countries are overstretched
- However, for every low, there is a high and it is true that even this current scenario has a bright side.

The following are some positive impacts of Covid-19 pandemic

- **Improvements in air quality**: the imposition of strict traffic restrictions and self-quarantine measures to control the expansion of the pandemic has changed air pollution.
- **Reduction of environmental noise level**: Environmental noise is one of the main sources of discomfort for the population and the environment, causing health problems and altering the natural conditions of the ecosystems. The quarantine measures by most governments have caused people to stay at home. With this, the use of private and public transportation has decreased significantly. Also, commercial activities have stopped

almost entirely. All these changes have caused the noise level to drop considerably in most cities in the world.

- **Opportunities from the lessons learnt**: Whilst it may be difficult to prioritise supplementary data collection during a pandemic, where data is not normally captured, it is vital that there is objective information available for use when we achieve a post pandemic phase. This will help examine issues such as:
    - Optimal ways to manage initial diagnosis of those affected, and those with whom they may have had contact.
    - Treatment pathways, and how best to manage the impact upon non-pandemic related healthcare.
    - Preparedness for next time - across all aspects of coordination, governance, supply chain and stockpiles. This could also extend to fully understanding the reasons for and nature of transmission, and what actions could better mitigate these in future.

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