EPHI, National Data Management Center for health (NDMC)
Quick update on COVID-19, 031

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Ethiopia's COVID-19 situation updates

As of November 12, 2020, there were a total of 100,727COVID-19 cases and 1,545 deaths across the country. Compared to the cases and deaths reported a week ago, the cumulative cases and deaths have increased by 2%. So far 62,497cases have recovered from COVID-19 (Fig 1). Of the 36,975active cases, 292 are critical. The total number of tests stands at 1,539,650 showing a 1% increase compared to last week.

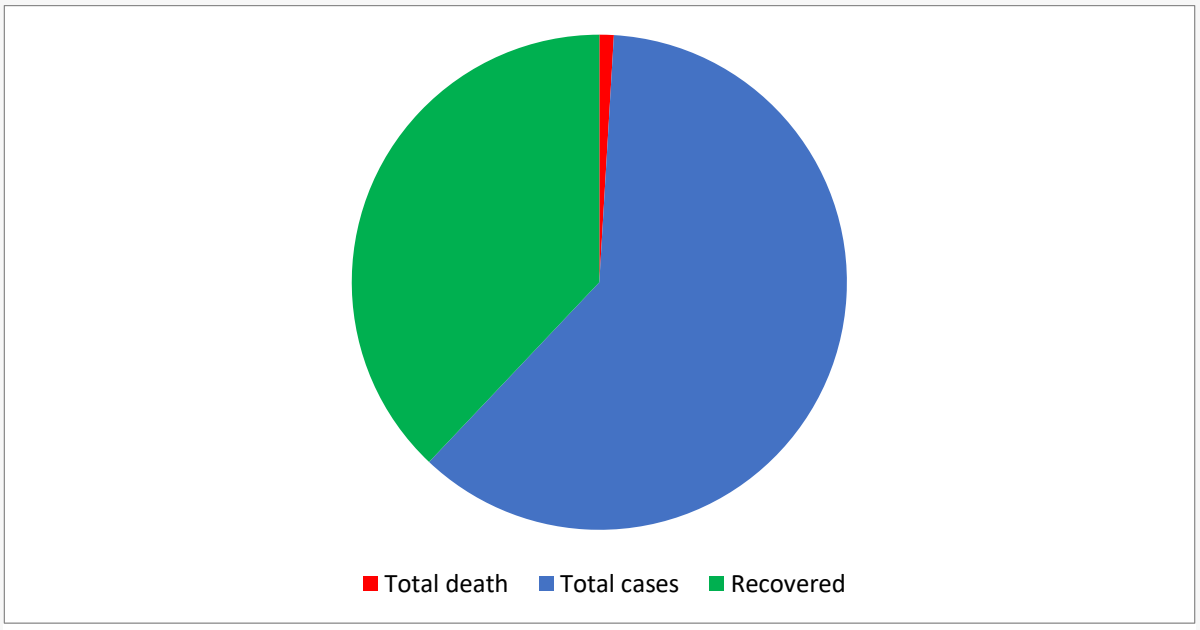


Fig. 1. Showing cumulative COVID-19 cases, recoveries and death as of November 12, 2020.

EPHI and FMOH COVID 19 response highlights of the week

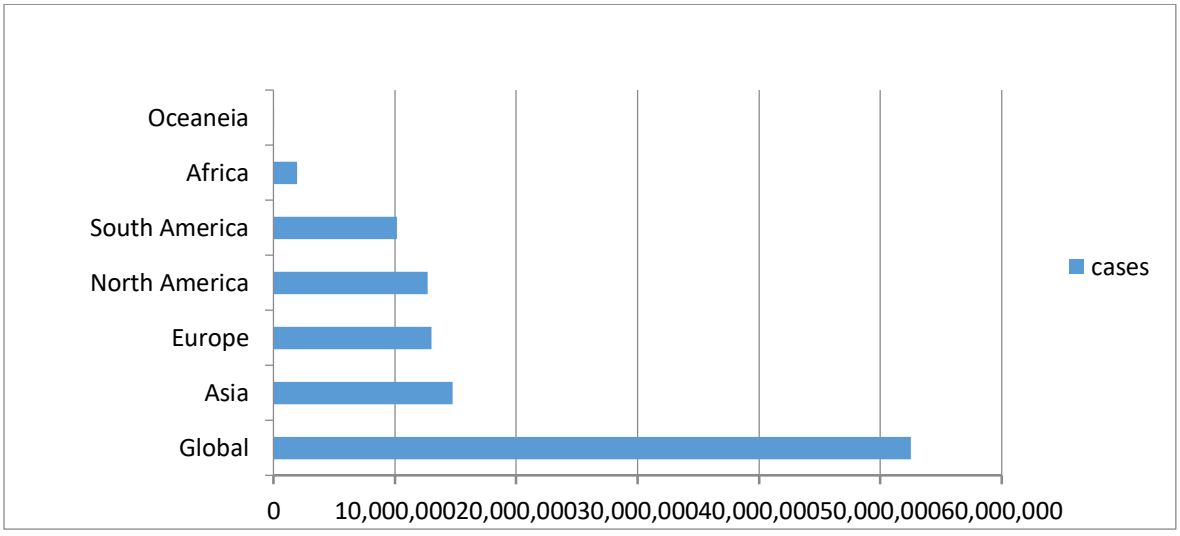
- Since Home Based Isolation and Care (HBIC) have started in Ethiopia, a total **28, 958** COVID-19 confirmed cases have been followed as of November 12, 2020. Of which, **23,071** recovered and 5,802 cases are currently on follow up. Five COVID-19 related deaths have been reported 264 cases have been transferred to treatment centers while, 183 cases have been transferred from treatment centers to HBIC.
- On November 5, 2020 three days COVID-19 Mental Health and Psychosocial Support (MHPSS) training were provided to 38 health workers working in federal and regional Hospitals at Hawassa town.
- On November 10, 2020, Orientation on the COVID-19 new directive were started for 15 COVID-19 stakeholders at EPHI.

References

- ***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 extends to 52,542,718 as of November 12, 2020. A total of 36,755,814 cases recovered and 1,291,612 people have died since the beginning of the outbreak. Globally, in a week time, from November 05, 2020 to November 12, 2020, COVID-19 cases increased by 8.24% and deaths by 4.78%. Asia is the leading in terms of cases followed by Europe and North America. North America leads the number of deaths followed by Europe and South America (Fig 2).



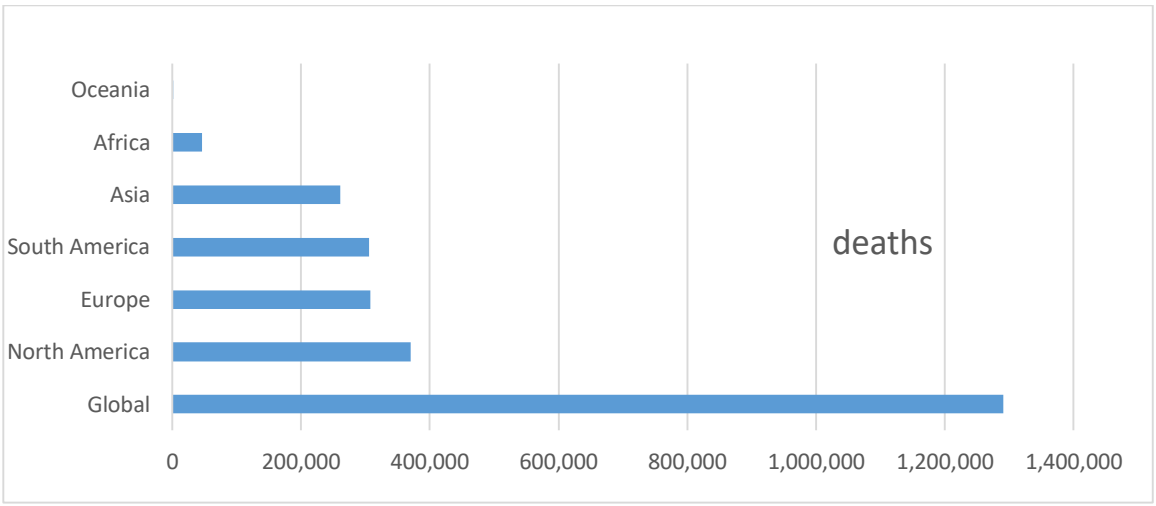
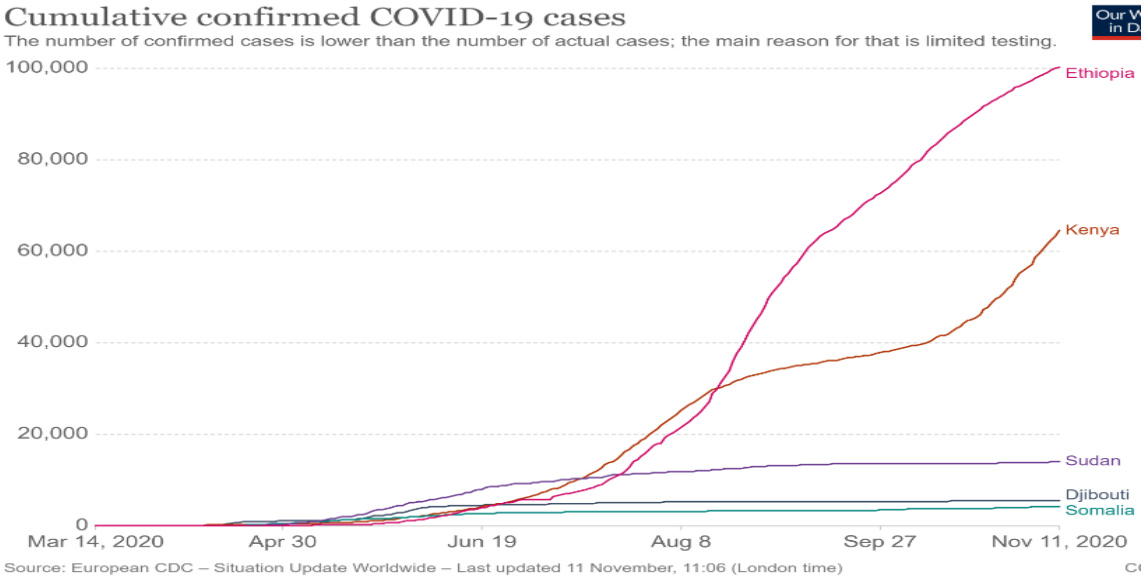


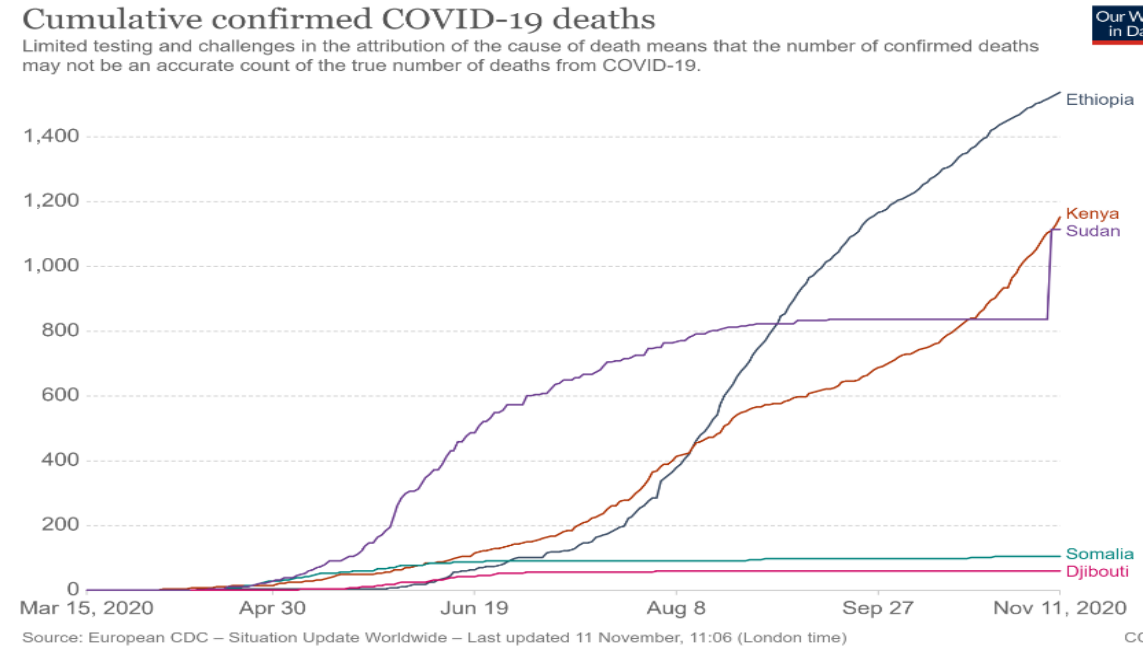
Fig 2. Global cases (top) and deaths (bottom) reported as of November 12, 2020.

- USA has recorded the highest number of cases (10,708,728 cases, 247,398 deaths) that accounts 20.4% of the total global cases and carried 19.15% of global deaths as of November 12, 2020.
- India became the 2nd in terms of cases following USA. The number of cases in India has increased in a week time by 3.84% (8,364,086 to 8,685,084) and deaths by 3.07% (124,354 to 128,179).
- The number of cases in Brazil has increased by 2.83% (5,590,941 to 5,749,007) and deaths by 1.4% (161,170 to 163,406) in a week time.
- France has continued reporting the highest number of cases in Europe, with 1,865,538 cases.
- Russia ranked 5th in the world with 1,858,568 cases.
- The line share of Africa to the global COVID-19 pandemic was 3.7% and 3.6% of the global cases and deaths as of November 12). The number of cases in the continent has increased by 4.8% in a week time (1,842,709 to 1,931,410cases). Similarly, the total number of deaths in Africa has increased from 44,084 to 46,372 showing a 5.2% increase in a week time. Total recoveries stand at 1,629,695.
- South Africa is the leading in the continent with 742,394 cases and 20,011 deaths. Morocco (270,626 cases, 4,506 deaths), Egypt (109,881 cases, 6,405 deaths), Ethiopia (100,727 cases, 1,545 deaths), and Nigeria (64,516 cases, 1,162 deaths) are the most four leading countries next to South Africa in reporting COVID-19 cases in Africa. (See table below).

	November 5		November 12	
Africa	**Cases**	**Death**	**Cases**	**Deaths**
South Africa	730,548	19,585	742,394	20,011
Morocco	235,310	3,982	270,626	4,506
Egypt	108,329	6,318	109,881	6,405
Ethiopia	97,881	1,503	100,727	1,545
Nigeria	63,328	1,154	64,516	1,162

- In East African, COVID-19 cases and deaths have shown fast progress. In a week time, COVID-19 cases and deaths were increased by 2% in Ethiopia and 12.3% and 12.3% in Kenya. As of November, Ethiopia and Kenya continued to be the major drivers of the COVID 19 burden in east African countries. The epidemic appears plateauing in Sudan showing only 2.9% cases and 33.3 deaths and in Djibouti 1% cases and zero deaths. Similarly, 1.7% cases and zero deaths reported in Somalia in a week time.





References

1. John Hopkins, Corona Virus Resources **https://coronavirus.jhu.edu/map.html**
2. Worldometer, Corona Virus **https://www.worldometers.info/coronavirus/**
3. Africa CDC: COVID 19 Surveillance; https://au.int/covid19
4. Our World: https://ourworldindata.org/covid-cases

An Update on COVID-19 Vaccine Development

- In the midst of COVID-19 pandemic, numerous vaccines are being speedily developed, and human trials begin at the first wave of COVID 19 pandemic. Now, varied vaccine strategies such as whole-virus vaccines, recombinant protein subunit vaccines, and nucleic acid vaccines are under evaluation at clinical and preclinical stage. Developing an efficacious vaccine is considered essential to prevent further morbidity and mortality. An effective coronavirus vaccine should be designed in a manner to induce an optimal antibody response.
- To date, 44 candidate COVID-19 vaccines are in clinical development and 151 are in preclinical development, by use of a range of vaccine platforms. In this unique pandemic, vaccine development is time-dependent, and considerable collaborative efforts. The cost to manufacture and internationally deploy an efficacious COVID-19 vaccine will be vast, and the process will be at risk of politicization. It has been shown that coronavirus-infected individuals with mild or no symptoms do not induce long-lived antibody responses and there is a chance of reinfection with the same virus in an extended time period. Therefore, an effective SARS-CoV-2 vaccine will need to design to minimize reinfection and protect when the virus causes seasonal epidemics.

There are three clinical trials candidates.

  - The first coronavirus vaccine trial has been started by the Kaiser Permanente Washington Health Research Institute. This vaccine is known as mRNA-1273 and was developed by the National Institute of Allergy and Infectious Diseases scientists and their collaborators at the biotechnology company Moderna, Inc., based in Cambridge, Massachusetts. The Coalition for Epidemic Preparedness Innovations supported the manufacturing of the vaccine candidate for the Phase 1 clinical trial
  - Secondly, another adenovirus containing S-protein vaccineChAdOx1nCoV-19 came for clinical trial in record time. This vaccine developed by a research group in Jenner Institute at Oxford University in partnership with the UK-based global biopharmaceutical company AstraZeneca. Many academic and industry-based research groups are working on recombinant protein-based approach and mainly focusing on S-protein, viral vector-based vaccines, DNA vaccines, live attenuated vaccines (Serum Institute of India with Codagenix), and inactivated virus vaccines. The major concerns about the current vaccine designs are whether they will be effective due to the high frequency of glycosylation and mutations in the S- protein, as well as the potential antibody-dependent enhancement. In vaccine development process, appropriate animal models are very critical to test protective responses. SARS-CoV2 does not grow in wild-type animals and induce mild disease in transgenic animals expressing ACE2
  - Thirdly pathogenicity studies are going on at a primate center of Texas Biomedical Research Center at San Antonio, USA. If a vaccine with optimal efficacy is generated, the next challenge will be the large-scale production of vaccine with good manufacturing practice to ensure the quality and safety.

- Some countries might deploy COVID-19 vaccines on the strength of safety and immunogenicity data alone, the goal of vaccine development is to gain direct evidence of vaccine efficacy in protecting humans against SARS-CoV-2 infection and COVID-19. So that

a candidate vaccine against SARS-CoV-2 might act against infection, disease, or transmission, and a vaccine capable of reducing any of these elements could contribute to disease control.

- In their target product profile for COVID-19 vaccines, WHO suggested that a "clear demonstration of efficacy (on a population basis) ideally with ~50% point estimate" should be a minimum criterion for any acceptable COVID-19 vaccine, and that efficacy can be assessed against "disease, severe disease, and/or shedding/transmission" endpoints. In fact, a COVID-19 vaccine capable of reducing any of these elements might contribute to disease control where there are no efficacious prophylactic medications and few treatments.
- The focus of vaccine development that is able to provide protection in the elderly because this segment of population typically responds less against vaccination because of immune senescence. If vaccination works in younger individuals and stops transmission in the community, it may provide an indirect benefit to elderly individuals.

Reference

1. Gavi. The Gavi COVAX AMC: an investment opportunity. https://www.gavi.org/covax-facility
2. WHO. Draft landscape of COVID-19 candidate vaccines. Geneva: World Health Organization, 2020
3. Peng H, Yang LT, Wang LY, Li J, Huang J, Lu ZQ, et al. Long-lived memory T lymphocyte responses against SARS coronavirus nucleocapsid protein in SARS-recovered patients. Virology 2006;351:466-75
4. Martin JE, Louder MK, Holman LA, Gordon IJ, Enama ME, Larkin BD, et al. A SARS DNA vaccine induces neutralizing antibody and cellular immune responses in healthy adults in a Phase I clinical trial. Vaccine 2008;26:6338-43.
5. Bao L, Deng W, Gao H, Xiao C, Liu J, Xue J, et al. Reinfection could not occur in SARS-CoV-2 infected rhesus macaques. bioRxiv 2020.03.13.990226; 2020
6. NIH Clinical Trial of Investigational Vaccine for COVID-19 Begins | NIH: National Institute of Allergy and Infectious Diseases. Available from: https://www.niaid.nih.gov/news-events/nih-cli nical-trial-investigational-vaccine-covid-19-begins.,
7. Moderna Ships mRNA Vaccine Against Novel Coronavirus (mRNA-1273) for Phase 1 Study. Moderna, Inc. Available from: https://investors.modernatx.com/n ews-releases/news-release-details/moderna-ships- mrna-vaccine-against-novel-corona virus-mrna-1273.

Critical Lessons from the Great Coronavirus Pandemic of 2020

- The world is experiencing a once-in-a-lifetime pandemic, causing untold human suffering and death, unraveling of social relationships, and robbing individuals of livelihoods and countries of prosperity. The coronavirus pandemic has strained health systems, revealed unconscionable inequalities, and upended international institutions. Here are the critical lessons.

- **Build Resilient Health Systems:** The most important element of pandemic preparedness is a resilient health system to rapidly detect, assess, report, and respond to novel outbreaks. The International Health Regulations, which govern pandemic response, require all countries to have core health system capacities, including surveillance, laboratories, human resources, and risk communication. Health systems also need capacity to test for, diagnose, and treat infectious diseases. Although high-income countries have robust health systems, they often lacked sufficient capacity to treat large numbers of patients with coronavirus disease 2019 (COVID-19) or to protect health workers from infection.
- **Leadership and Public Trust Are the Single Greatest Indicator of Success:** Although health systems are important, COVID-19 demonstrated that even countries with strong capacities often performed badly. The Global Health Security Index, for example, ranked the US first in the world for pandemic preparedness. Yet, as of August 12, the US had reported more than 5 million cases, the most COVID-19 cases and deaths globally—2 million more than Brazil, which was second, and far ahead of the more than 300 000 cases in each of the 2 hardest hit European nations, Spain and the United Kingdom. The coronavirus pandemic teaches that leadership is crucial. Perhaps the single greatest indicator of success in responding to COVID-19 has been whether governments gain the public's trust. Population-based health behaviors—hand washing and other aspects of personal hygiene, physical distancing, and face coverings—can significantly reduce community spread.
- **Defend the Integrity of Science and Public Health Agencies:** Science has enabled societies to understand the virus, its modes of transmission, and most effective public health interventions. Within weeks of reports of a cluster of atypical pneumonia cases in Wuhan, China, scientists had sequenced the virus. Epidemiological studies subsequently determined severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection was transmitted person to person, including by asymptomatic individuals. Further research showed that personal hygiene, physical distancing, and face coverings were effective nontherapeutic interventions. Research laboratories rapidly developed viral and antibody testing technologies. There is promising scientific research into effective vaccines and therapeutics. Within 6 months, 6 vaccine candidates were in phase 3 clinical trials. Despite remarkable, albeit incomplete, scientific discovery, populist political leaders have sown doubt about the value of science and have undermined public health agencies. In Brazil and the US, for example, political leaders have publicly recommended COVID-19 treatments that their own agencies have not approved, such as hydroxychloroquine. President Trump publicly criticized US Centers for Disease Control and Prevention guidelines for reopening schools. If political leaders fail to implement evidence-based policies or to convey consistent messages based on science, the pandemic response will be suboptimal.
- **Invest in Biomedical Research and Development:** The integrity of science is necessary but insufficient. Governments must sustainably invest in biomedical research and development, not just during a health crisis but also during inter-pandemic periods. After the West Africa Ebola epidemic, the Commission on a Global Health Risk Framework for the Future recommended an incremental increase of $1 billion per year to accelerate research and development for innovative medical technologies. Even $1 billion annually is far too low given the economic devastation of the pandemic, with the World Bank projecting a 5.2% contraction

in global GDP in 2020. A World Health Organization (WHO) initiative, the Research & Development(R & D) Blueprint for COVID-19, shows the vast undertaking needed to develop safe and effective therapeutics and vaccines.

- **Focus on Equity:** Even before the coronavirus pandemic, social, economic, and health inequities became the prevailing global narrative. Yet, COVID-19 amplified long-standing systemic inequalities, including access to health care. SARS-CoV-2 infections and COVID-19 deaths disproportionately people who are 65 and older, or have certain conditions, such as diabetes or hypertension, are more likely to become severely ill from COVID-19. But income and occupation also play a role.
- **Adopt Evidence-Based Laws:** State laws have long authorized public health powers to test, trace, isolate, and quarantine. These traditional powers can be expanded in declared emergencies. Public health laws are narrow and measured, requiring individual assessments of risk. Responding to expansions of political power in countries like Russia, Turkey, and Hungary, the United Nations launched a Rule of Law project on COVID-19. Emergency health powers should be based on evidence and used only when there are no less restrictive alternatives. Usurpation of power under the pretext of a health crisis threatens to erode democratic freedoms, which can endure even after the crisis ends.
- **Fund and Support Robust Global Institutions:** A once-in-a-lifetime threat that all the world shares in common should bring people and nations together. Yet the COVID-19 pandemic has frayed international relations. In the midst of a historic pandemic, two superpowers—China and the US—blamed one another, even at the World Health Assembly. In July, President Trump notified the UN General Secretary the US would withdraw from the WHO. Yet, there are also hopeful signs of international cooperation. Public and private partners joined with the WHO to launch the Access to COVID-19 Tools (ACT) Accelerator, a global collaboration to accelerate research and development, production, and equitable access to COVID-19 tests, treatments, and vaccines. COVAX—a partnership between Gavi, the Coalition for Epidemic Preparedness Innovations, and the WHO—is the vaccine arm of ACT, designed to facilitate the discovery of COVID-19 vaccines and guarantee fair and equitable global access.
- Governments and international institutions have clear choices on how best to respond to COVID-19 and to prepare for future pandemics. Choosing science, the rule of law, and equity as core values would be transformational. Building universal health systems would not only prepare countries for epidemic response, it would also vastly improve the health and well-being for all people, across the full spectrum of health threats faced by humankind.

Reference

- Farley, J. H. et al. (2020) 'Promoting health equity in the era of COVID-19', Gynecologic oncology. 2020/05/19, 158(1), pp. 25–31. doi: 10.1016/j.ygyno.2020.05.023.
- COVID-19 and the Rule of Law - World | ReliefWeb (2020). Available at: https://reliefweb.int/report/world/covid-19-and-rule-law (Accessed: 11 November 2020).
- Gostin, L. O. (2020) 'The Great Coronavirus Pandemic of 2020—7 Critical Lessons', JAMA, 324(18), pp. 1816–1817. doi: 10.1001/jama.2020.18347.

How did the early stages of the COVID-19 pandemic affect teacher wellbeing?

- The COVID-19 pandemic was unforeseen and has had a major impact upon all of our lives. For teachers, the lockdown and reopening of schools had the potential to have a major impact upon their working lives.
- Yet while work-related anxiety rose for head teachers and (to a lesser extent) private school teachers, lockdown was not generally associated with higher work-related anxiety in state school classroom teachers.
- On the one hand, the profession was plunged into unfamiliar working patterns which particularly affected head teachers. On the other hand, some of the day-to-day stress of managing students in classrooms was removed.
- Work-related anxiety is just one narrow aspect of mental wellbeing. Our results using broader measures were more mixed.
- We found that overall, levels of wellbeing among teachers, as measured by the Warwick-Edinburgh Mental Wellbeing Scale, did not change between October 2019 (pre-pandemic) and April 2020 (the height of lockdown).
- However, different aspects of wellbeing may have been impacted in different ways, with teachers having more energy and feeling more loved, but also being less likely to feel useful and optimistic about the future.
- Moreover, when asked directly about their pandemic experiences, teachers were more likely to agree than disagree that it had negatively impacted their mental health. We have also presented some evidence of some groups being more impacted than others.
- In particular, lockdown seems to have increased work-related anxiety among female teachers slightly more than male teachers, with a bigger impact upon those with children in the household (irrespective of gender).
- Little difference was observed, however, between single and two-parent families. The pandemic is, of course, not yet over.
- We do not really know what the future might bring in terms of local lockdowns and potential further waves. A lot more about COVID-19 and the impact it has on people. Although most of the focus has so far been on the physical health impacts, we are also developing a better understanding of the mental health implications as well.

References

- Rebecca Allen, John Jerrim, How did the early stages of the COVID-19 pandemic affect teacher wellbeing? 2020

10Things we have learned about COVID-19

1. **Young, healthy people are not invulnerable**: Older individuals and those with chronic conditions are at most risk of dying from COVID-19 if infected, but young people can also develop COVID-19 infections. In some cases, young people are more likely to be infected than older people.
2. **We shouldn't panic about contaminated surfaces**: Studies that showed how long the COVID-19 virus could last on surfaces, such as plastic and metal, led to concern that touching contaminated surfaces could be a way to become infected. Now it is clear that although people may pick up the virus if they touch infected surfaces and then touch their face, it is not thought to be the main way the virus is transmitted.
3. **The virus can be airborne**: Although we knew that the COVID-19 virus could be spread via large respiratory droplets, it was unclear whether or not it could spread as an aerosol and was therefore airborne. COVID-19 could spread in airborne particles that can linger in the air for hours, between people who are more than 1.8 meters (6 feet) apart.
4. **People can be infected more than once:** There have been several cases of reinfection. Even though the numbers are miniscule compared to those who are infected, it is possible that additional cases of reinfection are not being counted.
5. **Heat and humidity don't protect against the virus:** This was a popular theory when places like India and Africa did not seem to be as badly hit by COVID-19 as Europe and the USA. However, the spiraling epidemic in India alone has discredited that notion.
6. **Children can spread the virus:** Since children don't have COVID-19 symptoms anywhere near as often as adults, at the start of the pandemic it was not clear how much of a role children were playing in the spread of the virus. A study of 85,000 people and 600,000 of their contacts in India, published in Science, has shown conclusively that children of all ages can become infected and can spread it to other people.
7. **Super-spreaders are a major threat**: Super-spreading events in which one person infects many others, sometimes hundreds, at an event are starting to be seen more often. For example, over 100 people being infected from shaking hands with one infected person at a conference. The study in India showed that super-spreaders are a clear phenomenon - just 5 percent of people accounted for 80 percent of the infections.
8. **People can develop 'long COVID'**: Many people who have been infected with COVID-19 have developed what's known as 'long COVID' where they continue to have symptoms even after the acute illness is over. Data show that it seems to be twice as common in women, although it's not clear why.
9. **People of color are at higher risk in some countries:** COVID-19 has exposed the structural disadvantages faced by Black, Asian and Minority Ethnic (BAME) people who have suffered disproportionately from the virus in many western countries.
10. **Fake news and misinformation can be dangerous**: Fake news, especially shared on social media platforms, can undermine scientific advice and disrupt public health approaches to reducing the spread of the COVID-19 virus.

Reference:

- GAVI- The Vaccine Alliance, https://www.gavi.org/vaccineswork/10-things-we-have-now-learned-about-covid-19, accessed 11/11/20