



## NATIONAL PUBLIC HEALTH EMERGENCY OPERATION CENTER (PHEOC), ETHIOPIA

### COVID-19 PANDEMIC PREPAREDNESS AND RESPONSE IN ETHIOPIA

## WEEKLY BULLETIN

Dates covered by this Bulletin: July 06–July 12, 2020

**BULLETIN No: 11**  
**Issue Date: July 13, 2020**

## I. HIGHLIGHTS

- A total of one-thousand-two-hundred-two new confirmed COVID-19 cases and ten COVID-19 related deaths was reported during the WHO Epi-Week-28.
- As of July 12, 2020, a total of 7,766 COVID-19 confirmed cases and 128 deaths have been reported in Ethiopia so far.
- One-thousand-four-hundred-twenty-two cases have newly recovered from COVID-19 during the WHO Epi-Week-28 bringing the total number of recovered cases to 1,422.
- A total of 47,812 contacts of confirmed cases have been identified as of July 12, 2020. Of these, 8,153 contacts are identified during the WHO Epi-week-28.

## II. BACKGROUND

The Ministry of health (MOH) and Ethiopian Public Health Institute (EPHI) in collaboration with partners have intensified response efforts to prevent the spread and severity of Corona Virus Disease 2019 (COVID-19) in Ethiopia. The central and the regional Public Health Emergency Operation Centers (PHEOC) have been activated and laboratory diagnosis capacity has been expanded to other national institutions, subnational and private laboratories.

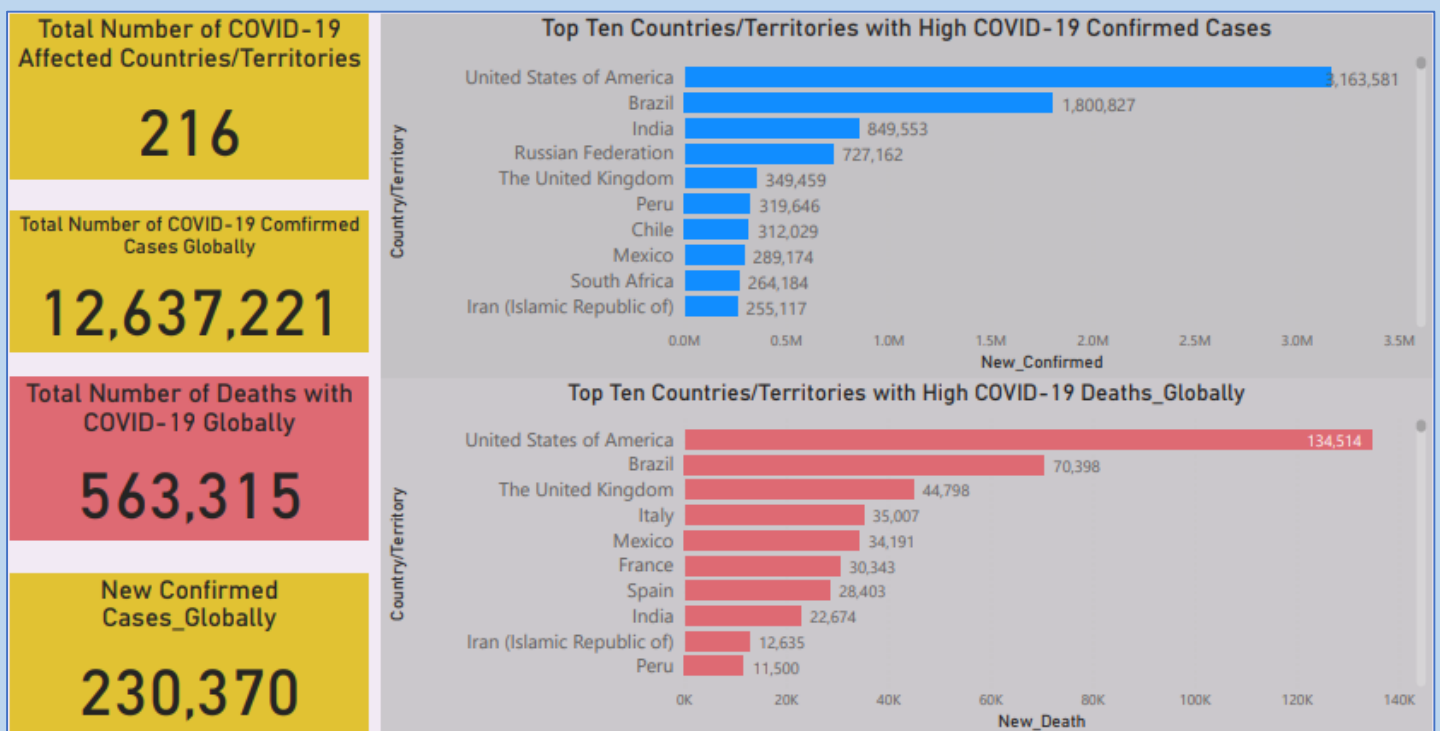
The national and regional PHEOC are playing a pivotal role in coordinating resources from different responding agencies and coordinating COVID-19 related information through a regular EOC meetings and partners' coordination forums. The MOH and EPHI are providing information to the general public and stakeholders on a regular and uninterrupted manner using different means of communication modalities.

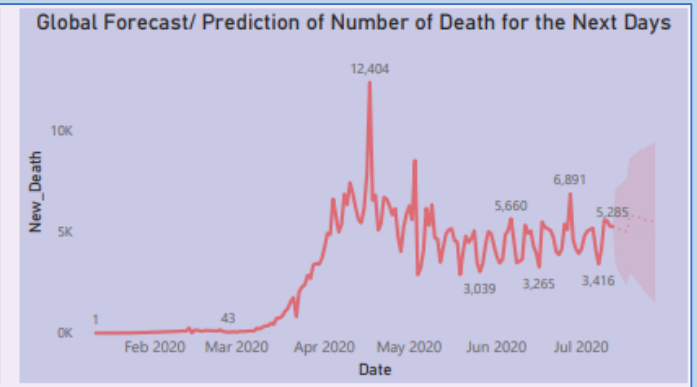
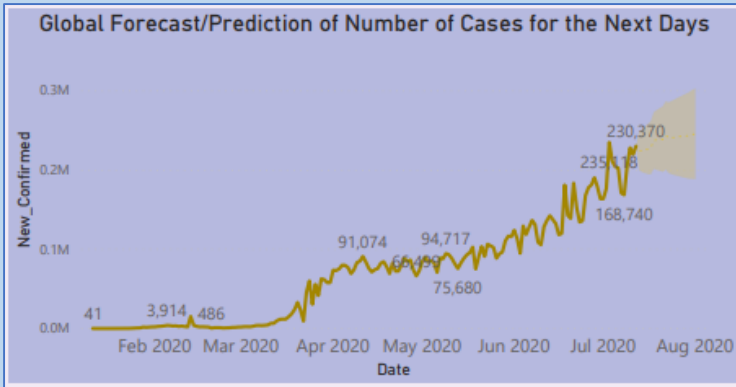
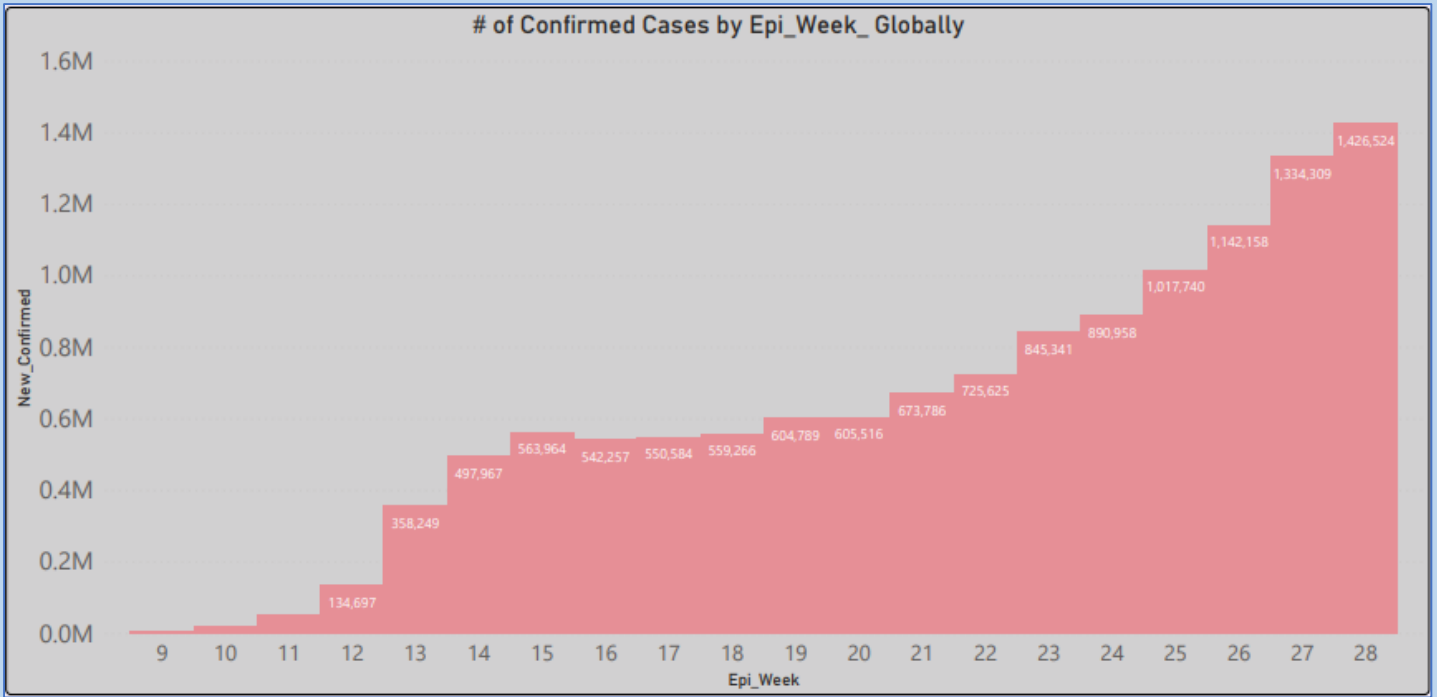
The WHO and other partners are currently supporting in scaling-up preparedness and response efforts and implementation of related recommendations suggested by the IHR Emergency Committee.

### III. EPIDEMIOLOGICAL SITUATION

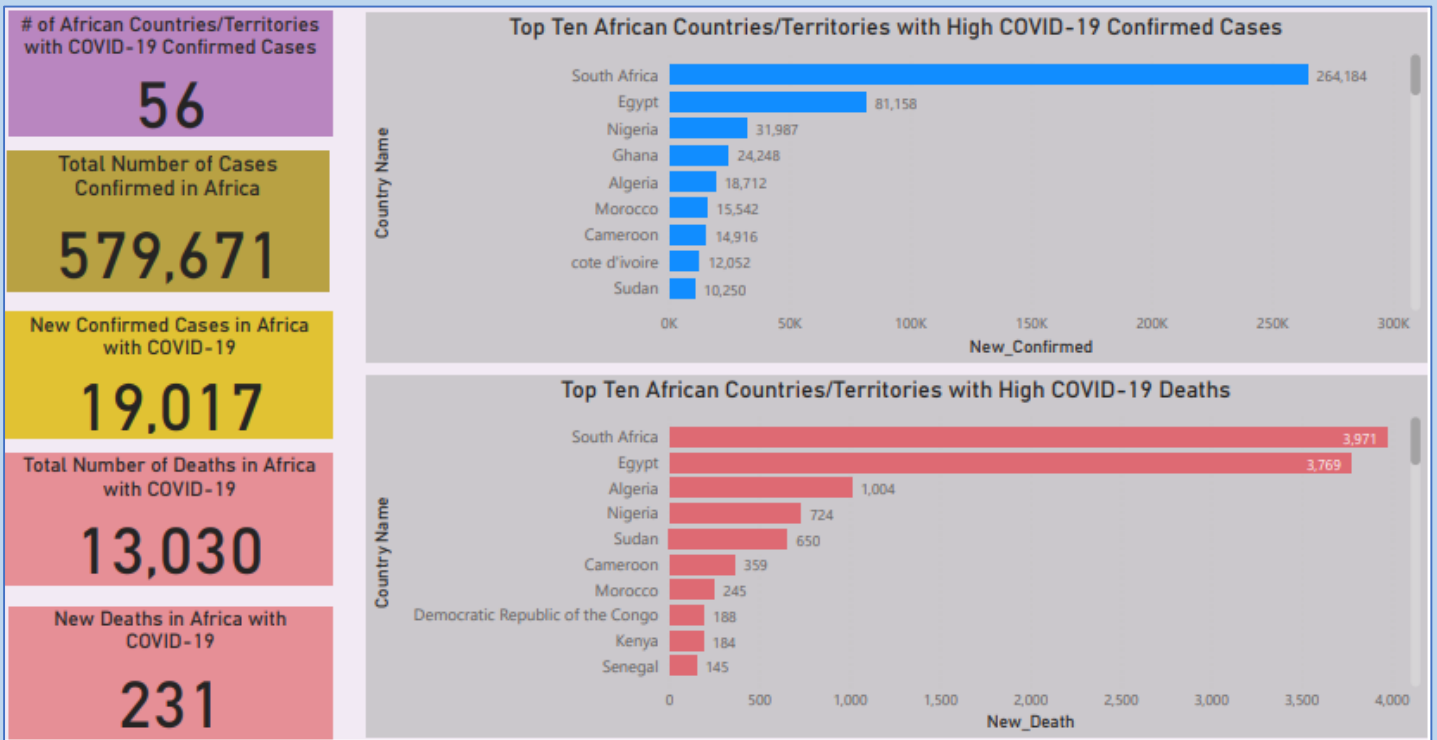
#### Global Situation

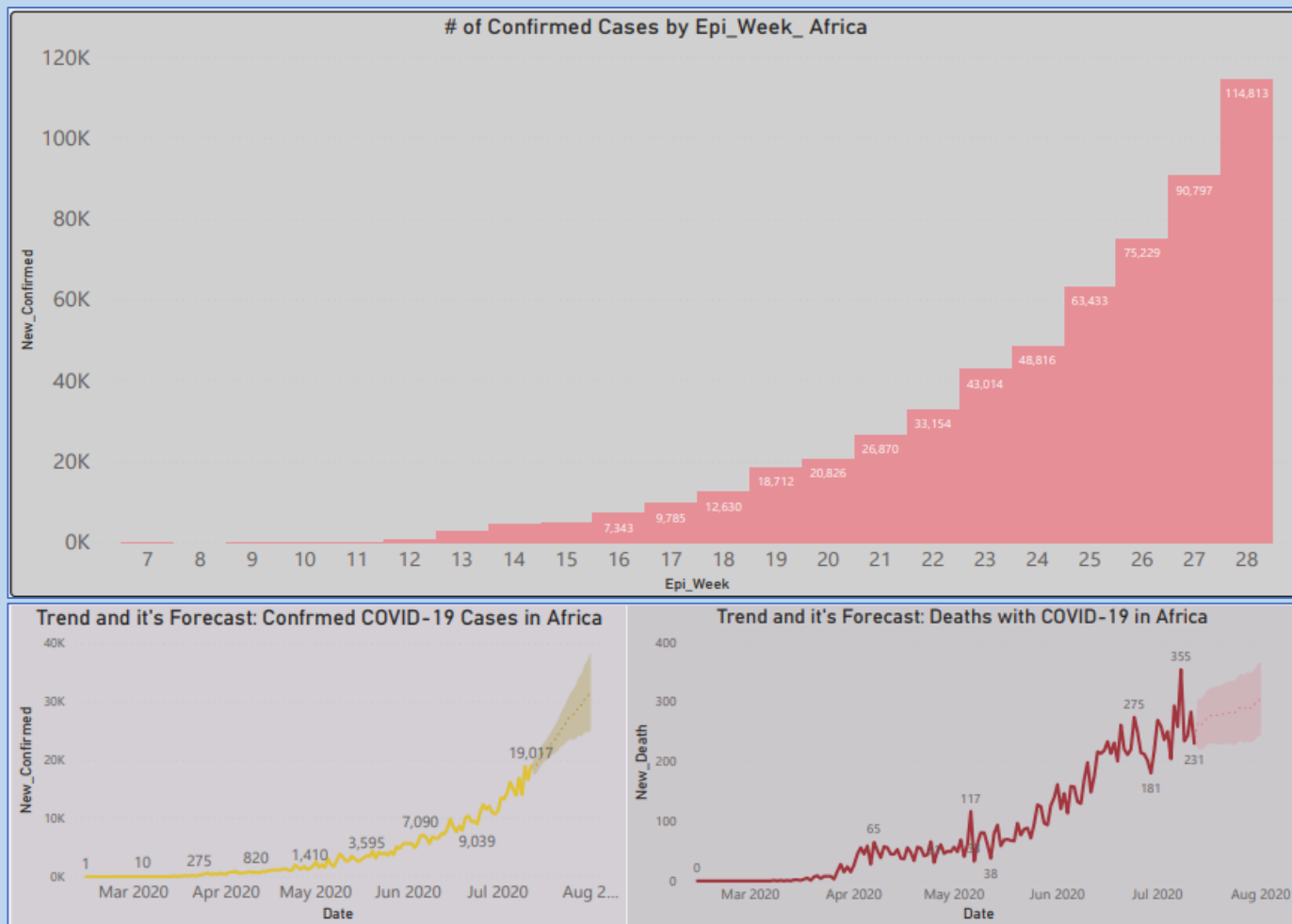
- Between December 2019 to July 12, 2020, COVID-19 pandemic affected 216 countries/territories causing 12,637,221 cases and 563,315 deaths (CFR=4.46%) globally.
- Of the total cases and deaths reported since the beginning of the outbreak, 1,426,776 cases and 29,587 deaths were reported during the WHO Epi-Week-28.
- The United States of America (USA) reported the highest number of cases (3,163,581) and deaths (134,514) with CFR of 4.25% followed by Brazil (1,800,827 cases and 70,398 deaths with a CFR of 3.91%). On Monday, India overtook Russia to become the country with the world’s third-highest number of COVID-19 cases at around 700,000. Among the confirmed cases the highest proportion of death occurred in the United Kingdom with CFR of 12.82%.
- In Africa, 56 countries/territories have reported COVID-19 cases.
- As of July 12, 2020, a total of 579,671 cases and 13,030 deaths were reported across the continent (CFR=2.25%).
- During the WHO-Epi-Week-28, a total of 114,813 (26.45% increment compared to Epi-Week-27) cases and 1902 (17.19% increment compared to Epi-Week-27) deaths were reported across the continent.
- More than half of the COVID-19 cases (60%) and deaths (59%) in Africa were reported from South Africa and Egypt. See the summary dashboard below.





**Fig. 1: Global Situation Update as of May July 12, 2020 (Source: WHO)**

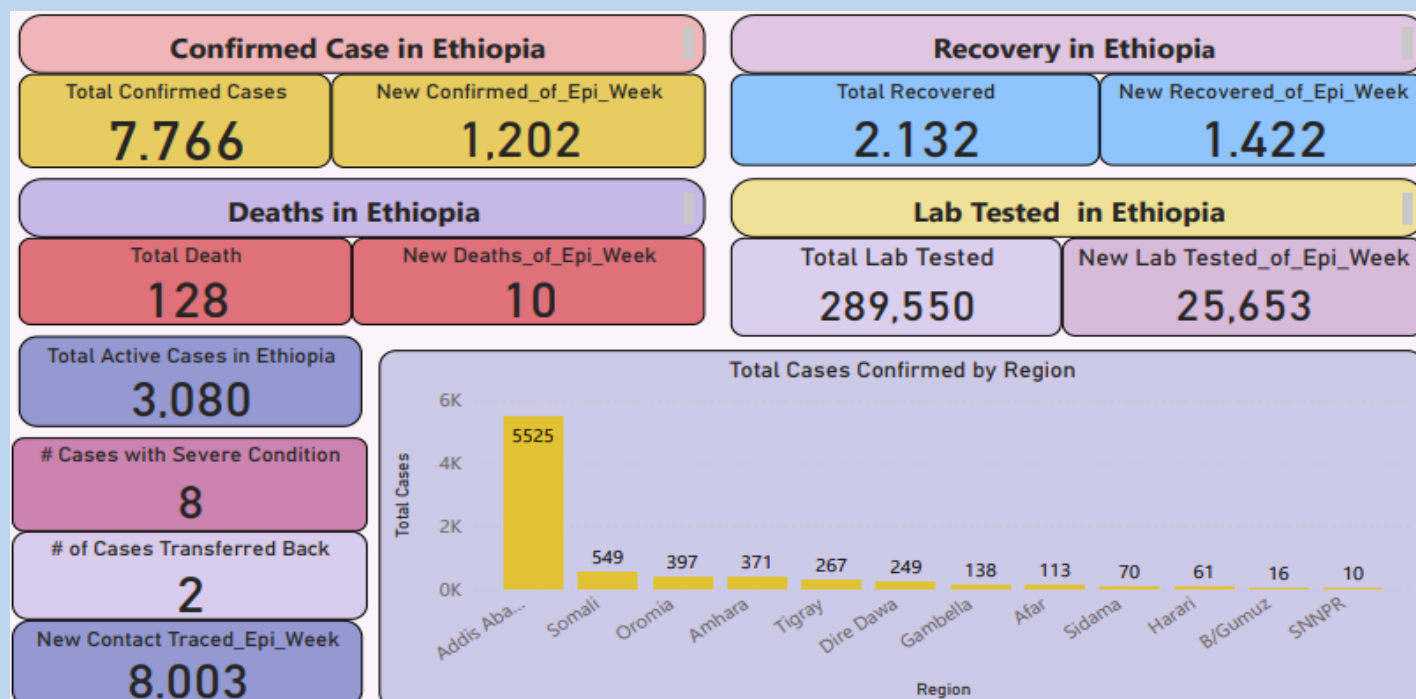


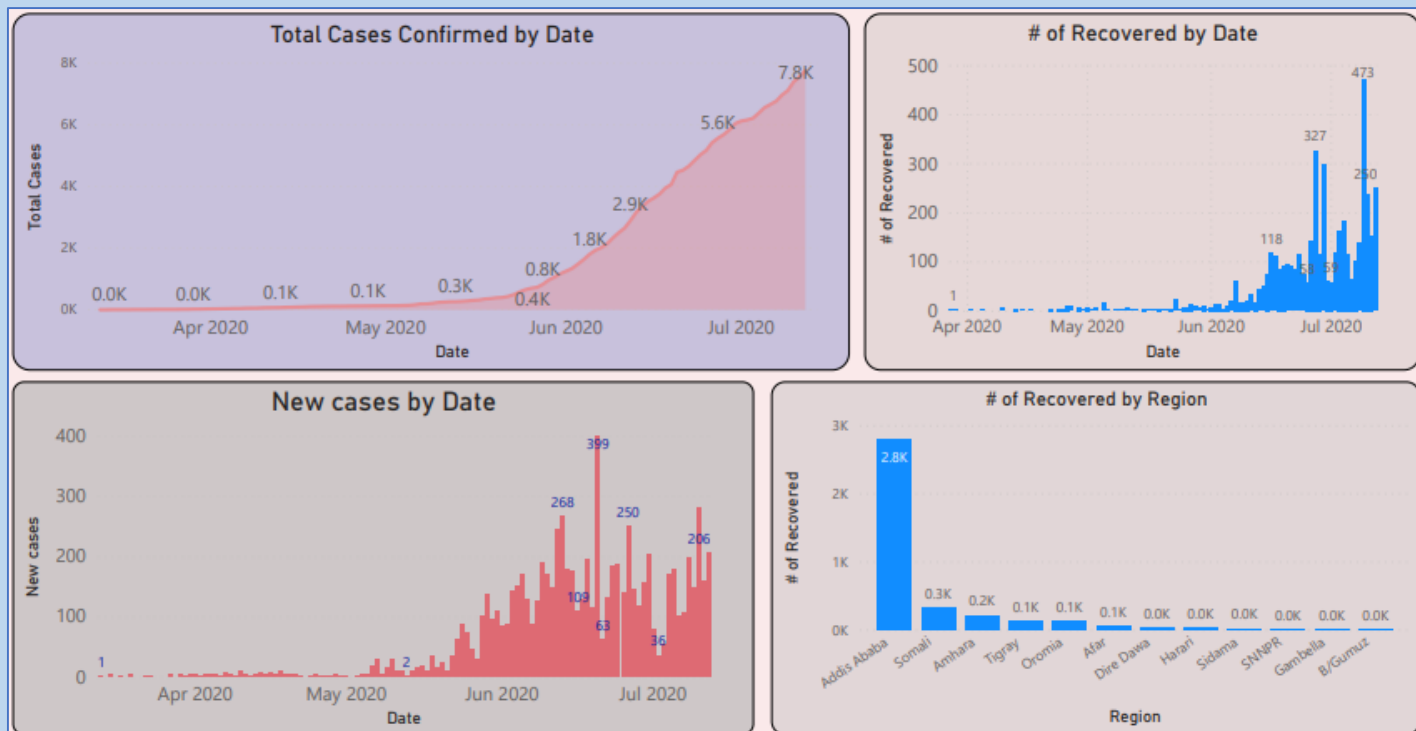


**Fig. 2: Africa Situation Update as of July 12, 2020 (Source: WHO)**

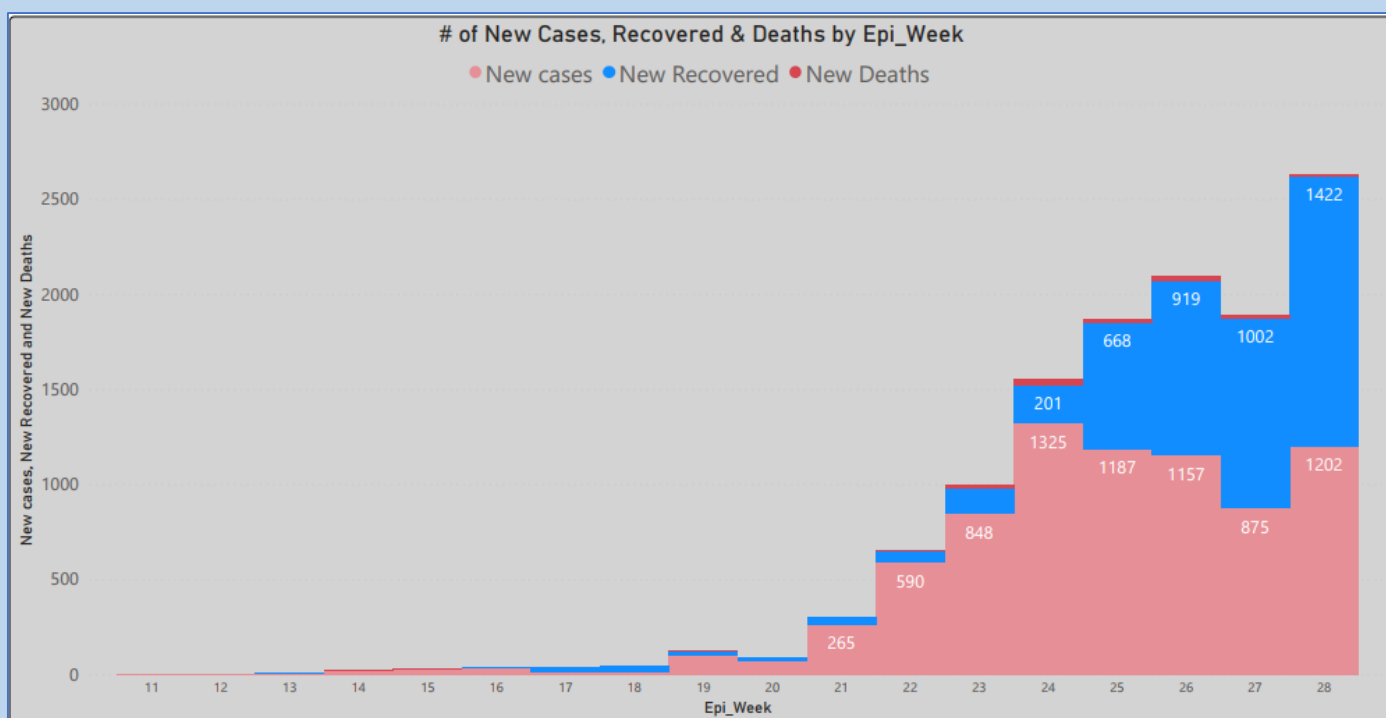
## National COVID-19 situation

- One-thousand-two-hundred-two (1,202) new confirmed COVID-19 cases and ten COVID-19 related deaths were reported during the WHO Epi-Week-28.
- So far, a total of 7,766 confirmed COVID-19 cases and 128 deaths are recorded in the country.





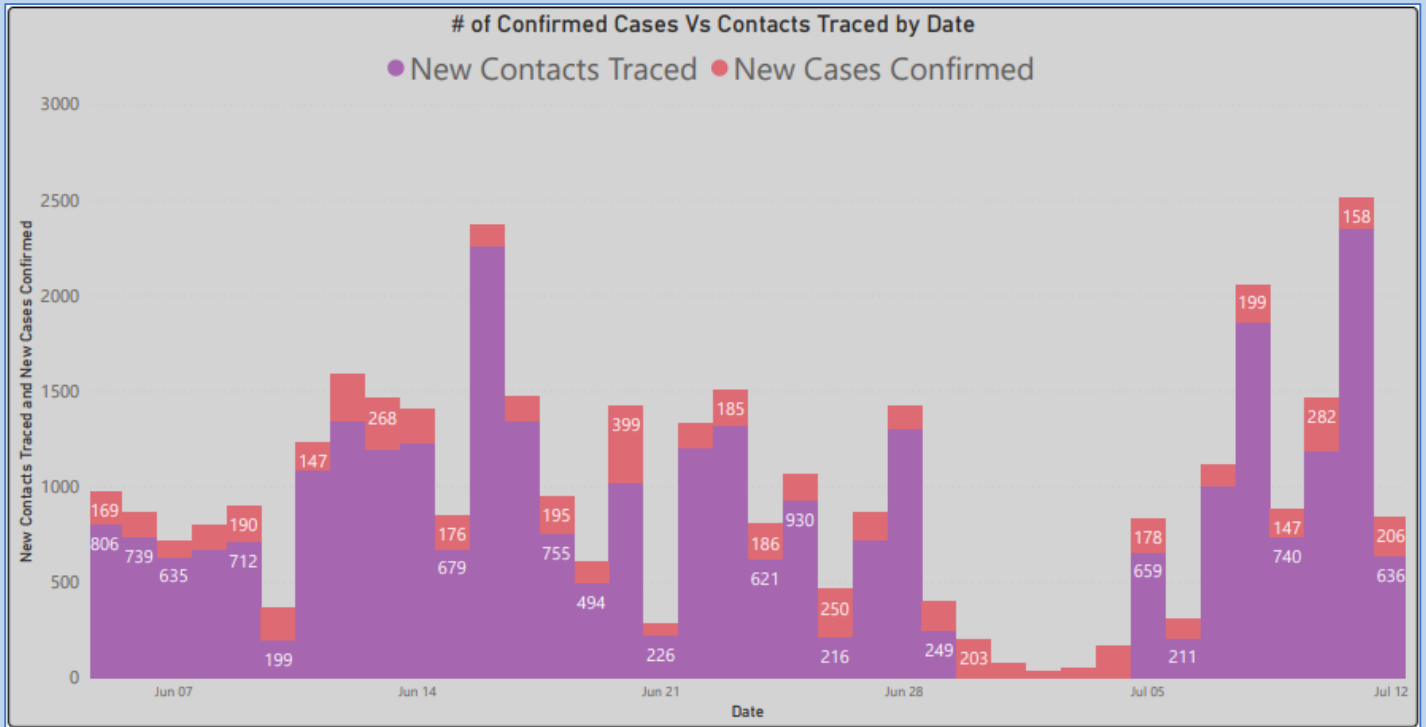
**Fig. 3: Weekly Summary of the COVID-19 situation of in Ethiopia, July 12, 2020**



**Fig. 5: COVID-19 confirmed cases, recovery and death by WHO Epi-Week as of July 12, 2020, Ethiopia**

## Epi Surveillance and Laboratory Related Activities

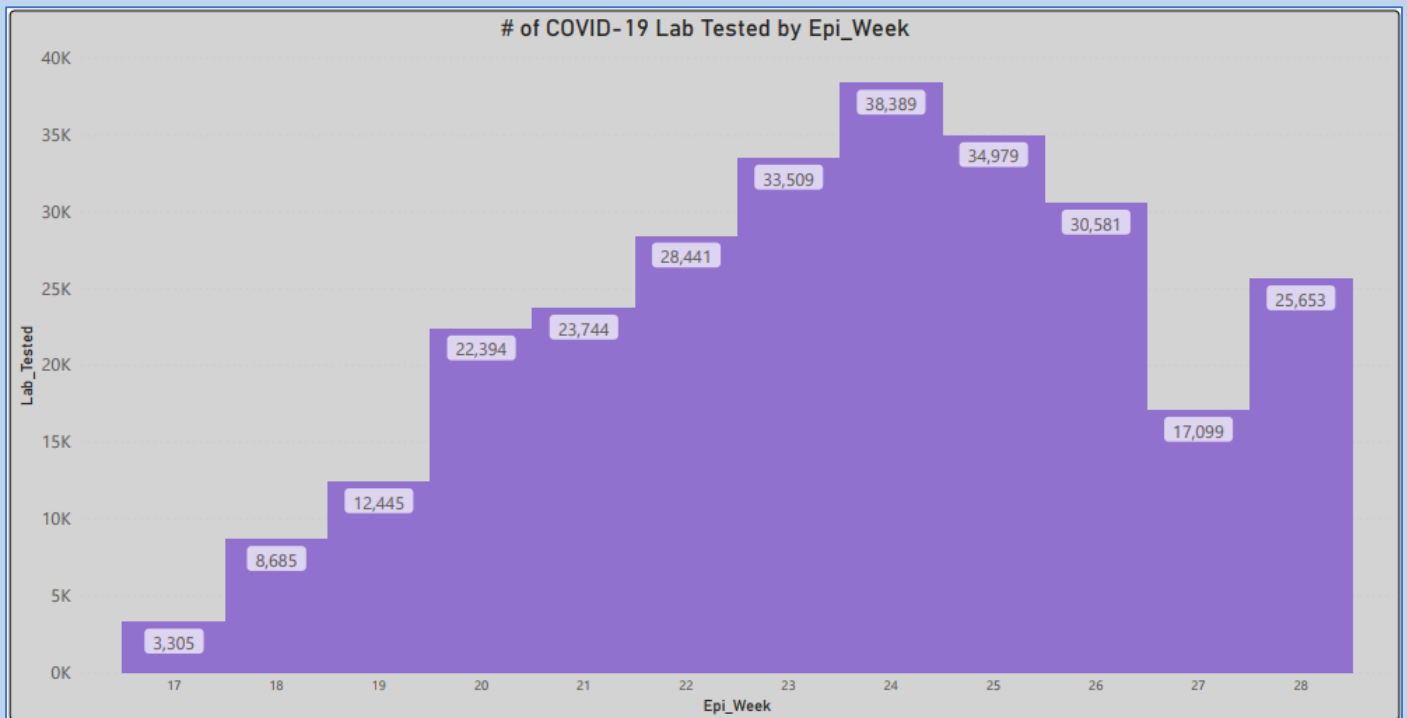
There is ongoing travelers' health screening at point of entries (POEs), follow-up of international travelers, mandatory quarantine of passengers coming to Ethiopia, rumor collection, verification and investigation and information provision via toll free call center, active case detection by house to house search, contact listing, tracing and follow-up of persons who had contact with confirmed cases and laboratory investigation of suspected cases, quarantined individuals, SARI/pneumonia cases and community members.



**Fig. 6: Contact tracing summary dashboard as of July 12, 2020**

### Laboratory related activities

- As of July 12, 2020, a total of 289,550 samples has been tested for COVID-19 by laboratories in the country.
- A total of 25,653 of the total laboratory tests are done during the WHO Epi-Week-28 (50% increment compared to that of Epi-Week-27).



**Fig. 7: Trend COVID-19 laboratory testing by WHO Epi-Week as of July 12, 2020, Ethiopia**

## **IV. Coordination and Leadership**

- Since its activation, the national PHEOC is collaboratively working with stakeholders: government agencies, partner organizations, UN agencies, embassies, hospitality sector, Industrial parks and others.
- Morning briefing of IMS core staffs and key partners' representatives is being conducted on daily basis.
- Weekly virtual (zoom) meeting being conducted with technical working group members, which comprises members from subnational level focal, key partners and stakeholders.
- Weekly leadership and strategic virtual (zoom) meeting, chaired by the H.E MOH Minister being conducted.
- Supports (financial, logistic and technical) are being received from partners, private institutions, individuals and donors.

## **V. Case Management and IPC**

- There are total of 3,080 active COVID-19 cases in the country currently.
- There are eight patients in severe condition and all the other patients are on medical care in stable condition.

## **VI. Risk Communication and Community Engagement (RCCE)**

- Different poster, brochures, audio and video messages focusing on COVID-19 risk perception and practice developed.
- Daily press statement is being provided on COVID-19 situation on daily basis through Mass Media.
- There is ongoing production of COVID-19 informative audio and video messages.

## **VII. Logistic and Supplies**

- There are ongoing distribution of pharmaceuticals and medical supplies to quarantine, isolation and treatment centers.
- Number of governmental and Non-Governmental organizations, individuals and partners have donated different medical supplies and infrastructures for COVID-19 response.
- Customs clearance for donations' shipment is ongoing.

## **VIII. Training and Orientation Activities**

- There is ongoing virtual and in person training and orientation the health care workers on COVID-19.
- Mobile based training for Health Extension Workers (HEWs) is ongoing.

## **IX. Challenges and Way Forward**

### **Challenges**

- Critically low stock of face masks and isolation gown
- Interruption of information sharing and reporting among national and regional Emergency Operations Centers due to closure of internet connection.
- Failure to adhere to physical distancing and other preventions advises among the public.
- Competing priorities due to superimposed disease outbreaks like cholera in some areas of the countries.
- Increasing number of community deaths and late confirmation of COVID-19 during dead body investigation.

### **Way Forward**

- Emergency procurement and stockpiling of IPC materials
- Find out alternative reporting mechanisms to sustain the reporting and information among the Public Health Emergency Operations Centers nationally and regionally.
- Conduct intensive testing of high-risk areas for COVID-19.
- Enhance technical support, coordination and timely and accurate information sharing at all levels.
- Strengthened collaboration and coordination with key stakeholders and partners.
- Intensify risk communication and community engagement activities.
- Enhance active surveillance for COVID-19 such as house-to-house case search and detection in the community.
- Intensification of a capacity building trainings and orientation including through virtual/online platforms.
- Identify and establish additional case treatment centers and quarantine sites, especially in regions.
- Strengthen and sustain essential health services other than COVID-19.



## X. Public Health Policy Recommendation

### Advice for the Public:

- The number of COVID-19 cases are increasing rapidly due to the presence of community transmission. Anyone of Can be the next person to acquire COVID-19, but we can prevent it if we act now. We need to practice all of the COVID-19 prevention methods in order to stay alive and healthy.
- It is important to be informed of the situation and take appropriate measures to protect yourself and your family.
  - Stay at home
  - Wash hands frequently
  - Don't touch your mouth, nose or eye by unwashed hands
  - Keep physical distancing; avoid mass gathering, shaking hands and
- For most people, COVID-19 infection will cause mild illness however, it can make some people very ill and, in some people, it can be fatal.
- Older people, and those with pre-existing medical conditions (such as cardiovascular disease, chronic respiratory disease or diabetes) are at risk for severe disease.
- If anybody had contact with a COVID-19 confirmed patient, he/she should call 8335 or 952 or report to regional toll-free lines or to the nearby health facilities.

### National/Regional official websites, social media pages and toll free hotline for COVID-19 information

MOH/EPHI/Region	Facebook page	Toll-free hotline
Ethiopian Public Health Institute Main Website	<a href="https://www.ephi.gov.et/">https://www.ephi.gov.et/</a>	8335
Ethiopian Public Health Institute COVID-19 Website	<a href="https://covid19.ephi.gov.et/">https://covid19.ephi.gov.et/</a>	
Ethiopian Public Health Institute Facebook Page	<a href="https://www.facebook.com/ephipage/">https://www.facebook.com/ephipage/</a>	
Ethiopian Public Health Institute Twitter Page	<a href="https://twitter.com/EPHIethiopia">https://twitter.com/EPHIethiopia</a>	
Ministry of Health, Ethiopia Website	<a href="http://www.moh.gov.et">www.moh.gov.et</a>	952
Ministry of Health, Ethiopia Facebook Page	<a href="https://www.facebook.com/EthiopiaFMoH/">https://www.facebook.com/EthiopiaFMoH/</a>	

Afar Regional Health Bureau	<a href="https://www.facebook.com/afarrhb.org/">https://www.facebook.com/afarrhb.org/</a>	6220
Amhara Regional Health Bureau	<a href="https://www.facebook.com/Amhara-Healthbureau-682065755146948/">https://www.facebook.com/Amhara-Healthbureau-682065755146948/</a>	6981
Benishangul Gumuz Regional Health Bureau	<a href="https://www.facebook.com/Benishangul-Gumuz-Health-Bureau-1676282159265517/">https://www.facebook.com/Benishangul-Gumuz-Health-Bureau-1676282159265517/</a>	6016
Gambela Regional Health Bureau	<a href="https://fb.me/gambellaregionhealthbureau">https://fb.me/gambellaregionhealthbureau</a>	6184
Harari Regional Health Bureau	<a href="https://www.facebook.com/Harari-Regional-Health-Bureau-1464182130355007/">https://www.facebook.com/Harari-Regional-Health-Bureau-1464182130355007/</a>	6864
Oromia Regional Health Bureau	<a href="https://www.facebook.com/OromiaHealth/">https://www.facebook.com/OromiaHealth/</a>	6955
Somali Regional Health Bureau	<a href="https://www.facebook.com/srhbdotcom/">https://www.facebook.com/srhbdotcom/...</a>	6599
SNNP Regional Health Bureau	<a href="https://www.facebook.com/snnprhealthbureau/?ref=br_rs">https://www.facebook.com/snnprhealthbureau/?ref=br_rs</a>	6929
Tigray Regional Health Bureau	<a href="https://www.facebook.com/tigrayrhb/">https://www.facebook.com/tigrayrhb/</a>	6244
Dire Dawa city Administration Health Bureau	<a href="https://www.facebook.com/Dire-Dawa-Administration-Health-Bureau-1371606266279524/">https://www.facebook.com/Dire-Dawa-Administration-Health-Bureau-1371606266279524/</a>	6407
Addis Ababa City Administration Health Bureau	<a href="https://www.facebook.com/aahb.gov.et/">https://www.facebook.com/aahb.gov.et/</a>	6406

## Health Evidence summary

Articles/Comment/ Correspondence/ Editorials	Summary
Association Between Mobility Patterns and COVID-19 Transmission in the USA: A Mathematical Modelling Study. <a href="https://doi.org/10.1016/s1473-3099(20)30553-3">https://doi.org/10.1016/s1473-3099(20)30553-3</a>	<ul style="list-style-type: none"> <li>• Epidemiological data was used to compute the COVID-19 growth rate ratio on a given day in USA.</li> <li>• The effect of changes in mobility patterns, which dropped by 35-63% relative to the normal conditions, on COVID-19 transmission are not likely to be perceptible for 9-12 days, and potentially up to 3 weeks, which is consistent with the incubation time of severe acute respiratory syndrome coronavirus 2 plus additional time for reporting.</li> <li>• This study strongly supports a role of social distancing as an effective way to mitigate COVID-19 transmission. Until a COVID-19 vaccine is widely available, social distancing will remain one of the primary measures to combat disease spread.</li> </ul>
Effects of the COVID-19 pandemic on supply and use of blood for transfusion. <a href="https://doi.org/10.1016/S2352-3026(20)30186-1">https://doi.org/10.1016/S2352-3026(20)30186-1</a>	<ul style="list-style-type: none"> <li>• Relevant studies addressing the transfusion chain from donor, through collection and processing, to patients to provide a synthesis of the published literature and guidance during times of potential or actual shortage was done.</li> <li>• A reduction in donor numbers has largely been matched by reductions in demand for transfusion.</li> <li>• A range of strategies maintain ongoing equitable access to blood for transfusion during the pandemic, in addition to providing new therapies such as convalescent plasma.</li> <li>• Sharing experience and developing expert consensus on the basis of evolving publications will help transfusion services and hospitals in countries at different stages in the pandemic.</li> </ul>
What Dentists Need to Know About COVID-19. <a href="https://doi.org/10.1016/j.oraloncology.2020.104741">https://doi.org/10.1016/j.oraloncology.2020.104741</a>	<ul style="list-style-type: none"> <li>• This article aimed at collecting all information needed for dentists regarding the COVID-19 pandemic throughout the world by reviewing articles published.</li> <li>• Given that COVID-19 has lately been detected in infected patients' saliva, the COVID-19 outbreak is an alert that all dental and other health professionals must be vigilant in defending against the infectious disease spread, and it may enable to assess whether non-invasive saliva diagnostic for COVID-19.</li> <li>• There has so far been no evidence from randomized controlled trials to prescribe any particular anti-nCoV treatment or vaccine, and COVID-19 management has been widely supportive.</li> <li>• Since the ACE-2 was expressing on oral cavity mucosa, there is a potentially huge COVID-19 infectious vulnerability risk for oral cavity and brought up a proof for the future prevention procedure in dental practice and daily life.</li> <li>• As a result, the whole dental teams should be vigilant and keep patients and themselves in a safe environment by following the guideline in this study.</li> </ul>

<p>Potential Pharmacological Agents for COVID-19.  <a href="https://doi.org/10.4103/ijph.ijph_456_20">https://doi.org/10.4103/ijph.ijph_456_20</a></p>	<ul style="list-style-type: none"> <li>• Currently, the management of COVID-19 infection is mainly supportive.</li> <li>• Several clinical trials worldwide are evaluating several drugs approved for other indications, as well as multiple investigational agents for the treatment and prevention of COVID-19.</li> <li>• Here, authors give a brief overview of pharmacological agents and other therapies which are under investigation as treatment options or adjunctive agents for patients infected with COVID-19 and for chemoprophylaxis for the prevention of COVID-19 infection.</li> <li>• At the time of writing this commentary, there is no peer-reviewed published evidence from randomized clinical trials of any pharmacological agents improving outcomes in COVID-19 patients.</li> <li>• However, it was reported that remdesivir an investigational antiviral agent hastens clinical recovery, but a study is yet to be published in peer-reviewed medical journal.</li> </ul>
<p>Pre-outbreak determinants of perceived risks of corona infection and preventive measures taken. A prospective population-based study.  <a href="https://doi.org/10.1371/journal.pone.0234600">https://doi.org/10.1371/journal.pone.0234600</a></p>	<ul style="list-style-type: none"> <li>• Data were collected in longitudinal LISS panel, based on a random sample of the Dutch population.</li> <li>• About 15% perceived the risk of infection as high, and 11% the risk of becoming ill when infected.</li> <li>• Multivariable logistic regression analyses showed, older age-groups perceived the risk for coronavirus infection as lower.</li> <li>• In total, 43.8% had taken preventive measures, especially females.</li> <li>• Those with lower education levels less often used preventive measures. Those with pre-outbreak respiratory problems, heart problems and diabetes perceived the risk of becoming ill when infected as higher than others.</li> <li>• However, respondents with pre-outbreak respiratory problems and diabetes did not more often take preventive measures.</li> <li>• In conclusion, vulnerable patients more often recognize that they are at risk of becoming ill when infected by the coronavirus, but many do not take preventive measures.</li> <li>• Interventions to stimulate the use of preventive measures should pay additional attention to physically vulnerable patients, males and those with lower education levels.</li> </ul>
<p>Increasing handwashing in young children: A brief review.  <a href="https://doi.org/10.1002/jaba.732">https://doi.org/10.1002/jaba.732</a></p>	<ul style="list-style-type: none"> <li>• This review summarizes research on behavioral strategies to address handwashing in children, offers areas for additional research, and suggests a treatment package to teach handwashing to young children.</li> <li>• Strategies include,</li> <li>• Various antecedent strategies for teaching handwashing in young children include providing rationales and instructions, modeling proper hand washing, and providing vocal and visual prompts.</li> <li>• Consequence strategies used to teach handwashing to young children include providing visual feedback, implementing error correction, and providing rewards. Providing visual feedback indicating how well children are washing their hands has been evaluated in several studies.</li> <li>• Overall, results of studies examining intervention strategies for handwashing with young children suggest that a combination of both antecedent and consequence strategies should be used to teach and maintain appropriate handwashing.</li> </ul>
<p>The Role of Remdesivir in South Africa: Preventing COVID-19 Deaths Through Increasing ICU Capacity.  <a href="https://doi.org/10.1093/cid/ciaa937">https://doi.org/10.1093/cid/ciaa937</a></p>	<ul style="list-style-type: none"> <li>• Countries such as South Africa have limited intensive care unit (ICU) capacity to handle the expected number of COVID-19 patients requiring ICU care.</li> <li>• Remdesivir can prevent deaths in countries such as South Africa by decreasing the number of days people spend in ICU, therefore freeing up ICU bed capacity.</li> </ul>
<p>Rapid detection of novel coronavirus/Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) by reverse</p>	<ul style="list-style-type: none"> <li>• The objective of this study was to develop a rapid screening diagnostic test that could be completed in 30–45 minutes.</li> <li>• Simulated patient samples were generated by spiking serum, urine, saliva, oropharyngeal swabs, and nasopharyngeal swabs with a portion of the SARS-CoV-2 nucleic sequence.</li> </ul>

<p>transcription-loop-mediated isothermal amplification.  <a href="https://doi.org/10.1371/journal.pone.0234682">https://doi.org/10.1371/journal.pone.0234682</a></p>	<ul style="list-style-type: none"> <li>• RNA isolated from nasopharyngeal swabs collected from actual COVID-19 patients was also tested.</li> <li>• The samples were tested using RT-LAMP as well as by conventional qRT-PCR.</li> <li>• Specificity of the RT-LAMP was evaluated by also testing against other related coronaviruses. RT-LAMP specifically detected SARS-CoV-2 in both simulated patient samples and clinical specimens.</li> <li>• This test was performed in 30–45 minutes. This approach could be used for monitoring of exposed individuals or potentially aid with screening efforts in the field and potential ports of entry.</li> </ul>
<p>Quantitative Method for Comparative Assessment of Particle Removal Efficiency of Fabric Masks as Alternatives to Standard Surgical Masks for PPE.  <a href="https://doi.org/10.1016/j.mat.2020.07.006">https://doi.org/10.1016/j.mat.2020.07.006</a></p>	<ul style="list-style-type: none"> <li>• Tools and methods typically used to assess tight-fitting respirators were modified to quantify the efficacy of community- and commercially-produced fabric masks as PPE.</li> <li>• Two particle counters concurrently sample ambient air and air inside the masks; mask performance is evaluated by mean particle removal efficiency and statistical variability when worn as designed and with a nylon overlayer, to independently assess fit and material. Worn as designed, both commercial surgical masks and cloth masks had widely varying effectiveness (53-75% and 28-90% particle removal efficiency, respectively).</li> <li>• Most surgical-style masks improved with the nylon overlayer, indicating poor fit.</li> <li>• In conclusion, surgical masks removed 53-75% of particles &lt; 300 nm from air when worn as designed</li> <li>• Cloth masks ranged in particle removal efficiency from 28% to 91% when worn as designed</li> <li>• A nylon overlayer improved particle removal efficiency of many masks by minimizing gaps</li> </ul>
<p>Rate of Intensive Care Unit admission and outcomes among patients with coronavirus: A systematic review and Meta-analysis.  <a href="https://doi.org/10.1371/journal.pone.0235653">https://doi.org/10.1371/journal.pone.0235653</a></p>	<ul style="list-style-type: none"> <li>• A comprehensive strategy was conducted in PubMed/Medline; Science direct and LILACS from December 2002 to May 2020 without language restriction for this review.</li> <li>• A total of 646 articles were identified from different databases and 50 articles were selected for evaluation.</li> <li>• Thirty-seven Articles with 24983 participants were included. The rate of ICU admission was 32% .</li> <li>• The Meta-Analysis revealed that the pooled prevalence of mortality in patients with coronavirus disease in ICU was 39% (95% CI: 34 to 43, 37 studies and 24, 983 participants).</li> <li>• In conclusion, the Meta-Analysis revealed that approximately one-third of patients admitted to ICU with severe Coronavirus disease and more than thirty percent of patients admitted to ICU with a severe form of COVID-19 for better care died which warns the health care stakeholders to give attention to intensive care patients.</li> </ul>
<p>Review of Indoor Aerosol Generation, Transport and Control in the Context of COVID-19.  <a href="https://doi.org/10.1002/alr.22661">https://doi.org/10.1002/alr.22661</a></p>	<ul style="list-style-type: none"> <li>• The coronavirus disease 2019 (COVID-19) pandemic has heightened awareness of aerosol generation by human expiratory events and their potential role in viral respiratory disease transmission.</li> <li>• Concerns over high Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) viral burden of mucosal surfaces has raised questions about the aerosol generating potential and dangers of many otorhinolaryngologic procedures.</li> <li>• However, the risks of aerosol generation and associated viral transmission by droplet or airborne routes for many otorhinolaryngology procedures are largely unknown.</li> <li>• Indoor aerosol and droplet viral respiratory transmission risk is influenced by four factors: 1) aerosol or droplet properties, 2) indoor airflow, 3) virus-specific factors, and 4) host-specific factors.</li> <li>• Understanding principles of infectious transmission, aerosol and droplet generation, as well as concepts of indoor airflow, will aid in the integration of new data on SARS-CoV-2 transmission and activities that can generate</li> </ul>

	aerosol to best inform on the need for escalation or de-escalation from current societal and institutional guidelines for protection during aerosol generating procedures.
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**COVID-19 updates and sources of evidence:**

Source	Link
WHO Coronavirus (COVID-19) dashboard	<a href="https://covid19.who.int/">https://covid19.who.int/</a>
Africa CDC Dashboard, COVID-19 Surveillance Dashboard	<a href="https://au.int/en/covid19">https://au.int/en/covid19</a>
WHO COVID-19 daily situation reports	<a href="https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports">https://www.who.int/emergencies/diseases/novel-coronavirus-2019/situation-reports</a>
WHO Academy mobile learning app for health workers, COVID-19 information	Android- <a href="https://play.google.com/store/apps/details?id=org.who.WHO.A">https://play.google.com/store/apps/details?id=org.who.WHO.A</a> Apple- <a href="https://apps.apple.com/us/app/who-academy/id1506019873">https://apps.apple.com/us/app/who-academy/id1506019873</a>

**8335 / 952**



**Call-Centers**  
**FOR MORE INFO and**  
**ALERT NOTIFICATION on**  
**COVID-19**



The above presented Quick Reader (QR) code takes you to a portal that you can access updates and all COVID-19 related information available (<https://www.ephi.gov.et/index.php/public-health-emergency/novel-corona-virus-update>)

**DISCLAIMER**

This weekly bulletin is produced based on figures pulled from official releases of the World Health Organization and activities and reports of all the sections under the Incident management System. This Weekly Bulletin series of publications is published by the Ethiopian public health Institute (EPHI), public health emergency operation center (PHEOC). The aim of this bulletin is to inform decision makers within the institute and FMOH, UN agencies and NGOs about COVID-19 preparedness and response activities. All interested health and other professionals can get this bulletin at the Institute website; [www.ephi.gov.et](http://www.ephi.gov.et)

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**FOR MORE INFORMATION and NOTIFICATION**

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Email: [ephieoc@gmail.com](mailto:ephieoc@gmail.com) or [pheodatacenter@gmail.com](mailto:pheodatacenter@gmail.com)