COVID-19 Scientific and Public Health Policy Update¹ – (06 October 2020)

In addition to our Weekly Outbreak Brief on the spread of COVID-19 and the actions that Africa CDC is taking to help African Union Member States. Africa CDC shares a weekly brief detailing the latest developments in scientific knowledge and public health policy from around the world, as well as updates to the latest guidance from WHO and other public health agencies. Contents of this document are not intended to serve as recommendations from the Africa CDC; rather, it is a summary of the scientific information available in the public space to Member States. It is important to note that the outbreak is evolving rapidly and that the nature of this information will continue to change. We will provide regular updates to ensure Member States are informed of the most critical developments in these areas.

A. Executive summary

- Two preprint studies demonstrated that SARS-CoV2 D614G substitution enhances infectivity, replication fitness, and early transmission in hamsters. Findings indicate the D614G variant exhibited significantly faster droplet transmission between hamsters and clinical evidence that the D614G mutation could enhance viral loads in the upper respiratory tract of COVID-19 patients and may increase transmission. (Pre-print, not peer-reviewed).

- A retrospective, propensity score-matched case-control study reports oxygen requirements on day 14 worsened in 18% of convalescent plasma recipients versus 28% of matched controls hospitalised COVID-19 patients, although survival was improved in plasma recipients. In India, the PLACID trial reports that convalescent plasma was not associated with a reduction in mortality or progression to severe disease; it was associated with resolution of dyspnea and supplemental oxygen requirement and with early elimination of SARS-CoV-2 RNA. (Pre-print, not peer-reviewed).

- Whereas, a retrospective study of severe or critically ill COVID-19 patients in Turkey treated with convalescent plasma (CP) along with the antiviral treatment reports the effectiveness of CP in COVID-19 patients and reduced the case fatality rate (CFR).

- A retrospective cohort study suggests that the incidence of active SARS-CoV-2 infections did not differ between patients receiving hydroxychloroquine and patients not receiving hydroxychloroquine. Hydroxychloroquine was not associated with a preventive effect against SARS-CoV-2 infection in a large group of patients with rheumatological conditions.

¹ This update compiled for use by Africa CDC and African Union Member States and is developed in collaboration with the World Health Organization - Regional Office for Africa. This is a preliminary summary of information and not considered policy, guidance, or final conclusions of the Africa CDC or the African Union.
• Findings from a randomized clinical trial indicate no clinical benefit of hydroxychloroquine administered daily for 8 weeks as pre-exposure prophylaxis in hospital-based Healthcare Workers (HCWs) exposed to patients with COVID-19.

• Three studies report on the phylogenetic analysis of African SARS-CoV-2 genomes deposited in GISAID and NCBI database, findings suggest that distinct patterns of viral clades in the West African countries point at its emergence from Europe and China via Asia and Europe. Phylogenetic tree analyses demonstrated variability across the various regions/countries in Africa as there were different clades in the viral proteins. However, a substantial proportion of these mutations (90%) were similar to those described in all the other settings, including the Wuhan strain. There were, however, novel mutations in the genomes of the circulating strains of the virus in African countries. *(Pre-print, not peer-reviewed).*
Since 23 September 2020,

- US CDC has published new guidance and resources on:
  - Guidance for Reopening Buildings After Prolonged Shutdown or Reduced Operation;
  - Interim Laboratory Biosafety Guidelines for Handling and Processing Specimens; Associated with Coronavirus Disease 2019 (COVID-19);
  - Overview of Testing for SARS-CoV-2 (COVID-19);
  - COVID-19 Parental Resources Kit – Young Adulthood;
  - COVID-19 Parental Resources Kit – Childhood;
  - Guidance for General Population Disaster Shelters During a Pandemic
  - Public Health Guidance for Potential COVID-19 Exposure Associated with International or Domestic Travel;
  - Interim Operational Considerations for Public Health Management of Healthcare; Workers Exposed to or with Suspected or Confirmed COVID-19: non-U.S. Healthcare Settings;

- WHO has published new guidance and resources on:
  - Emergency Global Supply Chain System (COVID-19) catalogue

- FDA has issued press releases on:
  - FDA authorized 252 tests under Emergency Use Authorizations (EUAs); these include 202 molecular tests, 46 antibody tests, and 4 antigen tests;
  - FDA has identified more than 1094 fraudulent and unproven medical products related to COVID-19.

- ECDC has issued new resource on:
  - A Threat Assessment Brief on re-infection, following reports of cases with suspected or possible re-infection with SARS-CoV-2;
  - The 12th update of its risk assessment on COVID-19 in the EU/EEA and the UK, evaluating the risk of COVID-19 in coming weeks and months with particular attention to the impact on healthcare services due to the increase of COVID-19 cases observed following the summer and the lifting of some control and preventive measures. This was a reminder that the pandemic is far from over.

- PHE has issued new resource on:
  - COVID-19: investigation and initial clinical management of possible cases;
COVID-19: management of staff and exposed patients and residents in health and social care settings;
COVID-19: how to work safely in care homes
COVID-19: guidance for first responders

The full list of latest guidance and resources from WHO and other public health institutions can be found in this link.

C. Scientific updates

Basic Science

• This study demonstrates that the NRF2 antioxidant gene expression pathway is suppressed in biopsies obtained from COVID-19 patients. NRF2 agonists 4-OI and DMF induce a distinct IFN-independent antiviral program that is broadly effective in limiting virus replication and in suppressing the pro-inflammatory responses of human pathogenic viruses, including SARS-CoV2.

• This study engineered SARS-CoV-2 variants harbouring the D614G substitution with or without nanoluciferase. Findings indicate the D614G variant exhibited significantly faster droplet transmission between hamsters than the WT virus, early after infection. This study demonstrated the SARS-CoV2 D614G substitution enhances infectivity, replication fitness, and early transmission. (Pre-print, not peer-reviewed).

• This study engineered the D614G mutation in the SARS-CoV-2 USA-WA1/2020 strain and characterize its effect on viral replication, pathogenesis, and antibody neutralization. The D614G mutation significantly enhances SARS-CoV-2 replication on human lung epithelial cells and primary human airway tissues. The hamster results confirm clinical evidence that the D614G mutation enhances viral loads in the upper respiratory tract of COVID-19 patients and may increase transmission. (Pre-print, not peer-reviewed).

Epidemiology

• A cross-sectional study of two seroprevalence surveys in 133 sentinel cities in all Brazilian states included 25,025 participants in the first survey (May 14–21) and 31,165 in the second (June 4–7). Findings suggest city-level prevalence ranged from 0% to 25·4% in both surveys. 69% of 16 cities with prevalence above 2·0% in the first survey and the second survey prevalence above 2·0% reported. Antibody prevalence was highly heterogeneous by country region, with a rapid initial escalation in Brazil's north and northeast.

• A case report of two asymptomatic individuals, who were healthcare workers in the COVID-19 unit of a tertiary hospital in North India, tested positive for SARS-CoV-2 in May. Findings suggest reinfection of the two individuals on
21st August and 5th September. Both individuals were again asymptomatic but had a higher viral load on the second episode of reinfection. Genomic analysis showed that the SARS-CoV-2 that infected the workers the second time was genetically different from the first virus that infected them.

- A systematic review and meta-analysis including 32 studies report on the susceptibility to and transmission of SARS-CoV-2 among children and adolescents compared with adults. Preliminary evidence suggests that children have a lower susceptibility to SARS-CoV-2 infection compared with adults, but the role that children and adolescents play in the transmission of this virus remains unclear.

- Using the GISAID database, SARS-CoV-2 sequences established from four West African countries Ghana, Gambia, Senegal and Nigeria and the phylogenetic analysis done. Findings suggest that distinct patterns of viral clades in the West African countries point at its emergence from Europe and China via Asia and Europe. Only a marginal correlation of the G-clades associated with the D614G mutation could be identified with the relatively low case-fatality (0.6-3.2). (Pre-print, not peer-reviewed).

- Analysis of African SARS-CoV-2 genomes deposited in GISAID and NCBI databases as of June 2020 were downloaded and aligned with genomes from Wuhan, China and other SARS-CoV-2 hotspots, results showed mutations in the spike and replicate proteins of the SARS-Cov-2 virus. Phylogenetic tree analyses demonstrated variability across the various regions/countries in Africa as there were different clades in the viral proteins. However, a substantial proportion of these mutations (90%) were similar to those described in all the other settings, including the Wuhan strain. There were, however, novel mutations in the genomes of the circulating strains of the virus in African countries. (Pre-print, not peer-reviewed).

- Phylogenetic analysis of SARS-CoV-2 isolated from Nigerian COVID-19 cases downloaded from GISAID database suggests that the Nigerian SARS-CoV-2 had 99.9% genomic similarity with four large conserved genomic regions. Findings suggest the Nigerian SARS-CoV-2 reveals high mutation rate together with preponderance of L lineage and D614G mutants. The implication of these mutations for SARS-CoV-2 virulence and the need for more aggressive testing and treatment of COVID-19 in Nigeria. (Pre-print, not peer-reviewed).

- This preprint describes viral RNA shedding duration in hospitalized patients and identifies patients with recurrent shedding. Sequenced viruses from two distinct episodes of symptomatic COVID-19 separated by 144 days in a single patient, conclusively describe reinfection with a new strain harbouring the spike variant D614G. Findings suggest after the second infection, the individual produced only low levels of antibodies, and that these decreased over time. (Pre-print, not peer-reviewed).
• This study reports that human-to-cat transmission of SARS-CoV-2 occurred during the COVID-19 pandemic in the UK, with the infected cats developing mild or severe respiratory disease. High throughput sequencing of the virus from a cat revealed that the feline viral genome contained five single nucleotide polymorphisms (SNPs) compared to the nearest UK human SARS-CoV-2 sequence. An analysis of cat 2’s viral genome together with nine other feline-derived SARS-CoV-2 sequences from around the world revealed no shared cat-specific mutations. (Pre-print, not peer-reviewed).

• A seroprevalence of household cats and dogs of laboratory-confirmed COVID-19 patients, reports a high seroprevalence of SARS-CoV-2 antibodies, ranging from 21% to 53%, depending on the positivity criteria chosen. Seropositivity was significantly greater among pets from COVID-19 households compared to those with owners of unknown status, highlighting the potential role of pets in the spread of the epidemic. (Pre-print, not peer-reviewed).

• This study searched for antibodies against SARS-CoV-2 in more than 6,000 blood samples collected by a Manaus blood bank between February and August. Findings suggest the transmission of SARS-CoV-2 in Manaus, located in the Brazilian Amazon, increased quickly during March and April and declined more slowly from May to September. From the proportion of donors who tested positive for antibodies, the authors estimate that about 66% of the population had been infected by early August. Authors suggest the unusually high infection rate played a role in reaching herd immunity. (Pre-print, not peer-reviewed).

Care and Treatment

• This retrospective, propensity score-matched case-control study assessed the effectiveness of convalescent plasma therapy in 39 patients with severe or life-threatening COVID-19 at The Mount Sinai Hospital in New York City. Oxygen requirements on day 14 after transfusion worsened in 17.9% of plasma recipients versus 28.2% of propensity score-matched controls who were hospitalized with COVID-19 although survival was improved in plasma recipients.

• A retrospective study of 888 severe or critically ill COVID-19 patients who received anti-SARS-CoV-2 antibody-containing convalescent plasma (CP) along with the antiviral treatment in Turkey, reports the effectiveness of convalescent plasma (CP) in the treatment of COVID-19 patients. Findings suggest that CP is effective for a better course of COVID-19 in severe and critically ill patients and CP reduced the case fatality rate (CFR).

• An open-label, parallel-arm, phase II, multicentre, randomized controlled trial investigated its effectiveness of convalescent plasma for the treatment of
COVID-19 in India. **Findings suggest convalescent plasma was not associated with a reduction in mortality or progression to severe disease; it was associated with resolution of dyspnea and supplemental oxygen requirement and with early elimination of SARS-CoV-2 RNA. (Pre-print, not peer-reviewed).**

- This retrospective cohort study of 10,703 patients receiving hydroxychloroquine and 21,406 patients not receiving hydroxychloroquine were included in the primary analysis. The incidence of active SARS-CoV-2 infections during the study period did not differ between patients receiving hydroxychloroquine and patients not receiving hydroxychloroquine. Hydroxychloroquine was not associated with a preventive effect against SARS-CoV-2 infection in a large group of patients with rheumatological conditions.

- This double-blind, placebo-controlled randomized clinical trial evaluated the efficacy of hydroxychloroquine to prevent transmission of SARS-CoV-2 in hospital-based HCWs with exposure to patients with COVID-19 using a pre-exposure prophylaxis strategy. **Findings indicate there was no clinical benefit of hydroxychloroquine administered daily for 8 weeks as pre-exposure prophylaxis in hospital-based HCWs exposed to patients with COVID-19.**

- This exploratory, open-label, randomised phase 2 trial part of PANAMO trial reports on intravenous monoclonal antibody IFX-1 (vilobelimab) treatment of adults with severe COVID-19 in the Netherlands. **Results of the exploratory phase 2 trial suggest that C5a inhibition with IFX-1 appears safe in adults with severe COVID-19.**

- This cohort study investigated an association between mortality risk and elevated Red blood cell distribution width (RDW) at hospital admission and during hospitalization exists in 1641 patients with COVID-19. **The findings suggest that an elevated RDW measured at admission and increasing RDW during hospitalization were associated with significantly higher mortality risk for patients with SARS-CoV-2 infection and RDW may be helpful for patient risk stratification.**

**Economic Studies**

- The allocation of US$105 billion in global funding from G20 countries for infectious disease research between 2000 and 2017: a content analysis of investments. **Findings suggest that HIV research received the highest amount of investment relative to DALY burden. Scabies and syphilis received the lowest relative funding. Investments for high-threat pathogens (eg, Ebola virus and coronavirus) were often reactive and followed outbreaks.**
Infection, Prevention and Control

- This study measured outward emissions of micron-scale aerosol particles by healthy humans performing various expiratory activities while wearing different types of medical-grade or homemade masks. Both surgical masks and unvented KN95 respirators, even without fit-testing, reduce the outward particle emission rates by 90% and 74% on average during speaking and coughing, respectively, compared to wearing no mask, corroborating their effectiveness at reducing outward emission.

Diagnostics

- This study evaluates the performance of four high-throughput commercial SARS-CoV-2 IgG assay (Abbott, Chicago, IL, USA), LIAISON SARS-CoV-2 S1/S2 IgG assay (DiaSorin, Saluggia, Italy), Elecsys Anti-SARS-CoV-2 assay (Roche, Basel, Switzerland), SARS-CoV-2 Total assay (Siemens, Munich, Germany), and a novel 384-well ELISA (the Oxford immunoassay). Findings suggest that the four commercial, widely available assays and a scalable 384-well ELISA can be used for SARS-CoV-2 serological testing to achieve sensitivity and specificity of at least 98%.

- Using a multiplex label-free antigen microarray on the Arrayed Imaging Reflectometry (AIR) platform for detection of antibodies to SARS-CoV-2, SARS-CoV-1, MERS, three circulating coronavirus strains (HKU1, 229E, OC43) and three strains of influenza. Findings suggest that the array is readily able to distinguish uninfected from convalescent COVID-19 subjects, and provides quantitative information about total Ig, as well as IgG- and IgM-specific responses.

Vaccines

- A phase 1, dose-escalation, open-label trial of a messenger RNA vaccine, mRNA-1273, which encodes the stabilized prefusion SARS-CoV-2 spike protein (S-2P) in healthy adults with age-stratified data (56 to 70 years or ≥71 years). Findings suggest adverse events associated with the mRNA-1273 vaccine were mainly mild or moderate in older patients. The 100-μg dose induced higher binding- and neutralizing-antibody titers than the 25-μg dose, which supports the use of the 100-μg dose in a phase 3 vaccine trial.

- Results from an ongoing placebo-controlled, observer-blinded phase 1/2 coronavirus disease 2019 (COVID-19) vaccine trial with BNT162b1, a lipid nanoparticle (LNP) formulated nucleoside-modified messenger RNA (mRNA) encoding the receptor-binding domain (RBD) of the SARS-CoV-2
spike protein, suggest that two doses of 1 to 50 µg of BNT162b1 elicited robust CD4+ and CD8+ T-cell responses and strong antibody responses, with RBD-binding IgG concentrations clearly above those in a COVID-19 human convalescent sample (HCS) panel. The robust RBD-specific antibody, T-cell and favourable cytokine responses induced by the BNT162b1 mRNA vaccine suggest multiple beneficial mechanisms with potential to protect against COVID-19.

- This study reports the development of BANCOVID an mRNA-LNP vaccine considering the D614G variant and characterization of the vaccine in a preclinical trial. The anti-sera and purified IgGs from immunized mice on day 7 and 14 neutralized SARS-CoV-2 pseudovirus in ACE2-expressing HEK293 cells in a dose-dependent manner. Importantly, immunization protected mice lungs from pseudovirus entry and cytopathy. These findings show that the values are comparatively higher than relevant values for other published SARS-CoV-2 vaccines in development and suggesting higher viral clearance capacity for BANCOVID. (Pre-print, not peer-reviewed).

Other

- Using an established set of spatiotemporal Bayesian geostatistical models, this study generated geospatial estimates across malaria-endemic African countries of the clinical case incidence and mortality of malaria, incorporating an updated database of parasite rate surveys, insecticide-treated net (ITN) coverage, and effective treatment rates. Findings suggest that COVID-19-related disruption to malaria control in Africa could almost double malaria mortality in 2020, and potentially lead to even greater increases in subsequent years.

- This study described the public’s preferences in the US for allocating a SARS-CoV-2 vaccine. This survey study found that respondents’ preferences were consistent with experts’ emergent recommendations for priority populations for vaccination, suggesting the public would support guidelines that offer vaccine priority to groups defined by age, risk of dying, and employment type and more than 90% of respondents identified medical workers as a high priority.

D. Summary of travel restrictions implemented by Member States

Contents of this section include only publicly announced public health policies. Sources of this section include official government communique, embassy alerts and press search. (As of 2 October 2020)
For further detailed information for each country, refer to the full table here.

E. Summary of border control measures and school re-opening

Contents of this section include only publicly announced public health policies. Sources of this section include official government communique, embassy alerts and press search. (As of 4 October 2020)

For further detailed information for each country, refer to the full table here.

E. Registered Clinical Trials in Africa
Key updates:

Vaccine trials:

- On 2\textsuperscript{nd} October 2020, the updated \textit{WHO landscape of COVID-19 vaccines} was published. Forty two vaccine candidates were at the clinical evaluation stage and 151 candidates at the preclinical stage.

- On 9\textsuperscript{th} September 2020, AstraZeneca announced a voluntary pause to vaccination across all global trial sites following a suspected adverse event in a study participant in the UK Phase III trial of the \textit{AZD1222 COVID-19 vaccine} candidate. The pause aimed to facilitate review of safety data by independent committees. It was indicated that the patient had experienced neurological symptoms consistent with an inflammatory disorder called transverse myelitis. The AZD1222 trial was resumed on 12\textsuperscript{th} September in the UK following confirmation by the Medicines Health Regulatory Authority (MHRA) that it was safe to do so, with Brazil and South Africa following suit.

- On 9\textsuperscript{th} September 2020, China-based Sinovac Biotech reported positive data from the Phase I/II clinical trials of its \textit{CoronaVac} inactivated Covid-19 vaccine, which demonstrated good safety and immunogenicity in 421 healthy adults aged between 60 years and 89 years old, comparable to that observed in younger adult participants aged 18 to 59 years. On 23\textsuperscript{rd} September, the company also announced the randomized, placebo-controlled phase I/II clinical trial of CoronaVac among adolescents and children between the ages of 3-17 years (NCT04551547) expected to start soon in China. CoronaVac is currently being assessed for safety and efficacy in a Phase III trial in Brazil and in Turkey to provide data to support licensure of this product. Furthermore, on August 25\textsuperscript{th} 2020, Sinovac had signed an agreement with T Bio Farma, a leading biopharmaceutical company in Indonesia, for the supply, local production of at least 40 million doses of CoronaVac before March 2021.

- On 11\textsuperscript{th} September 2020, Hong Kong University announced that China regulatory agency had granted approval for the Phase I clinical trials of their intranasal spray Covid-19 vaccine candidate (ChiCTR2000037782). This vaccine has been developed by the University of Hong Kong, in collaboration with Xiamen University and Wantai Biopharmaceutical company in mainland China. The vaccine candidate is based on the established flu-based DelNS1 live attenuated influenza virus (LAIV) platform, and can be combined with any seasonal flu vaccine strains.

- On 14\textsuperscript{th} September 2020, Imperial College London announced small clinical trials aiming to assess the safety and efficacy of administering Oxford’s ChAdOx1 nCoV-19 as well as Imperial saRNA vaccine candidates when delivered orally as aerosols through a nebulizer, rather than by injection. It is hypothesized that this delivery method can induce a more effective localized immune response against SARS-CoV-2 and eventually accelerate the development of COVID-19 vaccines. A total of 30 people are expected to be recruited to the trials with three dose levels (low, medium, and high) being assessed for each vaccine.
• On 14th September 2020, the United Arab Emirates granted emergency use authorization for Sinopharm inactivated COVID-19 vaccine candidate, developed in collaboration with Wuhan Institute of Biological Products and Beijing Institute of Biological Products, six weeks after having initiated Phase III clinical trial of the vaccine candidate. The announcement comes as the country is experiencing a surge in COVID-19 cases.

• On 16th September 2020, Pfizer and BioNTech shared limited blinded tolerability data from the phase III trial of the BNT162 mRNA-based COVID-19 vaccine candidate, which showed a mostly mild to moderate tolerability profile. On 12th September 2020, they also indicated that a protocol amendment has been submitted to the FDA to expand recruitment to approximately 44,000 participants for the ongoing phase III trial and increase trial population diversity (ie: younger subjects down to 16 years old and people with stable HIV, hepatitis C or hepatitis B infection). On 30th September, start of enrollment in the phase III trial of the vaccine (NCT04368728) across four sites in Gauteng, Limpopo and the Western Cape in South Africa, with a target of 800 subjects, was announced after authorization was granted by South African Health Products Regulatory Authority (Sahpra).

• On 17th September 2020, in an unusual move and citing an interest for transparency, Moderna published online the protocol for the Phase III COVE study of its mRNA-1273 COVID-19 vaccine candidate, soon followed by Pfizer, who released the Phase I/II/III trial protocol for the BNT162 vaccine.

• On 23rd September, Johnson & Johnson announced the launch of the large-scale, pivotal, multi-country ENSEMBLE Phase III trial (NCT04505722) for its COVID-19 vaccine candidate, JNJ-78436735, an adenovirus vector-based vaccine candidate developed by its Janssen Pharmaceutical Companies. ENSEMBLE will enroll up to 60,000 volunteers across three continents and will study the safety and efficacy of a single vaccine dose versus placebo in preventing COVID-19. In South Africa, the ENSEMBLE trial will be including a target of 12,000 volunteers across nearly 30 sites. The Janssen COVID-19 vaccine candidate leverages the Company’s AdVac technology platform, which was also used to develop and manufacture Janssen’s EC approved Ebola vaccine.

• On 24th September, Novavax announced the Phase III clinical trial to evaluate the efficacy, safety and immunogenicity of the NVX-CoV2373 vaccine candidate in the UK (prime/boost schedule, 21 days apart). NVX-CoV2373 is a stable, prefusion protein made using Novavax’ recombinant protein nanoparticle technology with the company proprietary Matrix adjuvant. The trial will enroll and immunize up to 10,000 individuals between 18-84 years of age, and prioritize groups most affected by COVID-19, including racial and ethnic minorities. NVX-CoV2373 is also being evaluated in one Phase II study (NCT04533399) aiming to enroll 2,664 healthy HIV-negative (HIV-) and 240 medically stable HIV-positive (HIV+) adult participants in up to 10 sites across South Africa

• On 28th September, Covavax announced the phase I trial of UB-612, a multi-tupe peptide-based vaccine candidate against COVID-19, which is meant to activate the B and T-cell arms of the immune system. The study will evaluate the safety, tolerability, and
immunogenicity of the **UB-612 vaccine** in 60 healthy male and female adults, aged 20-55 years. Ascending dose levels of the vaccine will be administered in two intramuscular injections spaced 28 days apart.

- On 29th September 2020, the German biopharmaceutical company CureVac, announced the launch of the Phase IIa clinical trial of its CVnCoV COVID-19 vaccine candidate, based on messenger ribonucleic acid ("mRNA"), conducted in Peru and Panama with a target of 690 healthy participants across 2 groups: adults ages 61 and above, and participants aged 18 to 60 years old. Different doses of the vaccine, administered 28 days apart, will be investigated to confirm safety and evaluate reactogenicity.

- Egypt Ministry of Health has launched a website to allow the recruitment of volunteers to the clinical trials of COVID-19 vaccine candidates conducted at three centers: VACSERA, Abbasiya Chest Hospital, and the National Liver Institute in collaboration with the Chinese government. Egypt Ministry of Health aims to enroll 6000 participants in the trials.

**Therapeutics trials:**

- In Tunisia, three registered clinical trials (NCT04351919, NCT04528927, NCT04349228) aiming to assess the efficacy of hydroxychloroquine for the treatment or the prevention of COVID-19 were withdrawn, with investigators citing the controversy surrounding the use of the drug as the cause for discontinuation.

- In South Africa, the CQOTE trial (NCT04360759), aiming to evaluate the efficacy and safety of chloroquine or hydroxychloroquine to prevent progression of disease and hospitalisation amongst HIV-positive people with Covid-19 has similarly been withdrawn due to the reported loss of equipoise for the intervention.

- On 30th September 2020, the University of Oxford announced the start of the AVID-CC trial which aims to assess the effectiveness of the anti-tumour necrosis factor (anti-TNF) drug adalimumab in 750 volunteer patients from community care settings, especially care homes residents, in the UK. The study is funded by the COVID-19 Therapeutics Accelerator, an initiative set up by Wellcome, the Bill and Melinda Gates Foundation and Mastercard.

- On 2nd October, 2020, Regulatory Affairs Professionals Society(RAPS) published that Ivermectin is used to treat intestinal strongyloidiasis and onchocerciasis (tablets), lice and rosacea (topical) has been proven effective in vitro of inhibiting SARS-CoV-2 within 48 hours of treatment with a 5,000-fold reduction in the virus, according to a paper published in Antiviral Research.

- On 25 September, 2020, Regulatory Affairs Professionals Society(RAPS) published that Actemra is a drug indicated to treat autoimmune diseases such as rheumatoid arthritis as well as cytokine release syndrome. Research from China has shown Actemra may be an effective treatment for patients with severe cases of COVID-19.
On 25th September, 2020, Regulatory Affairs Professionals Society (RAPS) published Dexamethasone has been selected as a potential therapy due to its potential for reducing the inflammation associated with cytokine release syndrome in patients with COVID-19. In response to positive preliminary results, the UK and Japan have approved dexamethasone to treat COVID-19; the therapy also has been endorsed by the EMA for use in patients who require oxygen therapy. It is provisionally approved in Taiwan.

PhaseBio is evaluating their vasoactive intestinal peptide (VIP) receptor agonist PB1046 in hospitalized patients with COVID-19. Results in animal studies demonstrated PB1046 was effective in preventing acute lung injury and stopping inflammatory responses associated with ARDS. A Phase 2 trial of the candidate is underway in up to 210 participants hospitalized with COVID-19.

BioCryst is testing whether galidesivir, an antiviral drug with demonstrated broad-spectrum activity in vitro against coronaviruses MERS and SARS, is effective in treating patients with COVID-19. The company is enrolling up to 132 participants in an NIAID-sponsored trial evaluating whether galidesivir is effective in treating yellow fever or COVID-19.

Immunotherapy trials:

On 22nd September, 2020, the NIH announced that it was expanding enrollment targets in two clinical trials aiming to test convalescent plasma against COVID-19 support from Operation Warp Speed (OWS). The Convalescent Plasma to Limit COVID-19 Complications in Hospitalized Patients (NCT04364737) and the Passive Immunity Trial of Our Nation for COVID-19 (NCT04362176) will both be expanded to additional recruitment sites to enrol approximately 1000 participants each.

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On 24th September, 2020, South African National Blood Service indicated that the PROTECT-Patient prospective, randomized, placebo-controlled, double-blinded, phase III clinical trial (NCT04516811) had started recruitment. The study, aiming to assess the safety and efficacy of COVID-19 convalescent plasma (CCP) as a therapeutic treatment for hospitalised patients with moderate to severe COVID-19, targets the enrolment of 600 adults aged 18 years and older.

On 29th September 2020, Regeneron Pharmaceuticals announced that preliminary data from the initial 275 patients recruited to the ongoing Phase I/II/III trial of its investigational antibody cocktail REGN-COV2 showed that it reduced viral load and the time to symptoms improvement non-hospitalised patients with Covid-19.

For further detailed information for each country, refer to the full table here.
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