

COVID-19 Scientific and Public Health Policy Update¹ – (16 February 2021)

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. Trending Topics

Status of Vaccines in Africa

Platform	Vaccine name	Developer	Overall efficacy	Doses	Interval (weeks)	Storage	Status **	Emergency use authorization in Africa	Evaluated in Africa?
Whole inactivated virus	BBIBP-CorsV	Sinopharm	79.3%				-NMPA (China)	Morocco, Egypt, Seychelles	Morocco
	CoronaVac	Sinovac	50.6%				- NMPA (China)		
Viral vector	AZD-1222 or Covishield (vector : ChAdOx1)	AstraZeneca	63.1%				- EMA (EU) - WHO EUL	Egypt, Algeria, Morocco, South Africa	South Africa
	Sputnik V (vectors :Ad26 & Ad5)	Gamaleya	91.6%				- Early approval (Russia)	Algeria, Guinea-Conakry, Tunisia	Guinea-Conakry
	Ad26.COVS.2.S	Johnson & Johnson	85%		/		-Phase 3 interim data		South Africa (57%)
Protein subunit	NVX-COV2373	Novavax	89%				-Phase 3 interim data		South Africa (49.4%)
Genetic: mRNA	Comirnaty	Pfizer/ BioNtech	95%				- FDA EUA - EMA (EU) - WHO EUL	Tunisia	South Africa
	MRNA-1273	Moderna	94.5%				- FDA EUA - EMA (EU)		South Africa

* Ad26.COVS.2.S can be stored for 2 years at -20 C months

**i.e.: Phase III/ early approval/FDA EUA /EMA/WHO EUL

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.**

BNT-162b2 can be stored at fridge temperature for 5 days

MRNA-1273 can be stored at fridge temperature for 1 month

- The University of Oxford, together with three partner sites in London, Southampton and Bristol, is to launch the first study to assess the safety and immune responses in children and young adults of the ChAdOx1 nCoV-19 coronavirus vaccine.
- A US CDC conducted experiments to assess two ways of improving the fit of medical procedure masks: fitting a cloth mask over a medical procedure mask, and knotting the ear loops of a medical procedure mask and then tucking in and flattening the extra material close to the face; found that exposure to infectious aerosols was reduced by up to 95%.

B. New guidelines and resources

Since 02 February 2020,

- Africa CDC has published new guidance and resources on:
 - [Press Release: Guidance on the Accelerated Regulatory Authorization Process for Emergency Use of COVID-19 Vaccines in Africa](#)
 - [Statement on the Efficacy of the AstraZeneca COVID-19 Vaccine \(ChAdOx1 nCoV-19\) against the SARS-CoV-2 Variants](#)
 - [Monitoring and Evaluation of COVID-19 Rapid Antigen Diagnostic Test Rollout in Africa](#)
- US CDC has published new guidance and resources on:
 - [Guidance for Beaches During COVID-19](#)
 - [Operating schools during COVID-19: CDC's Considerations](#)
 - [Public Health Guidance for Potential COVID-19 Exposure Associated with Travel](#)
 - [Guidance for Public Pools, Hot Tubs, and Water Playgrounds During COVID-19](#)
 - [CDC Guidance for Expanded Screening Testing to Reduce Silent Spread of SARS-CoV-2](#)
 - [Guidance on Integration of COVID-19 in Existing Acute Febrile Illness \(AFI\) Surveillance Systems](#)
 - [New Variants of the Virus that Causes COVID-19](#)
 - [CDC's COVID-19 Vaccine Rollout Recommendations](#)
 - [Maximizing Fit for Cloth and Medical Procedure Masks to Improve Performance and Reduce SARS-CoV-2 Transmission and Exposure, 2021](#)
- WHO has published new guidance and resources on:
 - [Background document on the mRNA-1273 vaccine \(Moderna\) against COVID-19](#)
 - [Contact tracing in the context of COVID-19](#)
 - [COVID-19: Occupational health and safety for health workers](#)
 - [Standard review form for national deployment and vaccination plan for COVID-19 vaccines \(NDVP\)](#)
 - [Definition and categorization of the timing of mother-to-child transmission of SARS-CoV-2](#)
 - [Global COVID-19 Clinical Platform Case Report Form \(CRF\) for Post COVID condition \(Post COVID-19 CRF\)](#)
 - [Interim recommendations for use of the AZD1222 \(ChAdOx1-S \(recombinant\)\) vaccine against COVID-19 developed by Oxford](#)

- [University and AstraZeneca](#)
- [AZD1222 vaccine against COVID-19 developed by Oxford University and Astra Zeneca: Background paper \(draft\)](#)
- FDA has issued press releases on:
 - [FDA has released a total of 366 COVID – 19 Test Kits \(126 – PCR based, 105 – Rapid Antibody, 68 – Immunoassay and 67 – Others\)](#)
 - [FDA Authorizes Monoclonal Antibodies for Treatment of COVID-19](#)
 - [FDA Updates Emergency Use Authorization for COVID-19 Convalescent Plasma to Reflect New Data](#)
- ECDC has issued new resource on:
 - [Stress test on logistical aspects of COVID-19 vaccination deployment plans: final report](#)
 - [Overview of the implementation of COVID-19 vaccination strategies and vaccine deployment plans in the EU/EEA](#)
 - [Integrated COVID-19 response in the vaccination era](#)
 - [Infographic: Mutation of SARS-CoV2 - current variants of concern](#)
 - [European surveillance of COVID-19 in long-term care facilities in the EU/EEA: aggregate data reporting - Surveillance protocol version 1.1](#)
- PHE has issued new resource on:
 - [World-first COVID-19 alternating dose vaccine study launches in UK Government boost to rapid workplace testing](#)
 - [COVID-19: rapid point of care or near-person testing for service providers](#)
 - [SARS-CoV-2 VOC: investigating and managing individuals with a possible or confirmed case](#)
 - [COVID-19: guidance for care of the deceased](#)
 - [Guidance for contacts of people with confirmed coronavirus \(COVID-19\) infection who do not live with the person](#)

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 on epitope-specific T cell responses of 99 convalescent COVID-19 cases, the SARS-CoV-2 proteome was probed using 1,925 peptides spanning the entire genome, ensuring an unbiased coverage of human leukocyte antigen (HLA) alleles for class II responses. [The study identified several hundred HLA-restricted SARS-CoV-2-derived epitopes. Distinct patterns of immunodominance are observed, which differ for CD4+ T cells, CD8+ T cells, and antibodies.](#)
- [This study shows that antibody response against nucleocapsid and spike proteins of SARS-CoV-2 in 11 people with mild or asymptomatic infection rapidly increased after infection. And at weeks 18–30 after diagnosis, all remained seropositive but spike protein–targeting antibody titers declined suggesting that humoral immunity to SARS-CoV-2 infection may not be long lasting.](#) Researchers suggest that these findings offer insights into the long-term humoral immune response to SARS-CoV-2 infection and that the data might have implications for COVID-19 vaccine development and implementation and other public health responses to the COVID-19

pandemic.

Epidemiology

- In this retrospective cohort study, patients with COVID-19 were followed up for at least 14 days after two consecutive negative SARS-CoV-2 PCR test results obtained ≥ 24 hours apart, and the frequency of SARS-CoV-2 reactivation was assessed. Among 109 patients who were studied, 27% of them had the virus reactivation defined by the positive real-time PCR test results from their sputum specimens, and 7% of them were symptomatic reactivation for an average of 29 days after discharge from the hospital. Compared with patients without reactivation, those with reactivation were significantly younger and more likely to have a lymphocyte count of $<1500/\mu\text{L}$.
- This cohort study assessed risk of transmission and developing symptomatic disease and incubation dynamics using regression analysis. Results suggest the viral load of index cases was a leading driver of SARS-CoV-2 transmission. The risk of symptomatic COVID-19 was strongly associated with the viral load of contacts at baseline and shortened the incubation time of COVID-19 in a dose-dependent manner.
- Sequential blood samples were collected from 39 individuals at various time points between 0 and 154 days after onset. The IgG titers to the RBD of the S protein, the ectodomain of the S protein, and the N protein peaked at about 20 days after onset, gradually decreased thereafter, and were maintained for several months after onset. Results show that the antibody response against the first SARS-CoV-2 infection in symptomatic patients is typical of that observed in an acute viral infection.
- In this study, 76% of the milk samples collected from women with COVID-19 contained SARS-CoV-2-specific IgA, and 80% had SARS-CoV-2-specific IgG. In addition, 62% of the milk samples were able to neutralize SARS-CoV-2 infectivity in vitro, whereas milk samples collected prior to the COVID-19 pandemic were unable to do so. Taken together, the data do not support mother-to-infant transmission of SARS-CoV-2 via milk. Importantly, milk produced by infected mothers is a beneficial source of anti-SARS-CoV-2 IgA and IgG and neutralizes SARS-CoV-2 activity.
- Using a variety of statistical and dynamic modelling approaches, this study assessed the relative transmissibility of the novel SARS-CoV-2 variant, VOC 202012/01, which emerged in southeast England in November 2020. The study estimates that VOC 202012/01 is 43–82% (range of 95% credible intervals 38–106%) more transmissible than pre-existing variants of SARS-CoV-2. (Not peer reviewed)
- Researchers analysed variants of SARS-CoV-2 in Southern California to establish whether one of the known strains or a novel variant had emerged. Results indicate a novel variant of SARS-CoV-2, CAL.20C, was identified, which emerged in Southern California at the same time period with the local surge in cases. This strain is defined by 3 mutations in the S-protein characterizing it as a subclade of 20C. The S protein L452R mutation is within a known receptor binding domain that has been found to be resistant to certain spike (S) protein monoclonal antibodies. However clinical outcomes, the functional effect of this strain regarding infectivity and disease severity remains uncertain.
- This cohort study determined the prevalence of SARS-CoV-2 in asymptomatic participants in a university community by using CREST

(Cas13-based, rugged, equitable, scalable testing), a CRISPR-based test developed for accessible and large-scale viral screening. [Results indicate the viral loads detected in asymptomatic cases resemble those seen in clinical samples, highlighting the potential of covert viral transmission and the shift in viral prevalence coincided with the relaxation of stay-at-home measures. Findings suggest that the CRISPR-based assay was effective at capturing positive SARS-CoV-2 cases hence reliable and offer alternative options for surveillance testing and detection of SARS-CoV-2 outbreaks.](#)

- This study describes the clinical characteristics and outcomes in a cohort of patients co-infected with SARS-CoV-2 and dengue virus in Buenos Aires. [Of the 13 patients who had confirmed infection with SARS-CoV-2 and dengue virus, all patients had febrile disease when hospitalized. Headache was a common symptom and a total of 8 patients had respiratory symptoms, 5 had pneumonia, and 3 had rash. Nearly all patients had lymphopenia when hospitalized and no patients were admitted to an intensive care unit or died during follow up. Findings suggest that the outcome of these patients did not seem to be worse than those having either SARS-CoV-2 or dengue infection alone.](#)

Care and Treatment

- A randomised, controlled, open-label, adaptive platform trial (Randomised Evaluation of COVID-19 Therapy [RECOVERY]), patients were randomly allocated to either usual standard of care alone or usual standard of care plus azithromycin 500 mg once per day by mouth or intravenously for 10 days or until discharge. [Findings suggest, in patients admitted to hospital with COVID-19, azithromycin did not improve survival or other prespecified clinical outcomes. Azithromycin use in patients admitted to hospital with COVID-19 should be restricted to patients in whom there is a clear antimicrobial indication.](#)
- A rapid review of nineteen clinical studies reporting data from 2,834 COVID-19 patients reports a mean rate of antibiotic use in 74.0 % of the cases. Half the studies reported occurrence of a bacterial co-infection or complication (10 studies). [The review found a major use of antibiotics amongst COVID-19 hospitalized patients, mainly in an empirical setting, though there is no proven efficacy of this practice.](#)
- This study reports chronic SARS-CoV-2 with reduced sensitivity to neutralising antibodies in an immunosuppressed individual treated with convalescent plasma, generating whole genome ultradeep sequences over 23 time points spanning 101 days. [These data reveal strong selection on SARS-CoV-2 during convalescent plasma therapy associated with emergence of viral variants with evidence of reduced susceptibility to neutralising antibodies.](#)
- A randomised, open label trial conducted in nine hospitals in Brazil, to determine whether tocilizumab improves clinical outcomes for patients with severe or critical COVID-19. 18 of 65 (28%) patients in the tocilizumab group and 13 of 64 (20%) in the standard care group were receiving mechanical ventilation or died at day 15. [In patients with severe or critical COVID-19, tocilizumab plus standard care was not superior to standard care alone in improving clinical outcomes at 15 days, and it might increase mortality.](#)
- An observational cohort study was conducted to evaluate whether early initiation of prophylactic anticoagulation compared with no anticoagulation

was associated with decreased risk of death among patients admitted to hospital with COVID-19 in the United States. [Findings suggest early initiation of prophylactic anticoagulation compared with no anticoagulation among patients admitted to hospital with COVID-19 was associated with a decreased risk of 30 day mortality and no increased risk of serious bleeding events.](#)

- This randomised clinical trial of 214 patients with confirmed SARS-CoV-2 infection examined whether high-dose zinc and/or high-dose ascorbic acid reduce the severity or duration of symptoms compared with usual care among ambulatory patients. [Results indicate that treatment with high-dose zinc gluconate, ascorbic acid, or a combination of the 2 supplements did not significantly decrease the duration of symptoms compared with standard of care.](#)

Diagnosics

- This systematic review was conducted to assess the diagnostic accuracy of saliva NAAT for COVID-19 compared with imperfect nasopharyngeal swab NAAT as a reference test. In the primary analysis, the saliva NAAT pooled sensitivity was 83.2% and the pooled specificity was 99.2% while the nasopharyngeal swab NAAT had a sensitivity of 84.8% and a specificity of 98.9%. [These results suggest that saliva NAAT diagnostic accuracy is similar to that of nasopharyngeal swab NAAT, especially in the ambulatory setting. These findings support larger-scale research on the use of saliva NAAT as an alternative to nasopharyngeal swabs.](#)
- This study evaluated the detection sensitivity of RT-PCR performed using synthetic RNAs containing frequently observed mutations. [Results showed that certain primer/probe-template mismatches significantly decreased the sensitivity of RT-PCR assays. Findings suggest the necessity of monitoring mutations in the viral genome sequence under in-silico conditions and evaluating the impact of mutations on diagnosis sensitivity to avoid false negatives. \(Not peer reviewed\)](#)

Infection, Prevention and Control (IPC)

- This study sampled air and no-touch surfaces of 31 rooms from long-term care facilities (LTCF). Results suggest that air samples were negative but viral genomes were recovered from 20 of 62 surface samples at concentrations ranging from 13 to 36,612 genomes/surface. [The presence of viral RNA on non-touch surfaces is evidence of viral dissemination through air, but the lack of airborne viral particles in air samples suggests that they were not aerosolized in a significant manner during air sampling sessions.](#)
- This retrospective study investigated the sources of infection among healthcare workers (HCWs) and patients in a Dutch teaching hospital during the early stages of the COVID-19 pandemic using epidemiological and whole genome sequencing data. Whole genome sequences were obtained for 30 HCWs and 20 patients with 7 sequence types detected in HCW and 11 in patients. Sequence Cluster A was the most predominant sequence type detected in 77% HCW, of whom 74% had direct patient contact and 90% with indirect patient contact. [The identification of genomic cluster A in patients and HCWs infected with SARS-CoV-2 by whole genome sequencing suggests transmission between HCWs, but also from HCWs to](#)

patients.

- This study by the US CDC conducted experiments to assess two ways of improving the fit of medical procedure masks: fitting a cloth mask over a medical procedure mask, and knotting the ear loops of a medical procedure mask and then tucking in and flattening the extra material close to the face. Results from the first experiment demonstrated that the unknotted medical procedure mask alone blocked 56.1% of the particles from a simulated cough, and the cloth mask alone blocked 51.4%. The combination of the cloth mask covering the medical procedure mask (double mask) blocked 85.4% of the cough particles, and the knotted and tucked medical procedure mask blocked 77.0%. In the second experiment, adding a cloth mask over the source headform's medical procedure mask or knotting and tucking the medical procedure mask reduced the cumulative exposure of the unmasked receiver by 82.2% and 62.9%, respectively.

Diagnostics

- Researchers developed an assay that detects minus-strand RNA as a surrogate for actively replicating severe acute respiratory syndrome coronavirus 2. Results indicate that the minus-strand RNA was detected in 41 people with COVID-19 up to 30 days after symptom onset. Findings suggest that the strand-specific rRT-PCR testing might be especially useful in patients with prolonged RNA shedding and it might also supplement existing strategies for estimating infectiousness on the basis of time and symptoms.

Vaccines

- A randomised, double-blind, placebo-controlled, phase III trial done in 25 hospitals and polyclinics in Moscow, Russia with 21,977 adults randomly assigned to the vaccine group (n=16,501) or the placebo group (n=5,476). 19,866 received two doses of vaccine or placebo and were included in the primary outcome analysis. From 21 days after the first dose of vaccine (the day of dose 2), 16 (0.1%) of 14,964 participants in the vaccine group and 62 (1.3%) of 4,902 in the placebo group were confirmed to have COVID-19; vaccine efficacy was 91.6% (95% CI 85.6-95.2). Results of the interim analysis of the phase III trial of Gam-COVID-Vac showed 91.6% efficacy against COVID-19 and was well tolerated in a large cohort.
- This study examined whether sera and monoclonal antibodies from convalescent donors, prior to and following a single immunization with the Pfizer or Moderna mRNA vaccines, neutralize the Wuhan-Hu-1 strain and a variant, B.1.351 from South Africa. Pre-vaccination sera weakly neutralized Wuhan-Hu-1 and sporadically neutralized B.1.351. Immunization with either vaccine generated anamnestic B and CD4+ T cell responses and a 1000-fold increase in neutralizing antibody titers against both strains and SARS-CoV-1. Neutralization was likely due to anti-RBD and anti-S2 antibodies. Results suggest that the observed increase in neutralizing antibody responses post-vaccination is primarily due to an increase in anti-RBD antibodies. *(Not peer reviewed)*
- A randomised, double-blind, placebo-controlled, phase I/II clinical trial of CoronaVac in healthy adults aged 60 years and older in Renqiu (Hebei, China), who received vaccine or placebo intramuscular injection in two doses (days 0 and 28). Findings suggest CoronaVac is safe and well

[tolerated in older adults. Neutralising antibody titres induced by the 3 µg dose were similar to those of the 6 µg dose, and higher than those of the 1.5 µg dose, supporting the use of the 3 µg dose CoronaVac in phase 3 trials to assess protection against COVID-19.](#)

- This phase I, randomised, double-blind placebo-controlled trial at a specialised clinical trials centre in Australia reports a dose-finding and adjuvant justification study of SCB-2019, a protein subunit vaccine candidate containing a stabilised trimeric form of the spike (S)-protein (S-Trimer) combined with two different adjuvants. [The SCB-2019 vaccine, comprising S-Trimer protein formulated with either AS03 or CpG/Alum adjuvants, elicited robust humoral and cellular immune responses against SARS-CoV-2, with high viral neutralising activity.](#)
- A double-blind, multicentre, randomised, controlled phase I trial to assess the safety and immunogenicity of BBV152 (a whole-virion inactivated SARS-CoV-2 vaccine formulated with a toll-like receptor 7/8 agonist molecule adsorbed to alum (Algel-IMDG) or alum (Algel)) at 11 hospitals across India. [BBV152 led to tolerable safety outcomes and enhanced immune responses. Both Algel-IMDG formulations were selected for phase II immunogenicity trials.](#)
- The biotech firm [Novavax reports its vaccine was more than 85% effective against a COVID-19 variant identified in the United Kingdom, it was less than 50% effective against a worrying lineage called 501Y.V2, which was detected in South Africa.](#) Data shared at the briefing also suggested that people who had previously been infected with the original lineage were not protected against re-infection by 501Y.V2.
- This report highlights cases of anaphylaxis after administration of the Pfizer-BioNTech and Moderna vaccines reported in the US. [The safety monitoring of mRNA COVID-19 vaccines in the US has confirmed that anaphylaxis following vaccination is a rare event, with rates of 4.7 cases/million Pfizer-BioNTech vaccine doses administered and 2.5 cases/million Moderna vaccine doses administered.](#)
- The University of Oxford, together with three partner sites in London, Southampton and Bristol, is to launch the first study to assess the safety and immune responses in children and young adults of the ChAdOx1 nCoV-19 coronavirus vaccine. [This new trial, a single-blind, randomised phase II trial, will enrol 300 volunteers, with up to 240 of these volunteers receiving the ChAdOx1 nCoV-19 vaccine and the remainder a control meningitis vaccine, which has been shown to be safe in children.](#)

Other

- This interrupted time series analysis analysed anonymised programmatic data from 65 primary care clinics in KwaZulu-Natal province, South Africa. [Lockdown was associated with an estimated 47.6% decrease in HIV testing in April 2020, ART initiations decreased from a median of 571 per week before lockdown to 375 per week after lockdown.](#) Findings suggest that ART provision was generally maintained during the 2020 COVID-19 lockdown, but HIV testing and ART initiations were heavily impacted.