



## ***COVID-19 pandemic, challenges, and responses for Africa*** **Pandémie à COVID-19, défis et réponses pour l'Afrique**

COVID-19, whose causative agent SARS-CoV-2 was first identified in Wuhan, China since September 2019, has spread across the world at breakneck speed.

The WHO has declared a global pandemic, since March 2020. The first case on the African continent was diagnosed in Egypt in February 2020, and in DR Congo on March 10. The whole world is confronted with this new pathogen for which the etiopathogenic and immunological mechanisms are far from being perfectly understood at present. Most of the drug candidates proposed for treatment come from clinical trials, often observational, indicated on a compassionate basis. Conflicts of interest of various kinds have invaded the world of medical research, with a proliferation of scientific work that does not always fit the rules of ethics and morals. The management and response to the pandemic is multiple and varied, depending on ecosystems and the level of socio-economic development on a global scale. With more than 45 million confirmed cases today, and nearly 1.5 million deaths, the distribution of cases is totally different around the world. Africa is currently the continent least affected by the pandemic, with a contribution of about 3.7% and 2.6% respectively from the overall number of infected cases and deaths. South Africa leads the pack, fielding 45% of infected cases, and contributing 2.6% of the overall case fatality rate. What are the reasons for these disparities, despite the weakness of health systems in this part of the world? Many theories mention in particular: the youth of the population and therefore a lower risk of co-morbidities, the pejorative effect of which on lethality is known. The different climatic and hygrometric conditions, which would contribute to the mitigation of the spread of the virus, favored by temperatures of around 10 ° C were also mentioned. The way of life especially in an outdoor environment, unlike indoor partitioning in temperate and winter regions, has a negative impact on the dissemination and propagation of viral particles. Without formal proof at the continental level, a few scattered studies, often unpublished, find anti-SARS-CoV-2 serological prevalence around 20% (unpublished INRB survey). This situation suggests the possibility of cross-immunity with other coronaviruses or other pathogens, a prelude to community immunity. Genetic protection has also been evoked through the prevalence of the Neanderthal gene, predominant in the Northern Hemisphere and facilitating susceptibility to infection. Most countries in Sub-Saharan Africa have adopted, often out of pragmatism, the repositioning of old molecules long used in other ailments, including hydroxychloroquine, colchicine ..., easily accessible, and whose effectiveness has been varied. reported in the literature. Flexibility and humility remain the cornerstone, in light of the numerous publications in this field around the planet. Among the challenges to be overcome are: the weakness of mass screening and diagnosis, due to the lack of large-scale expertise, of molecular biology tools. The diagnosis is based on the detection of the virus by RT-PCR, on nasopharyngeal swabs. In addition to this diagnostic challenge, there are those of the response logistics, aggravated by the lack of front-line human resources. The weakness of the organization of health systems (lack of social security) seriously affects the response in developing countries, often lacking basic infrastructure for the care of people in vital distress, and qualified personnel for the units resuscitation. Socio-economic challenges further darken the picture, with some of the lowest per capita income regions in the world. A plea for the deployment of oxygen production and delivery tools, as well as prognostic orientation laboratory equipment (D-Dimers, ionogram, Procalcitonin) and medical imaging (CT scan) is positioned as an ultimate emergency. . Most countries in Sub-Saharan Africa (SSA) are not managing their first epidemic; the region regularly faces recurrent epidemics of Ebola virus disease as an example, which minimizes the effect of surprise in the response to new epidemics. The continent, albeit at different speeds, has been able to learn from the successes and mistakes of the countries first affected. However, the poor documentation of outbreaks as well as the sharing of experiences also affect the success in managing the

disease. The regional, socio-cultural, economic and behavioral differences among populations are all indicators that must be taken into account in the response to the COVID-19 pandemic in Africa. The response has a multisectoral dimension, justifying the involvement of all actors in national life. Communication, based on the involvement of community relays, is a facilitation approach, proven in particular in the management of Ebola epidemics in West and Central Africa. Barrier measures, including social distancing and confinement, are difficult to apply; in our regions where socio-economic conditions are a matter of daily resourcefulness. It is therefore important to think of effective and easy-to-adapt behavioral models for massive popular support. There is no perfectly transposable model in this new pathology which invites solidarity, in humility. Among the opportunities within its reach, SSA benefits from the political organization around the African Union which appropriates the anti-Covid-19 response among the current objectives, with an emphasis on research and development of phytomedicines. However, their development requires trusting in the rules of ethics and scientific research in this field. Managing the crisis at community level is a significant asset that can help strengthen health systems. Globally, pandemic prevention is dominated by the rapid development of vaccines, already in use in several well-off countries. To date, more than 20 types of vaccines have reached or exceeded phase III efficacy and safety, some of which have even obtained approval for administration. The rational choice of a vaccine therefore requires consultation between different national and / or international expertises. Access to these is limited in SSA, for logistical reasons (storage at  $-80^{\circ}$ ) and cost. Vaccination campaigns must be preceded by responsible and well-targeted communication, in order to break down the many socio-cultural and religious barriers, which risk limiting popular support. Knowledge about SARS-CoV-2 is constantly evolving, but the virus impacts the behavior and fate of mankind in different ways. We have to learn to live with it; far from being a fate, a resignation, this state of affairs will evolve in one direction or another, depending on our behavior as individuals, and the decisions that governments will take regarding the responsible and rational management of the crisis. Together, and in humility, by regularly exchanging new acquisitions both on the prevention and on the treatment of COVID-19, we can hope to achieve an acceptable level of control.

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