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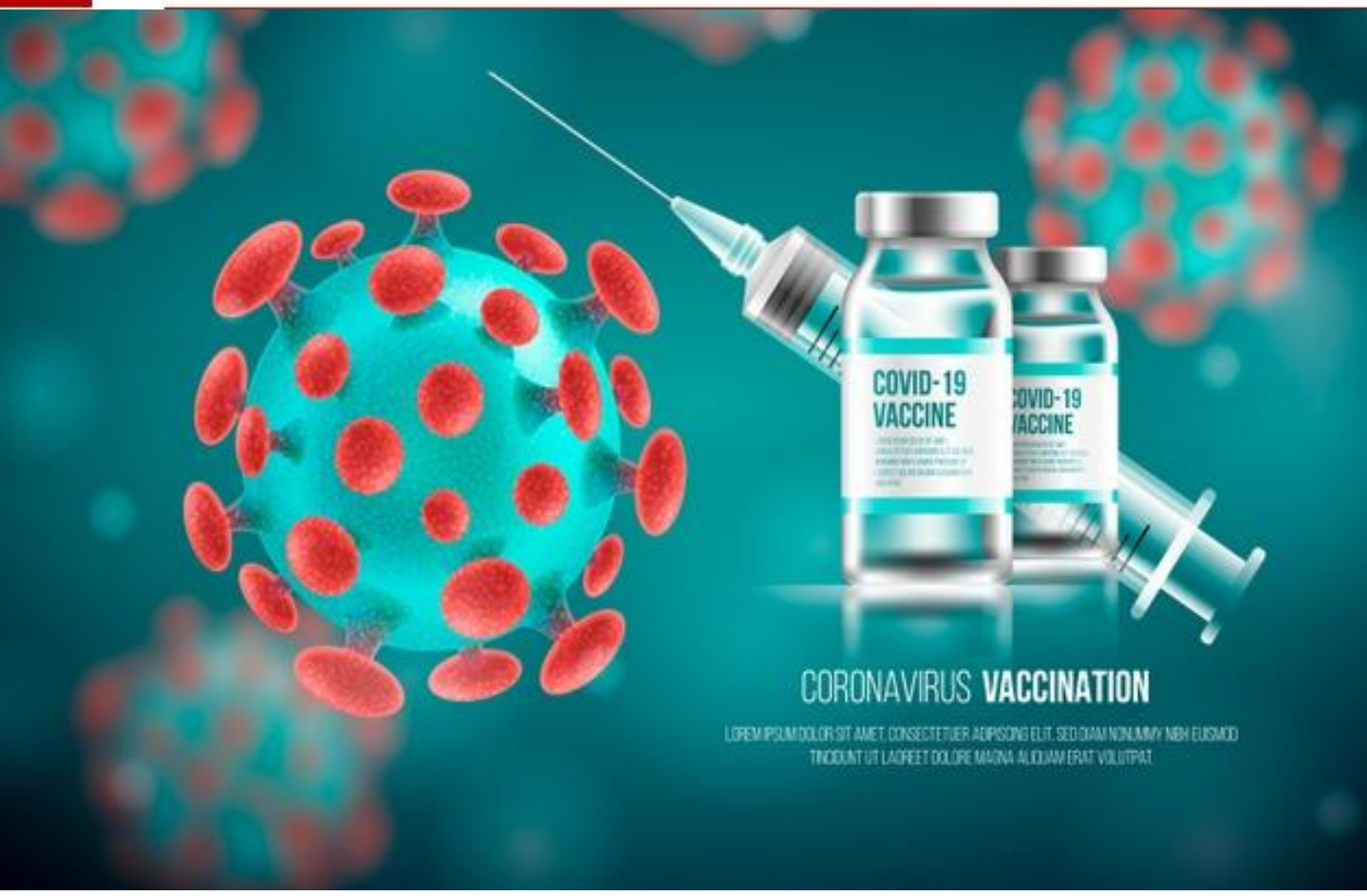
GET AFRICA

AFRICAN NEWSLETTER ON EMERGING INFECTIOUS DISEASES & BIOSECURITY



GET Global Emerging Pathogens Treatment Consortium

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Dr. Ayodotun Bobadoye,
Chief Operating Officer,
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It is my pleasure to once again contribute to GET Newsletter. This is the first edition in 2021 and the 4th edition in the series. The devastating global impact of COVID-19 has affected us all, and few will look back on 2020 with fond memories. With over 218 countries and territories affected and around 1.82 million deaths, more than 82 million confirmed cases as of March 2021 and a global economic impact that the World Bank has predicted will trigger the worst recession since World War II, the COVID-19 pandemic is the biggest global challenge in recorded human history.

The good news is that mankind will always triumph. The COVID pandemic has proved that it is possible to develop, test, and review multiple safe and effective vaccines against a new disease in less than a year. To have ended up with such encouraging efficacy results from more than one vaccine candidate puts us in an extraordinarily promising position, both in terms of ending the COVID-19 pandemic and developing vaccines against other diseases, including future pathogens that could be a source of another pandemic in the future. As at 7th March 2021, over 304million doses of COVID-19 vaccines has been administered across about 114 countries.

Africa has again been left behind in both accessibility and distribution of COVID-19 vaccines. Most of the vaccine companies are located in the developed countries that are enjoying priority of access to the vaccine. As at 22nd February 2021, only 10% of the countries have administered about 81% of all COVID-19 vaccines. The COVID-19 pandemic is unlikely to end until there is global roll-out of vaccines that will protect against the disease and preferably drive herd immunity. No country can be truly safe until the whole world is safe.
This edition is focused on COVID-19 vaccine. There are articles on SARS-CoV-2 vaccine and vaccine effectiveness, different types of vaccines, factors that influence vaccine acceptability, and other interesting topics. I trust you will enjoy reading this newsletter and please send us your feedback.

Dr. Bobadoye Ayodotun
Chief Operating Officer
Global Emerging Pathogens Treatment Consortium (GET).

SARS-CoV-2 VARIANTS AND VACCINE EFFECTIVENESS

By Dr. Bobadoye Ayodotun

More than one year has passed since the first confirmed case of COVID-19 was reported in Wuhan China. The disease has since spread to almost all countries in the world infecting about 117million people and more than 2.5million death has been recorded worldwide as at 8th of March 2021. The quest for a solution to the disease has led to the discovery of COVID-19 vaccines within one year of the viral disease. To bring this pandemic to an end, a significant number of people living in the world need to be immune to the virus. The safest way to achieve this is with a vaccine.

The effectiveness of COVID-19 vaccines is being threatened by the emergence of SARS-COV-2 variants. As long as SARS-COV-2 continues to spread, mutation will occur, and new variants will continue to emerge. These variants could affect not only the effectiveness of the vaccines, but also the natural immunity that COVID-19 survivors have developed.

Results from sequencing of SARS-COV-2 genomes have identified several variants of the virus. The most common variants are the B.1.1.7 (first detected in the UK), B.1.351 (first detected in South Africa), and P.1 (detected in Manaus, Brazil), but other variants have also emerged, including one in New York. Named B.1.526, the variant contains the same E484K mutation that has caused so much concern in B.1.351. This mutation is thought to allow the virus to escape some of the body's immune response.

Findings from research suggest the B.1.1.7 variant is currently thought to be about 50% more transmissible than the original SARS-CoV-2 strain, and possibly more deadly. However, there is no suggestion that B.1.1.7 reduces the effectiveness of Moderna or Pfizer COVID-19 vaccines. This is supported by the fact that the B.1.1.7 variant is neutralized by the sera of Pfizer and Moderna vaccine recipients. Still, research has reported reduced neutralization of the B.1.1.7 variant by convalescent plasma of COVID-19 patients. Novavax reported that its vaccine had 85% efficacy with the variant versus 89% with the non-variant strain, and AstraZeneca/Oxford reported that their vaccine has 74% efficacy with the variant versus 84% with the non-variant strain. Report from Israel suggest that the BNT 162b2 (Pfizer-BioNTech) vaccine is effective at the population level in the country where the B.1.1.7 variant is now predominant.

The B.1.351 variant from South Africa is potentially more troubling. Clinical trials for the Pfizer and Moderna vaccines indicate a reduction in sera neutralization of the B.1.351 variant. Other studies also showed a six-fold to 10-fold lower binding affinity for antibodies to the variant. Additionally, Johnson & Johnson's vaccine had 57% efficacy in South Africa, where the variant is prevalent, versus 72% in the US, and Novavax's vaccine had 49% efficacy in South Africa versus 90% in the UK. However, World Health Organization director Kate O'Brien indicated that these results may have some uncertainty as they were based on a low number of cases in South Africa.

The B.1.351 variant may have a higher chance of reinfecting people who were infected by earlier strains of the SARS-CoV-2 virus. The P.1 variant has some of the same mutations as the B.1.351 variant and could have a higher chance of reinfecting people. More research needs to be conducted on this variant and other variants to monitor its effects.

Pfizer and Moderna are already working on developing booster shots for their vaccines to improve their effectiveness against the B.1.351 strain. There is already some indication of COVID-19 reinfections and possible declining immunity from naturally recovered COVID-19 patients. Early boosters may be required for COVID-19. However, it is important to note that despite the presence of these variants in the population, the vaccines are still likely to prevent severe outcomes such as hospitalization and death.

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TYPES OF VACCINES

By Babatude Hakeem, (University of Reading, UK)

There has been a miraculous speed in the quest to develop the COVID-19 vaccine. We have more vaccine candidates simultaneously research, including 40 in Phase I–II trials and 17 in Phase II–III trials. In Phase III trials, some COVID-19 vaccines has demonstrated efficacy as high as 90% in preventing symptomatic COVID-19 infections. All of them are trying to produce immunity to the virus, and some might also be able to stop transmission. They do so by stimulating an immune response to an antigen, a molecule found on the virus. In the case of COVID-19, the antigen is typically the characteristic spike protein found on the surface of the virus, which it normally uses to help it invade human cells[3].

There are four categories of vaccines in clinical trials: Nucleic acid (RNA and DNA), Whole virus, Protein subunit, and Viral vector. Some of them aim at smuggling the antigen into the body; others use the body's cells to make the viral antigen.

1. Nucleic Acid COVID-19 Vaccine:

RNA vaccines encode the antigen of interest in messenger RNA (mRNA) or self-amplifying RNA (saRNA). The messenger RNA vaccines developed for COVID-19 are a new type of vaccine to protect against infectious diseases in humans. COVID-19 mRNA vaccines work by giving instructions for our cells to make a harmless piece of what is called the "spike protein." The spike protein is found on the surface of the virus that causes COVID-19.

Once the instructions (mRNA) are inside the immune cells, the cells use them to make the protein piece. After the protein piece is made, the cell breaks down the instructions and gets rid of them. The cell then displays the protein piece on its surface. Our immune systems recognize that the protein does not belong there, and this triggers an immune response inside our bodies. That immune response, which produces antibodies, is what protects us from getting infected if the real virus enters our bodies.

2. Whole Virus Vaccine:

Whole virus vaccines use a weakened (attenuated) or a dead deactivated form of the pathogen that causes a disease to trigger protective immunity to it. There are two types of whole virus vaccines. Live attenuated vaccine is the most common traditional method which involves the use of weakened live pathogen which is no longer able to induce infection but able to induce an immune responses and hence mimic features of natural infection. It is capable of inducing both humoral and cellular immune response. These vaccines are popular to induce strong lifelong immune responses within two doses. These are easy to produce for some viruses but challenging for complex pathogens.

World Health Organization (WHO) reported that as of December 2020, there are 7 COVID-19 vaccine candidates in clinical evaluation and 12 candidates in the preclinical evaluation stage developed using this platform. Inactivated vaccines contain viruses whose genetic material has been destroyed by heat, radiation, or chemicals so they cannot infect cells and replicate, but can still trigger an immune response. On injecting it to the host, inactivated vaccines primarily induce protective antibodies against epitopes on hemagglutinin glycoprotein on the surface of the virus. These vaccines tend to produce a weaker immune response than live attenuated vaccines, thus adjuvants are required to provide an effective immune response.

3. Protein Subunit Vaccine:

Subunit vaccines (sometimes called acellular vaccines) are composed of protein or glycoprotein components of a pathogen that are capable of inducing a protective immune response and may be produced by conventional biochemical or recombinant DNA technologies. Recombinant subunit vaccines have distinct advantages over live attenuated and inactivated vaccines since they are efficient in inducing humoral and cell mediated immunological responses, and the risks associated with handling the pathogen are eliminated, subunit vaccines are considered very safe. However, subunit vaccines may be more expensive and may require a specific adjuvant to enhance the immune response.

4. Viral Vector Vaccine:

Viral vector vaccines work by giving cells genetic instructions to produce antigens. But they differ from nucleic acid vaccines in that they use a harmless virus, different from the one the vaccine is targeting to deliver these instructions into the cell. Viral vector vaccines use part of a different virus, one that has been genetically modified not to be infectious. Viral vector vaccines can mimic natural viral infection and should therefore trigger a strong immune response. However, since there is a chance that many people may have already been exposed to the viruses being used as vectors, some may be immune to it, making the vaccine less effective.

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GOVERNANCE OF PERSONAL DATA DURING COVID-19: THE ACT ACCELERATOR DATA GOVERNANCE FRAMEWORK

By Dr. Ciara Staunton
(Senior Lecturer in Law at Middlesex University, London and a Senior Researcher at the Institute for Biomedicine, Eurac Research, Italy)

COVID-19 is arguably the world's first digital pandemic and accessing personal data is essential in our response. Disease surveillance, research into COVID-19 tests, treatment and vaccines, and digital tools to test, trace and analyze the virus all require large quantities of personal data. The Access to COVID-19 Tools Accelerator (ACT-Accelerator) was launched in April 2020 with the purpose to end the COVID-19 pandemic by scaling up the development and equitable distribution of tests, treatments, and vaccines. It comprises of 4 pillars: Diagnostics Pillar, Vaccines Pillar (also called COVAX), Therapeutics Pillar, and the Health Systems Pillar. Early in its work, the Research and Development (R&D) and Digital Working Group of the ACT-Accelerator Diagnostics Pillar recognized not only the importance of access to personal data, but that its use during COVID-19 must be appropriately governed.

While the extent of the use of personal data and digital tools during the COVID-19 pandemic is unprecedented, the recognition of a need for the appropriate governance of personal data during a public health emergency is not new. At the 2018 GET Consortium Meeting in Sierra Leone, a 2-day symposium on data management in public health emergencies heard of the importance of data in surveillance, research, epidemic preparedness, and health systems strengthening. The symposium noted the need importance of trust in data sharing, but reliance on trust in the absence of governance could engender exploitation. There was thus a call to develop equitable data sharing and management frameworks that should be underpinned by key principles for data governance.

In recognition of the need to ensure that the use of personal data by initiatives funded under the ACT-Accelerator is used in a manner that is rooted in human rights, and that supported by a clear and transparent governance framework, the Framework for the Governance of Personal Data for the Access to COVID-19 Tools Accelerator was developed. The Framework is guided by the principles of solidarity, respect for persons and communities, equity, non-exploitation, privacy, data-stewardship, transparency, accountability and engagement. These principles are embedded in a procedural framework that provides guidance on the collection, retention, and management of personal data. In addition, the implementation of this Framework must be supported by public engagement to help enable the identification of potential risks involved in the processing of personal information, and also provide for the feedback to the public on the progress of the work.

[1] https://www.who.int/initiatives/act-accelerator

[2] Nchangwi Syntia Munung, Primus Che Chi, Akin Abayomi, Muhammed O. Afolabi , Jennyfer Ambe, Korlia Bonarwolo, Francis Kombe Kajoleh, Ciara Staunton, Samuel Ujewe, Kabba Yusuf, Godfrey B. Tangwa, Perspectives of different stakeholders on data use and management in public health emergencies in sub-Saharan Africa: a meeting report [version 1; peer review: awaiting peer review]. Welcome Open Res 2021, 6:11 (https://doi.org/10.12688/wellcomeopenres.16494.1)

[3] Ibid.

[4] ACT-Accelerator Framework for the Governance of Personal Data for the Access to COVID-19 Tools Accelerator https://www.finddx.org/wp-content/uploads/2021/01/ACT-A-Dx-data-governance-framework_15.01.2021.pdf

The Framework ultimately aims to promote best practice and the responsible use of personal data in responding to COVID-19. It must be followed by all initiatives funded under the ACT-Accelerator and it is intended to complement any data protection regulations that may apply nationally. Where such regulations and frameworks are lacking, the ACT-Accelerator welcomes and actively encourages countries, as well as COVID-19 related consortia, COVID-19 research projects, and other initiatives that are using COVID-19 personal data to adopt this Framework.

This Framework is a living document and will be updated and refined based on recommendations and experiences with its implementation. Feedback should be sent to the ACT-Accelerator Diagnostics Pillar (ACTAdiagnostics@finddx.org). In addition, the R&D and Digital Working Group of the ACT-Accelerator Diagnostics Pillar must evaluate and update this Framework every 6 months. Through this sharing of experiences in the use and implementation of the Framework during this pandemic, it is anticipated that it can be used to guide the use of personal data in future pandemics.

Acknowledgments

I would like to acknowledge the R&D and Digital Working Group of the ACT-Accelerator Diagnostics Pillar who initiated the development of this Framework, and the ACT-Accelerator Ethics & Governance Working Group who provided substantive feedback throughout the process. We would like to thank the other groups and individuals who provided feedback on earlier drafts of the Framework. A full list of the acknowledgments can be founded in the Framework.

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UNDERSTANDING FACTORS THAT INFLUENCE COVID-19 VACCINE ACCEPTABILITY IN NIGERIA

By Dr. Bobadoye Ayodotun and Ifeoluwa Alabi

A survey was designed to obtain the response on the willingness of people to accept a potential COVID-19 vaccine in Nigeria. The questionnaire was prepared and evaluated to ensure that the respondents understand the questions and the questions were in line with our goal and targeted the objectives of the research. Data were collected using an electronic questionnaire via Google Form distributed on various online platforms.

The questionnaire was administered online due to limitations of person to person contact as a measure to minimize the virus spread. The study population consisted of participants aged between 18 to 60 years and above. The questionnaire contains the demographic characteristics and questions regarding to vaccine acceptance, willingness to participate in vaccine trials and risk perception of COVID-19 vaccine. Our inclusion criteria had adults above 18 years of age; those capable of using internet on a smart phone or computer; residents within the six (6) geopolitical zones of Nigeria and only those who gave consent to participate in the study.

S/n	Factors determining COVID-19 acceptance	% Respondent
1.	Lack of trust in government	46.9%
2.	Nigerians involved in vaccine trials	23.9%
3.	Personal preference	21.4%
4.	Financial reasons	18.2%
5.	Religious belief	4%
6.	Source of the vaccine (USA, China, Russia etc.)	2%

Table 1 shows the factors that determine willingness of respondents to take COVID-19 vaccines in Nigeria. It is clear from the table above that trust is an intrinsic component of any successful COVID-19 vaccine uptake in Nigeria. Result shows that lack of trust in government is strongly associated with COVID-19 vaccine refusal and can contribute significantly to public refusal of the vaccine in Nigeria.

Lessons learned from previous infectious disease outbreaks and public health emergencies such as HIV and Ebola; remind us that trusted sources of information and guidance are fundamental to disease control. Clear and consistent communication by government officials is crucial to building public confidence in vaccine programs. This includes explaining how vaccines work, as well as how they are developed, from recruitment to regulatory approval based on safety and efficacy. Effective campaigns should also aim to carefully explain a vaccine's level of effectiveness, the time needed for protection (with multiple doses, if required) and the importance of population-wide coverage to achieve community immunity.

Other factors that determine acceptability of COVID-19 acceptability among respondents include inclusion in vaccine trails, financial reasons, religious beliefs, and source of the vaccine. Absence of Nigeria and other Africa countries in most of the COVID-19 vaccine trails is a major challenge to the country and region. Sub Saharan Africa displays an incredible amount of genetic diversity. It is difficult to generalized trails from COVID-19 vaccine if the genetic diversity from Africa is not well represented.

Conclusively, Vaccination is an effective process for the prevention of COVID-19 and it is becoming a necessity for people to vaccinate. However, to have the vaccine accepted by Nigerians, there are necessary procedures that must be put in place. Credible and culturally informed health communication is vital in influencing positive health behaviors as has been observed with respect to encouraging people to cooperate with COVID-19 control measures. This includes preparing the public and leaders of civic, religious, and fraternal organizations that are respected within various sectors of society and local communities, as well as the private sector, for a mass vaccination program with credible spokespeople, local engagement, accurate information, and technological support.

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COVID- 19 VACCINES WITH ITS ATTENDANTS' MYRIADS OF DOUBT – WHY WE ARE WHERE WE ARE?

By Dr. Okunye Olufemi Lionel
(Lecturer and Acting Head of Department, Department of Pharmaceutical Microbiology, Olabisi Onabanjo University, Ogun state)

Vaccines are antigenic extract that are primarily made up of proteins, which when administered to a willing or deserved person, capable of inducing the production of antibody to immunize the patients from the specific infective agent.[1] The word vaccine was first mentioned by Edward Jenner in 1795 when he used cowpox virus to prevent the onslaught of smallpox. Although vaccination had been practiced before the existence of Jenner reference. King Mithridates of Pontus was said to have protected himself against poison by drinking blood of duck that had been given some doses of the specific poison. The Roman Elders ate livers of "mad dogs" as remedies for rabies.[2]

Vaccine could be classified as homologous, heterologous, polyvalent, autogenous, or mixed vaccine depending on the mode of preparation and agents involved. Covid-19 vaccine have been greeted with attendants' doubts, fear, and suspicion in Nigeria because people are afraid, and have lost confidence in the 2 subjects involved, precisely the virus (natural or manufactured, its side effect and contraindication) and the government (that has since failed people's sincerity test and trust) in many of their faceless policies[3].

Although researchers around the world are working tirelessly on developing safe and effective vaccines for COVID-19, the disease caused by the novel coronavirus, but their works are being frustrated weekly by the emergence of various mutated strain in different countries. On December 11, the Food and Drug Administration granted emergency use authorization for a messenger RNA (mRNA) vaccine for COVID-19 co-developed by Pfizer and BioNTech. When you get the traditional vaccine, for example, your body is introduced to weakened forms of the viruses that do not cause disease. This triggers an immune response and causes your body to make antibodies like it would with a natural infection. These antibodies help recognize and fight the virus should you be exposed to it later on, helping prevent you from getting sick[4].

But a DNA or RNA vaccine though with the same goal as traditional vaccines, works slightly differently. Instead of injecting a weakened form of a virus or bacteria into the body, DNA and RNA vaccines use part of the virus' own genes to stimulate an immune response. In other words, they carry the genetic instructions for the host's cells to make antigens. Both DNA and RNA vaccines deliver the message to the cell to create the desired protein, so the immune system creates a response against this protein. Research published in 2019 in medical journal *Frontiers in Immunology* reports that "preclinical and clinical trials have shown that mRNA vaccines provide a safe and long-lasting immune response in animal models and humans.[5]"

The religion establishment that could help promote the message of acceptability of their questionable Covid-19 vaccine are disappointed by the double standard from the authority in the management of the pandemic. There seems to be no Nigerian molecular epidemiologist carried along during the development of Covid-19 vaccines and the age-long epileptic supply of light that could threaten the preservation and transportation of such items to locations where it will be administered is a challenge. Varied report of side effects and contraindications from those that had taken the vaccines is creating fear in the communities. - and that is why we are where we are[6]

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PROTECTING GENETIC RESOURCES IN AFRICA: THE NEED FOR ADEQUATE LEGAL REGIME

By Dr. Lateef A. Adeleke
(Senior Lecturer and Head, Department of Property and Commercial Law, Crescent University, Abeokuta)

Africa as a continent is still groping for development in many areas of human endeavors. While our continent seeks for aids and sundry assistance outside her own shores, local resources that could propel her development are either despised, untapped or unprotected. The genetic information of Africans is an example of the untapped and unprotected resources in the continent today. As the cradle of modern humanity, Africa has 3,000 ethnic nations, 2,100 distinct languages and 54 countries with 1.216 billion of the human population. This is a colossus resource, which has attracted the attention of the growing global Biobanking and Bio-economic temple. In retrospect, the black people were transported across the Atlantic, during the slave trade era. In a similar vein, the developed powers may be lurking around the continent of Africa in the coming decade, to cart away the human genome in millions, to develop their private and national economies. Andah and Akpobasa captured the method of the Europeans in the enslavement of Africans thus:

To obtain slaves freely in Africa, they realized early enough the need for diplomacy. This diplomacy meant the undermining of the available political structures within the continent such that it became possible to introduce a slave economy. Subtlety was, therefore, the keyword. By subtle ways the Europeans penetrated the guards of African societies. They started with the introduction of gift items….by subtle methods, they created abnormal habit which eventually led to the establishment of a trading society in the coastal area based on the exchange of consumable items with human beings.

During the trans-Atlantic slave trade, the physical persons of Africans were made to toil for the development of the European economy. Similar methods with different hues might be applied to entrench *genomic slavery*, where the human genome of Africans might be used to change the fortune of the developed world in the global genetic market in the next decade. To sustain the emerging gargantuan genetic economy, a lot of diplomacies might be deployed. Attractive aids and grants targeted at harvesting the human genome in Africa, for commercial purposes will be dangled before researchers and scientists all over the continent. This is to facilitate the establishment of a trade-in the human genome, based on the exchange of biodata for a paltry sum. Sadly, Africa is not taking advantage of the numerous guidelines developed by international bodies on biobanking.

[5] See https://study.com accessed 29 day of December 2019.
[6] See https://www.worldometerss.info accessed 29 day of December 2019.
[7] B.W. Andah and J. Akpobasa (1996) The Enslavement of Africans and Africa: A Critical Overview, West African Journal of Archaeology Vol. 26 (2) p.9

While some countries have passed legislation to regulate biobanking, dealing with human samples in Africa remains largely unregulated.

The foregoing reflects the fact that the law has not been perceived as an effective tool for national development in many African countries. Clarke, et al observed that the economic transformation achieved in China was driven by a conscious recognition from the outset that law had a new and important role to play in the process. In the emerging global biobanking economy, Africa and Africans must develop homegrown legal regime to put them at a vantage position as they interact with the human genome global market. For Africa to survive the wind of the Biobanking economy that is blowing across the globe, we must go beyond the traditional objective of law as a tool for the maintenance of public order and justice. All the opportunities provided by various relevant international treaties and conventions must be utilized to create a legal framework that will prevent the exploitation of Africa (in a manner close to the harrowing experience of the trans- Atlantic slave trade) in the emerging genetic information global market.

The idea of a Biobank

In the UK, Biobank started with a research initiative that is tracking the health of a representative sample of the population from the time at which they sign up until their death. It involved half a million volunteers aged between 40 – 69. In the words of Emily Jackson, ‘‘recruits have given a blood sample, answered questions about their lifestyles and medical history and perhaps most significantly, prospectively granted full access to their past and future medical records’’. Data is encrypted with a code that has no external meaning and will not bare the NHS number of the data subject. The purpose of a Biobank is to create a database that will be useful for research into the causes of common diseases such as cancer, heart disease, and stroke and for public health purposes. Today, Biobanking has grown into a big genetic information market, requiring both international and domestic regulation. While international guidelines abound, African nations have demonstrated lack of political will, to translate same into an adequate legal framework to guard against oppressive plundering of genetic resources of the continent. It is also instructive to note, that African nations need to invest in Biobanking, to safe keep their genetic resources for beneficial and effective utilization.

Genetic information, consent and confidentiality

Unlike many medical tests, a genetic test is not diagnostic, it is rather predictive. This brings about the consent of the data subject and confidentiality of the data kept in a Biobank. These data can reveal information about a healthy person’s risk of future health challenges which might be of interest to a third party. A third party in this respect include users of genetic resources such as the police, employers, insurers, research institutes, universities, and private companies operating in a wide range of sectors.

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[10] Emily Jackson (2009), Medical Law, Cases, and Material 2nd ed. Oxford: University press p. 401- 441

[11] Ibid

[12] ibid

These sectors include pharmaceutical, biotechnology, seed, crop protection, horticulture, cosmetic and personal care, fragrance and flavor, botanicals, and food and beverage industries. Hence, issues of consent and confidentiality of genetic information are both a legal and human right issue. Access to the genetic makeup of an individual means access to complete set of his genetic material and predictive information about his future health prospect. By implication, the genetic information market has a direct impact on the growth of pharmacogenetics, precision medicine or personalized medication regimes, as well as basic research and commercialization of products. It is therefore illegal and contrary to the human right of the data subject, for his genetic data to be used without his consent and for purposes that offend confidentiality or constitute an infraction of the law. The major gap in Africa's relationship with the emerging global genetic economy is the lack of a specific legal regime to domesticate the guidelines already developed by international bodies.

International regulations and lessons for Africa

To enable Africa, relate effectively with the global genomic economy, there is the need to domesticate the existing international regulations and guidelines. Africa needs the right disposition and the required political will to formulate adequate legislation to protect her genetic resources against global exploitation. Among the existing international regulations is the Convention on Biological Diversity (CBD) which was adopted on 22 May 1992 and opened for signature on 5 June 1992 at the United Nations Conference on Environment and Development (UNCED). On 29 December 1993, the CBD entered into force. As of July 2012, the CBD had 193 Contracting Parties, making it an almost universally accepted international agreement. The CBD is the first attempt by the international community to address biological diversity as a whole in a global legal instrument. Contrary to what characterized other international conservation agreements it is based on a broad ecosystem approach rather than the sectoral approach (focusing on specific species, ecosystems, or sites).

According to Article 1, the CBD has three main objectives: conservation of biological diversity; sustainable use of its components; and fair and equitable sharing of the benefits arising out of the utilization of genetic resources. On account of the controversy and complexity of the access benefit sharing (ABS) of genetic resources, the CBD provides an ABS framework. Within this framework, Article 15 of the CBD, entitled "Access to Genetic Resources", is the core ABS provision. Article 15(1) of the CBD clearly confirms the authority of governments to regulate physical access to genetic resources in areas within its jurisdiction. Other ABS-related provisions can be found in Articles 8(j), 10(c), 16, 18, and 19 of the Convention. Despite the opportunities offered by these provisions, many African nations have not established any legal framework to regulate access to genetic resources within their jurisdictions.

Another international instrument which that offered a legislative opportunity to African nations is the Nagoya protocol. According to its Article 32, the Nagoya Protocol was open for signature from 2 February 2011 to 1 February 2012, following which a State could become a Party through accession (Article 35(1) of the CBD). Article 1 of the Protocol addressed its objective, and it emanates from the third objective of the CBD as provided in its own article 1. The objective concerns itself with "the fair and equitable sharing of the benefits arising from the utilization of genetic resources" as the main goal of the Protocol. Article 6(1) reiterates the sovereign rights of States over their natural resources. It clarifies once more that access to genetic resources is subject to prior informed consent (PIC) granted by the provider country, unless otherwise determined. While Article 6(2) regulates access to genetic resources. Yet, many African nations have not been motivated by the provisions of these Articles to come up with the domestic legal regime to guide access to their genetic resources and spell out the ABS procedure.

Despite the foregoing, law, which is a veritable instrument of development, has remained largely static in content and context in many African countries. Therefore, for Africa not to be at the receiving end in the emerging global genetic economy, development must be identified as a higher objective of law by African nations. African nations must as a matter of policy, invest consciously, in Biobanking and promptly develop a comprehensive legal regime that will guide their respective interaction with the Biobanking market.

Dr. Lateef Adeleke is a Senior Lecturer and Head, Department of Property and Commercial Law, Bola Ajibola College of Law, Crescent University, Abeokuta, Nigeria. He is a Law and Development Scholar.

GET 6TH AFRICAN CONFERENCE ON ONE HEALTH AND BIOSECURITY

GET 6th African Conference on One Health & Biosecurity held from the 25th-27th of November 2020, at the Civic Centre, Victoria Island Lagos, Nigeria. The conference was attended by participants both in-person and virtually.

The Conference was an avenue to bring together participants from around the globe, including policy makers, biomedical scientists, public health stakeholders, members from the public and private health sector, and a variety of academics to discuss Africa's resilience in tackling emerging Biosecurity threats in the light of the COVID-19 Pandemic. The forum was organized by the Global Emerging Pathogens Treatment Consortium (GET) in partnership with the Lagos State Ministry of Health.

The key objectives of the conference were based on the premise that Africa should host its own indigenous academic and policy meetings to address response mechanism to biological threats caused by the COVID-19 pandemic. Apart from focusing on discussion on the various efforts at containing the pandemic in Africa, the conference also set out to identify and discuss treatment options, galvanize scientists, policy makers and African community at large to mobilize a concerted post COVID-19 plan.
The forum highlighted the following four key themes to accomplish its objectives as seen below:

- The Rising COVID-19 Pandemic and Efforts to Contain it
- One Health and Biosecurity
- COVID-19 Vaccine Development
- Highlighting Africa's Resilience in Tackling Threats

The Conference elucidated into the following elements:

•Opportunity to present the latest breaking research activity and collaborations from COVID-19 and other deadly Emerging Infectious Diseases.

•Identifying effective ongoing COVID-19 response strategies and use information shared to develop effective response strategies for the region.

•Debate evolving vaccine and immunological therapeutic modalities.

•Identifying regional and international opportunities for collaboration on EID and Biosecurity research.

•Discussing and debating the impact of changing climate on EID and Biosafety internal and indigenous scientific research, fully intertwined with policymaking, as a key foundation in developing biosecurity in Africa.

The 6th African Conference was graced by His Excellency, Gov. Mr. Babajide Sanwoolu (Lagos State Governor), Prof. Akin Abayomi (Hon. Commissioner for Health in Lagos State), Dr. Tomi Coker (Hon. Commissioner for Health in Ogun State), Dr. Obi Emmanuel (Hon. Commissioner for Health in Lagos State), Dr. Innocent Vakkai (Hon. Commissioner for Health in Taraba State), Dr. Olusegun Ogboye (Permanent Secretary, Lagos State Ministry of Health) amidst other participants. Apart from various state governments and organizations in Nigeria, attendees came from member African countries with delegates representing international organizations including the West African Health Organization (WAHO), United Nations Environment Programme (UNEP), World Economic Forum (WEF), African Development Bank (AfDB), Institute of Social and Economic Research and Policy (ISERP), and Global Biological Policy and Programs (GBPP).

Policy Recommendations from the 6th African Conference on One Health & Biosecurity:

•Nigeria should set up a committee on development of vaccine to combat Covid-19 in the country.
•Countries within the West Africa region should work together to fight the pandemic and other emerging diseases while also document experiences, share, and arrive on knowledge-based decisions.
•Sub-national and local governments must be prepared in terms of data gathering, funding, and communication.
•Governments should design recovery policies to effectively co-deliver triple bottom line benefits of economic, climate, and social outcomes.
•Civil Society organizations (CSO) should continue with oversight function and hold government to account and that CSO should establish a network on biosecurity.
•Participants noted that biosecurity is everybody's business, therefore, citizens should be aware of their roles in biosecurity and government should create a bio secured environment.
•There should be effective leadership in addressing infectious diseases and pathogens of high consequences.
•Proper legislation both at the regional and national levels should be in place in managing the pandemic and other health emergencies.
•Africa should not just be a perceive consumer of vaccine but be part of the process.
•Policy makers to invest in preparedness and surveillance at all levels down to the local government. No disease will remain eradicated or contain until members of the state participate in global practices.
•Countries should build healthier, more livable, and more productive cities, which would also reduce Green House Gas emissions.

List of Conference Speakers

- Dr. Chikwe Ihekweazu (Director, NCDC)
- Dr. Abdourahmane Sow (Head of Lab. Services in Charge of Epidemic Control and Public Health Lab. at WAHO)
- Dr. Olusegun Ogboye (Permanent Secretary, Lagos MOH)
- Prof. Olanike Adeyemo (Deputy Vice Chancellor, UI)
- Dr. Olamide Okulaja (Director of Advocacy and Progamme Development at PharmAccess Foundation)
- Dr. Ayodotun Bobadoye (COO of GET)
- Dr. Babatunde Saka (Executive Secretary, GET Consortium)
- Martina Szabo (Lead, Business Engagement and Strategy, COVID-19 Action Platform, World Economic Forum)
- Dr. Ogbuagu Onyema (Yale University)
- Dr. Richard Munang (UNEP Africa Regional Climate Change Programme Coordinator)
- Niniola Williams (Managing Director, DRASA)
- Dr. Margaret Ojeahere (Director, Neotic Minders Health services)
- Prof. Jimmy Adegoke (University of Missouri-Kansas USA)
- Dr. Bamidele Mutiu (Director Lagos State Biobank)
- Prof. Jim Vaught (Guest Professor, Central South University, Changsha China)
- Katherine Budeski and Dr. Wilmot James
- Dr. Wlodek Mandecki (President, PharmaSeq, Inc)
- Prof. Michel Tchuenche (Centre for Economics and Costing, Avenir Health)

The three-day event was sponsored by Zendale Consulting, Carter Biggs, Inqaba Biotec and Peter & Jane Limited. The conference pulled about 300 participants both in-person and virtually. The 7th African Conference comes up in 2021 and the date will be announced later in the year 2021.

PHOTO COLLAGE FROM THE 6TH AFRICAN CONFERENCE ON ONE HEALTH AND BIOSECURITY

Executive Governor of Lagos State- His Excellency, Babajide Olusola Sanwoolu giving a speech at the Conference

Hon. Commissioner for Health in Lagos State-Prof. Akin Abayomi during his presentation

GET COO, Dr. Bobadoye Ayodotun during his presentation

From Left to right: Dr. Obi Emmanuel (Hon. Commissioner for Health in Enugu State), Dr. Olusegun Ogboye (Permanent Secretary, Lagos State Ministry of Health), Prof. Akin Abayomi (Hon. Commissioner for Health in Lagos State) and. Dr. Innocent Vakkai (Hon. Commissioner for Health, Taraba State)

Dr. Alpha Ahmadou Diallo from the Ministry of Health in Guinea, Dr. Ayodotun Bobadoye-GET COO, Hon. Commissioner for health in Lagos State- Prof. Akin Abayomi and GET Executive Secretary-Dr. Babatunde Saka

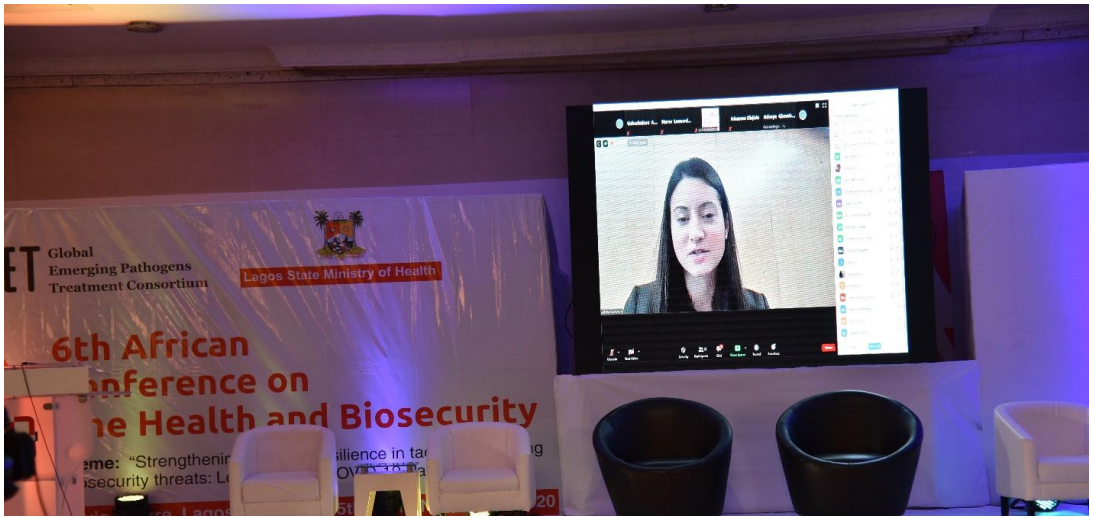
Policy makers and researcher's interactive session

Dr. Ismail Abdul-Salaam, Director Epidemiology, Biosecurity and Global Health, Lagos State Ministry of Health giving a speech at the conference

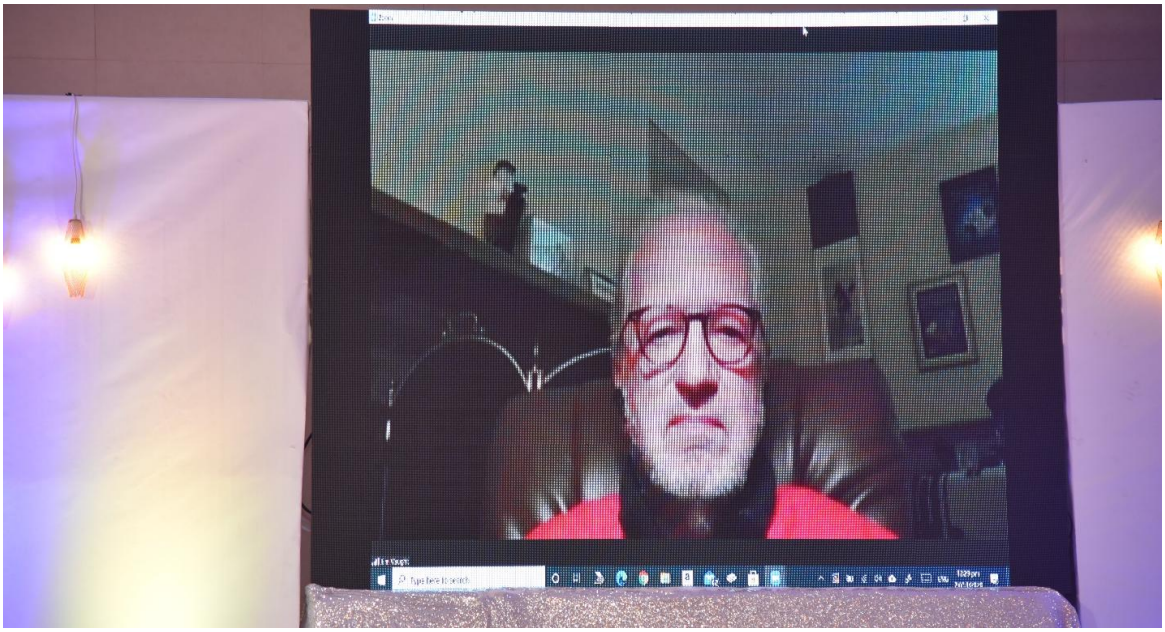
Permanent Secretary, Lagos State Ministry of Health-Dr. Olusegun Ogboye during his presentation

Hon. Commissioner for Health in Ogun State-Dr. Tomi Coker during her presentation

Dr. Bamidele Mutiu, Director, Lagos State Biobank *giving a speech at the conference*



Martina Szabo (Lead, Business Engagement and Strategy, COVID Action Platform, World Economic Forum during her online presentation



Prof. Jim Vaught (Guest Professor, Central South University, Changsha China) during his online presentation

Conference Participants

Rear View of Conference Participants

Rear view of conference participants

Representatives from the International Embassies in Nigeria

Conference participants seated at the conference hall

Conference participants from the Lagos State Ministry of Health

OPPORTUNITIES FOR RESEARCHERS

• **The African Oxford Health Innovation Platform (AfOx-HIP) 2021 for Emerging African Researchers and Innovators**: The African Oxford Health Innovation Platform (AfOx-HIP) is a multidisciplinary programme to support African innovators develop new solutions to Africa's Health Challenges.
The Africa Oxford Health Innovation Platform (AfOx-HIP) 2021 for emerging African researchers and innovators. | Opportunities For Africans
Deadline: 31st March 2021.

• **German Development Institute managing Global Governance (MGG) Academy 2021 for young emerging leaders**: The MGG Academy supports future change makers who are dedicated to transformative change.
German Development Institute Managing Global Governance (MGG) Academy 2021 for young emerging Leaders. | Opportunities For Africans
Deadline: 31st March 2021.

• **Antarctica New Zealand Postgraduate Research Scholarship Programme 2021**: The postgraduate research scholarship is designed to support talented researchers to get off to the best possible start in their research careers, focusing on Antarctic and Southern Ocean systems.
Antarctica New Zealand Postgraduate Research Scholarship Programme 2021 | Opportunity Desk
Deadline: March 21, 2021

• **Call for Applications: UNESCO Silk Roads Youth Research Grant 2021 (Up to $10,000):** the grant aims to mobilize young researchers for further study of the Silk Roads shared heritage.
UNESCO Silk Roads Youth Research Grant 2021 | Opportunity Desk
Deadline: April 18, 2021.

• **UNESCO-Japan prize 2021 for outstanding projects in Education for Sustainable development (US$50,000 prize):** The Japan prize on education is funded by the Government of Japan, consists of three annual awards of USD 50,000 for each recipient. It was awarded for the first time by the Director -General of UNESCO in November 2015.
UNESCO-Japan Prize 2021 for outstanding projects in Education for Sustainable Development (US$ 50,000 prize) | Opportunities For Africans
Deadline: 30th April 2021.

• **UNFCC 2021 UN Global Climate Action Awards (Fully funded to UN Climate Change Conference in Glasgow, Scotland):** spearheaded by UN Climate Change's Momentum for change initiative, the UN Global Climate Action Awards shine a light on the most innovative, scalable, and replicable examples of what people around the world are doing to tackle climate change.
UNFCC 2021 UN Global Climate Action Awards (Fully Funded to UN Climate Change Conference in Glasgow, Scotland) | Opportunities For Africans
Deadline: May 1, 2021.

• **Rhodes University Postdoctoral Research Fellowships 2022 (funding available**): The University council has established several Rhodes University Postdoctoral Research Fellowships across all faculties which may be awarded for one year with the possibility of renewal.
Rhodes University Postdoctoral Research Fellowships 2022 | Opportunity Desk
Deadline: July 31, 2021.

Editorial Team