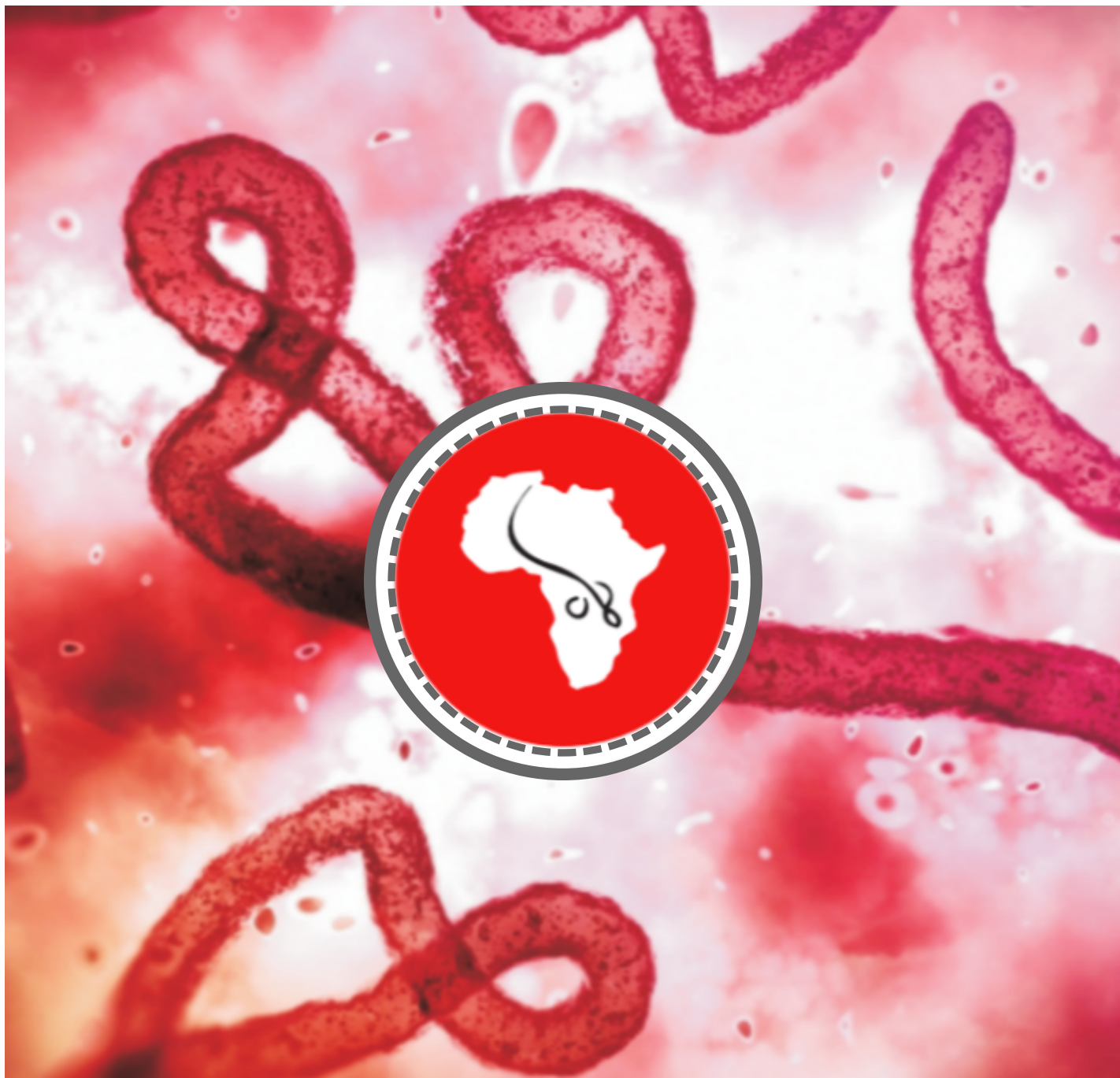


GET AFRICA



**AFRICAN NEWSLETTER ON EMERGING INFECTIOUS
DISEASES & BIOSECURITY**



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Welcome to the Maiden Edition of the GET Newsletter



It is indeed my pleasure to share with you information and updates through the GET newsletter. This is our maiden edition. GET, as you may all be aware, is the acronym for The Global Emerging Pathogens Treatment Consortium (GET). It was established in 2014 as a direct response to the 2014-15 Ebola virus disease outbreak in West Africa and the need to create an African-led multidisciplinary forum of experts capable of working together to strengthen Africa's preparedness and resilience in tackling such infectious disease outbreaks, public health emergencies and pandemics.

GET was created as a platform to enable African-based experts from diverse fields to come together to develop a unified response to infectious disease emergencies in Africa. Its primary purpose has therefore been to develop African-led and African-centered strategies opened to international support, that effectively addresses emerging infectious diseases. Currently, GET's work is limited to West Africa. GET also addresses biosecurity issues.

Since its inception, the GET platform has enabled a diverse body of experts, drawn from within and outside of the African continent, to brainstorm, share thoughts, perspectives and ideas. These include experts on health systems strengthening, infectious diseases surveillance and control, pathology diagnosis and laboratory medicine, bioinformatics, bio-banking, public health, bioethics, community engagement and patient advocacy. The Consortium creates an opportunity for the development and delivery of a rapid, informed response strategy by providing advice, guidance and technical assistance to governments, regional and international health authorities, stakeholders and international aid agencies.

GET prioritizes institution of biosecurity measures by countries on the continent. It is therefore doing a lot around creating awareness on the need for countries to put in place and own health related biosecurity measures. Biosecurity measures are needed to protect public health – we need to understand how to stop the spread of dangerous pathogens.

This requires investment in vaccine research and development, development of therapies that allows for prompt treatment and cure, and developing diagnostic assays and biosensors that



enhances rapid detection of diseases. For a continent with currently limited competency in biomedical and macular biology research, we need to invest in systems and structures that allows us to jump-start the process – collaboration, partnerships, networks and advocacy for change.

Making biosecurity issues central to the global health agenda of countries, institutions and organizations program is therefore key to achieving the GET agenda. We need to collaborate with the Global-South and the Global-North to enhance pathogen detection through improved bio-surveillance and diagnostic tests. We also need to improve the quality of research work of researchers on the continents so that their research outputs can inform the global health agenda. We need to facilitate spaces for representatives on the continent to sit and engage with stakeholders discussing global health related agenda so as to ensure the continent, and countries on the continent are not left behind. We need to do a lot more of learning from others in diverse fields of technology, arts and science without forgetting the need to respect our diversities even as we proffer solutions to health problems.

Once again, I welcome you to the maiden edition of the GET newsletter. Let's all stay engaged.

Morenike Oluwatoyin Folayan



GET's 1st African Conference on Emerging Infectious Diseases & Biosecurity





The Global Emerging Pathogens Treatment Consortium



The Global Emerging Pathogens Treatment Consortium or GET, was set up in response to the West African Ebola outbreak in 2014. Several experts on the Continent lamented the very limited understanding and capacity to mount a response to a public health threat caused by a high consequence pathogen, let alone how to put measures

in place to prevent such scenarios. We quickly became aware of the close synergies that need to exist between medical, logistics and security agencies in preventing and responding to what we now clearly understand as biosecurity threats causing our focus to shift over the years to one of preparedness and support for policy formulation in the African Biosecurity Space.

GET found the understanding of biosecurity to be a very underdeveloped area on the Continent with clear opportunities for using biosecurity to dramatically improve on capacity for prevention and medical countermeasures during public health crises. We also came to understand the tremendous overlap and inextricable linkages between environment, human, animal and plant health in the one health paradigm.

So what is biosecurity? In a nutshell the responsible custodianship of the biosphere. The United Nations Food and Agriculture Organization define biosecurity in the context of a strategic and integrated approach that encompasses the policy, regulatory frameworks, instruments and activities for analyzing and managing relevant risks to human, animal and plant health, and associated risks to the environment. Biosecurity covers food safety, zoonosis, the introduction of animal and plant diseases and pests, the introduction and release of living modified organisms (LMOs) and their products (genetically modified organisms or GMOs), and the introduction and management of invasive alien species. Thus, biosecurity is a holistic concept of direct relevance to the sustainability of agriculture, and wide-ranging aspects of public health and protection of the environment, including biological diversity.



Biosecurity means different things to different disciplines.

- **Laboratory Biosecurity:** Prevents loss, theft, misuse, diversion or intentional release of pathogens or toxins.
- **Medical Biosecurity:** Ensures systems are in place to equip the medical fraternities' ability to respond to biological threats through well prepared personal, operating in accredited facilities and medical countermeasure protocols in order to minimize morbidity and mortality. This includes the means to conducting research especially during a biological threat caused by a high consequence pathogen that may be unknown or have limited treatment modalities available. Such research must happen under appropriate governance structures.
- **Food and Agriculture:** Manages biological risk in the food, plants and environmental sectors. Essentially, it is a holistic concept to ensure sustainability of agriculture and food security.
- **Environmental Biosecurity:** Includes plant pests, zoonosis, genetically modified plants and their products, management of invasive alien species and genotypes and the protection of biodiversity and the environment.
- **Animal Health Biosecurity:** Ensures the creation of barriers to limit the opportunities for infected animals or their products to enter uninfected sites and ensure safe animal protein for consumption.
- **Life Sciences Researcher:** It means responsible conduct of research and accountability to society.
- **Security Agencies:** To ensure systems are in place to assess risk and take counter measures to eliminate potential hazards.
- **Legislators:** Ensuring the laws of the land are constantly updated to adopt international treaties and to keep abreast of biotechnological developments.
- **Rapid Respond and Medical Emergency Preparedness agencies:** Protocols are in place to rapidly respond to biological threats when they occur with a multi sectorial organised approach
- **Public Health:** Ensure that early warning systems are in place through integrated disease surveillance mechanisms to identify and predict likely emerging hot spots.

An integrated biosecurity framework is therefore multi-dimensional and requires high level coordination in order to protect a countries way of life, natural productive resources and biodiversity from harmful effects of pests, diseases, toxins and technology that threaten to corrode the wellbeing of society. It goes without saying that biosecurity is an essential part of sustainable development and national security.

In the last 20 years, demographic expansion in Africa has had increasing impact on the earth with over utilization of nature's resources some of which have finite supply such as forests, fresh water, fresh air and biological species. As a result, there has been almost a fourfold increase in



zoonotic events on the continent in the last 10 years. Increasing industrialization over the past 200 years has seen humanity accelerate science and technology, resulting in what is understood now as the four stages of industrial development culminating in the current dispensation known as the Fourth Industrial Revolution or the 4IR.

The four stages of the industrial revolution have been coupled with the ethos of capitalism and exploitation, which aspires to maximize profits at the expense of humanity and the environment thereby creating even more insult to the biological systems of nature. Africa, suffered tremendous pillage during the preceding 3 industrial revolutions in the form of slavery and colonialism, which has left the continent in a state of perpetual conflict and instability till today. One of the consequences of this is a plethora of Non-State Actors and Terrorist organizations emerging in response to environmental and economic pressures. This scenario behoves us to be mindful of the opportunities for these organizations to resort to biological or chemical means of aggression to achieve their objectives.

All stages of the dynamic transformation of man's ability to manipulate his environment has brought both tremendous benefits and at the same time, many challenges. These challenges threaten the biosphere and the immediate ecosystem in which we are so intimately connected to and dependent upon for health, harmony and survival. If we continue to interrupt nature's way of providing renewal and deep cleansing of the biosphere we set up vicious cyclical currents that result in biological threats and ecological instability due to loss of nature's intrinsic control mechanisms. Nature has its own way of relieving the pressure we apply on it and when it does the impact on humanity can be devastating.

We are just entering what we now call the Fourth Industrial Revolution (4IR) characterized by the fastest pace of biotechnological advances in the history of mankind. 4IR is possible because of certain scientific and technological breakthroughs that are going to revolutionize the way we live on earth. These are the ability to modify genetic codes, the dramatic increase in computational analysis and mining of big data, fast internet and the advent of 5G linking all gadgets on earth into one cloud of huge data. This ability to manipulate the very codes of life that have taken thousands of centuries to find balanced equilibrium and delicate interdependencies is likely to have very major consequences if not governed and managed with extreme oversight and responsibility.

This is likely to be an impossible expectation as many of such biotechnological advances such as gene editing and gene drive technology are easily and readily available to scientists who may be operating without appropriate oversight and due diligence. The probability of harm caused by



dual use technology has never been higher. The risk of creating uncontrollable biological entities is extremely concerning particularly in a world that is still plagued with political unrest and regional conflict. This has given birth to the fear of Global Catastrophic event or existential risk. Such a scenario would threaten the premature extinction of humanity or the permanent and drastic destruction of its potential for desirable future development leaving some survivors alive but unable to rebuild society. Existential risks are especially worth focusing on in Africa because of our vulnerable human capital and infrastructure deficiencies and our inability to mount effective responses. Poor resilience would have devastating impacts on the continent far in excess of what would occur in more developed environments faced with the same risk threat.

In the face of this reality, GET has been involved in multiple activities highlighting the importance of biosecurity awareness at both the policy and community level in Africa and critically amongst tertiary institutions where countermeasures are likely to be formulated. There are numerous international treaties that address Biosecurity and we are particularly involved in ensuring that these treaties become domesticated and institutionalized into our legal, security and academic institutions.

We encourage you to attend our annual biosecurity conference whenever one is close to your vicinity in Africa.

Akin Abayomi

Akin Abayomi is a specialist in Internal Medicine and Haematology with an interest in environmental integrity and biosecurity. He is currently Professor at the Nigerian Institute of Medical Research, Yaba, Lagos and Principal of the Global Emerging Pathogens Treatment Consortium.



From left to right: Freda Suglo, Akin Abayomi, Jerry Brown, Lungi Morrison, Nelson Makamo

Economics, Security, Society: A Case For Africa's Increased Investment in HIV Prevention Research



HIV was described by the UN Security council as a threat to peace and [1]. Just like wars and cross border conflicts that result in the loss of life, collapses of socio-economic national security structures, HIV and AIDS gradually and steadily, destabilize communities systems and structures. Sadly, despite significant progress made with HIV control, HIV and AIDS remains a threat to the economic, security and societies in Sub-Saharan Africa.

In spite of the commendable programs in place for HIV prevention and treatment in Africa, the HIV epidemic is still growing with 1.9 million adults and over 150 000 children newly infected with the virus annually. Almost two-thirds of new infections occurring in Sub-Saharan Africa. Multiple socio-economic factors continue to put individuals at risk on the continent. High on this list is poverty. The second being poor access to education. For many women, their inability to be autonomous agents in many patriarchal societies in Africa.

The risk of HIV infection for many women is exacerbated by their biophysical make-up. In Africa, AIDS is a major risk factor for mortality for many women of reproductive age. In South Africa, young women are four times more likely to be infected with HIV than men their age. Adolescents in Sub-Saharan Africa account for nearly 80% of all new infections among adolescents with a prevalence of about 1.4 million new infections every year. Compared to other parts of the world, Sub Saharan Africa has the highest number of HIV strains – A, C, D and the AG recombinant found in West Africa.

The costs of lifelong treatment and health care needs create a persistent heavy economic burden on people living with HIV, their families and their governments. Sadly, many African countries depend heavily on donor funding for the management of HIV, and in countries where this resource has been reduced or redistributed, hospitals are starting to see a significant rise in new cases of HIV infections. The donor dependency syndrome for HIV management could present a biosecurity risk in Sub-Saharan Africa in the form of a resurgence of the HIV epidemic.

Unlike Ebola that had an acute impact on the economy and security of affected communities, the impact of HIV is insidious and chronic. It is estimated by the World Health Organization (WHO) that only 75% of people with HIV globally know their status [2]. Indeed, UNAIDS has described the current prevalence of HIV infections a crisis [3].

What the HIV epidemic in Africa then calls for is innovation. Innovation in designing tools and strategies for prevention that will not only be affordable and accessible to people from a cross section of genders, age groups, socioeconomic status, religions, literacy, sexual orientations , but will also be appealing to them. What research should be aiming for is HIV prevention strategies that people will actively choose to access and use discreetly with little or no disruption to their lives.

Domestic resourcing of HIV management programs is essential, as is investment in research to develop HIV prevention tools that suite the social context of the lives of people in Sub-Saharan Africa. Investing in HIV prevention research and development will save the continent treatment related costs; improve the wellness status of the community and drive economic growth, and in so doing, enhance regional security. Africa needs to play a bigger role in financing and driving the continental agenda for HIV prevention research and development.

Ethel Makila

Ethel Makila is the Associate Director, Advocacy, Policy and Communications, for the International AIDS Vaccine Initiative (IAVI) [4] Country and Regional Programs in Nairobi. She provides leadership for the Africa programs in political, policy and science advocacy; designing and implementation of policy initiatives to accelerate HIV vaccine R&D; and communication and media engagement.

[1] http://www.un.org/ga/aids/ungassfactsheets/html/fssecurity_en.htm

[2] <http://www.who.int/news-room/fact-sheets/detail/hiv-aids>

[3] <https://bit.ly/2J0vmol>

[4] <https://www.iavi.org/>



What It Takes to Make HIV Prevention Truly a Biosecurity Response



What it takes? Effective engagement of communities where HIV prevention research are being conducted. HIV prevention and control started with organized community responses. Science took up the challenge to respond to the pressures raised by community members. Community has always wanted to be and continue to ask to be part of the HIV research design and implementation. The science is primary about we community members.

HIV is a well recognized global biosecurity threat. AIDS significantly depleted the military and undermined economic development because of the significant impact it had on human investments. Travel bans and security checks at borders were not enough measures to curtail globalization of the epidemic. Active engagement of affected community members in the design, implementation and registration of HIV drugs had significantly influenced the huge success story and curtailment of HIV today.

We are however not completely out of the woods. For HIV to be controlled, HIV prevention tools have to be widely available and accessible to all persons who need it. This implies that HIV prevention research needs to be supported to help develop a wide range of armamentarium for HIV prevention. People need what works for them.

In the recent past, we have seen a dramatic changes in the field. We now not only have HIV post-exposure prophylaxis and the male and female condom for HIV prevention, but also male circumcision, and the use of antiretroviral for the prevention of new HIV infection (pre-exposure prophylaxis). Antiretroviral treatment of persons infected with HIV also helps with HIV prevention as persons living with the virus who have undetectable viral load are not able to sexually transmit HIV infection.

Beyond the tools however, community members actively invested in the science of HIV prevention research have helped contextualize the design and implementations of these research to help ensure the social context that can facilitate its use are addressed in the product development process. We still have miles to go. We still need to develop tools that are suitable



for use for more and more diverse populations. This include the development of a HIV vaccine among others.

Community members want to stand and be counted as part of their own success stories. We want to contribute lasting solutions to our prevention and treatment needs. History tells us that passively leaving community relevant solutions in the hands of scientists is not a viable approach. More often than not, those science products are left on the shelf untouched. To make the needed drastic difference with HIV vaccine research and development, we need to be actively engaged once again.

Countries reporting successes with their HIV response have been able to do this through active engagement of diverse communities. For us to promptly see the translation of research outcomes to community programs, community members need to be actively engaged with research design and implementation.

In an effort to streamline this process, research organizations, agencies, programmers and policy makers worked with communities to develop guidelines on how to actively involve communities in research processes. The outcome of that collaboration was the HIV prevention the UNAIDS/AVAC Good Participatory Practice Guidelines in Biomedical HIV Prevention Trials in 2007 and the revised edition in 2011. The guidelines facilitate the conduct of ethically and socially inclusive research that is human rights sensitive.

We still need to do more. We need to move community engagement off the checklist box and make the engagement empowering for community members. We need to acknowledge the power dynamics between the rich Northern countries that fund and implement these biomedical HIV prevention research, and the poorer south that participate in the research process. The 2011 UNAIDS/AVAC Good Participatory Guidelines enshrine efforts that makes the interests of communities receive precedence as part of the research and development process.

As an advocate, I acknowledge that the principles enshrined in the guidelines are not easily measurable commodity making it harder to track; and even harder to correct as perception play a big role in judging respect for these principles. When the community engagement process is respected, then the perspectives of the engaged community needs to be prioritised and respected.

Community engagement in clinical trials provide opportunities to enrich research outcomes that will eventually benefit public health. In addition, the research outcomes will result in



better health outcomes not just for the host research community. The process of ensuring benefits with community participation in research starts when community representatives are engaged in the research conceptualisation process. It helps reduce the risk for myths and misconceptions that could mar participants recruitment and retention process; and produce uptake and use at the end of the research.

So, what does it take to make HIV prevention research a biosecurity response? It takes the village. Engage the village.

Ntando Yola

Ntando Yola is a South African based human and health rights campaigner His work includes advocacy for policies that ensures scientific discoveries benefit communities impact. He has co-founded Advocacy for Prevention for HIV and AIDS (APHA).



Community Engagement in Research: What Community Advocates Think



History has shown us that in times of crisis, whether food riots, medicine shortages or a state of emergency in Venezuela, post election violence in Zimbabwe or indeed outbreaks of Ebola in Liberia or Zika in South America, the strain on the public health system is one of the most immediate weak points in times of crisis. In the context of infectious disease epidemics, the recognition and protection of human rights are often the first to be sidelined in the urgency of finding solutions to health risks that have the potential to inflict immediate loss of life. It is for that reason that the success of community engagement during these times need to be centered

more than ever before. The success of community engagement, in times of crisis or not, depends largely on the relationships that are identified, nurtured and sustained long before a crisis hits. The agency and ability of existing community programs, advocates and stakeholders to (a) engage, inform and mobilize communities (b) the integrity with which this engagement is carried out and (c) the trust that is either built or compromised between stakeholders are all pillars that will either support, sustain, delay or frustrate urgent lifesaving research activities in times of crisis".

In addition to ensuring that solid, locally owned (not bought in!) foundations for engagement are in place, updated rights based guidelines for robust consent procedures that are ready to implement should be a priority, coupled with an intensified focus on participant rights. One way through which this can be done is through the development of a resource such as a rapid assessment checklist to ensure that participant and community rights are specifically named and centred as well as accounted for to ensure that no right is left behind in our quest for urgent answers.

Tian Johnson

Tian represents a global group of HIV Vaccine advocates, the Vaccine Advocacy Resource Group (VARG) on the African AIDS Vaccine Virtual Network Steering Committee. He runs an independent consultancy, The African Alliance for HIV Prevention.



Community Engagement in Research: What Community Advocates Think



Community engagement in research is very critical as it enhances community ability to address its own healthy needs and healthy disparities. Research helps to provide the needed information that community members use to make their health priorities. Also, community engagement increases community understanding of the research issues and the need to address these issues. The how and why to engage community in research has become a topical issue over time. There are more and more researchers acquiring the skills to do this better and better especially in the field of HIV research. A

few still need to learn the ropes however. Building the competencies of researchers to understand how to engage communities in the planning, design and implementation of research in an ethical manner is as important as it is to build their skills on research methodology.

The emergency nature of infectious diseases should not preclude community engagement in the design and implementation of research. Community members, through their representatives, should be given the chance to contribute to decisions on how such trials should be conducted including defining the standard of care that should be provided for trial participants. Communities need to understand and be involved in designing the care package, and in making decisions about access to adequate care while participating in research conducted during lethal epidemics like the case of Ebola. Decisions about post trial access to care and developed products from the trials also need to be made with the community.

Community engagement needs to be a continuous process during trial implementation and not a one-off activity. Community members should have access to information as such the trials progress including information on challenges and successes achieved. Lastly, I also strongly feel that communities need to be empowered and equipped in managing trial related information so that they are able to share factual information with their fellow community members.

Maureen Luba

Maureen is a champion for young women's health and a passionate advocate for HIV prevention for young women and girls. Currently she coordinates a regional advocacy project, COMPASS, that aims at enhancing the capacity and participation of Civil Society Coalitions from Malawi, Tanzania and Zimbabwe in Global Fund, PEPFAR and national government decision making processes.

Biosecurity in Africa



Disease outbreaks in the plant and animal production industry in Africa is not new. In 2006, an outbreak of epizootic ulcerative syndrome (EUS) was reported along the Chobe and upper Zambezi Rivers in Botswana and Namibia. Between 2010 and 2011, other reports of EUS emerged from Okavango Delta in Botswana and the Western Cape Province of South Africa (Huchzermeyer & van der Waal 2012). Other aquatic disease outbreaks that happened in recent times in Africa include Koi Herpes Virus in South Africa and White Spot Syndrome Virus disease in Madagascar and Mozambique (AU-IBAR, 2016). In May 2016, a highly pathogenic avian influenza virus was reported at an industrial poultry farm in Yaounde, Cameroon, which claimed the lives of 75% of the birds. This was one of the 21 outbreaks that occurred in Cameroon between May 2016 and March 2017 (Wade et al. 2018). The February 2018 edition of the monthly global report of the foot and mouth disease confirmed outbreaks in communities in Ethiopia, Kenya and Zimbabwe (FAO 2018).

Biosecurity is the sum total of the processes and practices designed to prevent the introduction of pathogenic agents into animal and plant populations, or the prevention of the spread of pathogenic agents to unaffected populations or locations. These processes and practices also help to reduce the risk of spreading diseases through the movement of animals, personnel, equipment and other materials during response activities.

The 2014 – 2016 Ebola outbreak in West Africa clearly exposed Africa’s vulnerability to disease outbreaks and her inadequacies in responding to such outbreaks. Widespread individual and national poverty, weak systems and dilapidated infrastructure, and poor epidemic response preparedness all coalesce to increase the impact of outbreaks. This is true for human, animal and plant populations.

A major challenge with effective biosecurity in Africa is Africa’s lack of long-term preventive and pro-active strategies in addressing known vulnerabilities, and the penchant for reacting to situations as they arise. The continent has paid dearly for this. Africa needs to put in place robust biosecurity systems and measures across all fields of agriculture – plant and animal – both for economic sustainability and for the protection of plants, animals and humans from the risks and threats of pathogens and diseases.

Biosecurity preparedness involves putting in place adequate plan to respond to biosecurity threats before an incident occurs. This requires anticipating biosecurity issues that may arise, putting in place appropriate plans to prevent those issues from arising, and elaborating plans to deal with those issues should they arise. Some of the measures which could be replicated at the industry, sub-national and national levels, include:

- Having designated personnel responsible for ensuring biosecurity.
- Having written policies and procedures that clearly communicate to all stakeholders steps required to minimize the risks of introducing pathogens into plant and animal production facilities, and what should be done if an outbreak occurs.
- Assessing and documenting the risks of biosecurity challenges – creating awareness of the importance of biosecurity, understanding the transmission of disease agents within a biological community, and the likelihood of outbreaks occurring.
- Developing a plan to mitigate the risks identified – developing dummy scenarios that mimic actual situations and a walk-through on preventive measures.
- Developing an intervention plan to minimize the damage in the event of an outbreak – using simulated exercises that involve controlling or restricting the movements of people, animals, vehicles and equipment, isolating infected and suspected animals, assessing the health of susceptible and exposed animals, and cleaning and disinfection procedures to reduce or eliminate pathogen transmission. In addition, adequate provision should be made for stocking appropriate materials and equipment such as personal protective equipment, development of standard operating procedures, which is regularly communicated to biosecurity response team and regular dress rehearsals.
- Developing a communication plan to notify responsible authorities and personnel of any biosecurity emergencies
- Putting an effective surveillance system in place for monitoring biosecurity situations between contiguous communities, at sub-national units, at the national level and within the sub-region.

Some key issues that should be addressed urgently in Africa include:

1. Capacity development: There is a critical need to develop the capacity of African countries to put in place effective biosecurity preparedness, including an effective biosecurity surveillance system, appropriate interventions when biosecurity breakdowns, appropriate skills to communicate with different biosecurity stakeholders, and to influence biosecurity policy.
2. Dedicated funding for biosecurity.
3. Fostering regional and sub-regional collaborations and partnerships on biosecurity.
4. Implementation of effective surveillance for potential threats to biosecurity.
5. Funding of research into different aspects of biosecurity.



Addressing the biosecurity needs in Africa is non-negotiable. Africa cannot rely on foreign helps to address her biosecurity needs. She has to confront her biosecurity challenges head on to enable the continent build a truly sustainable biosecurity preparedness. The leaderships on country and continental levels are liable for any status of unpreparedness.

Chidi Victor Nweneka

Dr Nweneka is a strategic manager and knowledge management specialist with deep interests in capacity building, infectious diseases and nutrition. He has published several papers on HIV and malaria

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What Has Health Got to Do With Biosecurity?



In an increasingly threatened world with attendant efforts geared at mitigating them, biosecurity is one concept that is increasingly gaining prominence on the security landscape. Biosecurity highly featured in discussions and interventions designed by expert in the field of agriculture and environment. With time, its scope had expanded to take cognizance of other areas like health in response to threats from biological terrorism. Originally, it started out as a set of preventive measures designed to reduce the risk of transmission of infectious diseases in crops and livestock, quarantined pests, invasive alien species and living modified organisms (Koblentz 2010).

Biosecurity encompasses efforts directed at prevention of the intentional removal (theft) of biological material from research laboratories. These preventive measures require a combination of systems and practices prevent the use of dangerous pathogens and toxins for malicious use. It also requires putting in place mechanism to ensure custom agents and agriculture and natural resource managers prevent the spread of biological agents.

What then is biosecurity: There is however no single definition for biosecurity. The definition is discipline specific. Biosecurity itself is more than a buzzword. It is the vital work of strategy, efforts and planning to protect human, animal and environmental health against biological threats. The primary goal of biosecurity is to protect against risk posed by disease and organisms. The primary tools of biosecurity are exclusion, eradication and control, supported by expert system management, practical protocols and the rapid and efficient securing and sharing of vital information. Biosecurity is therefore the sum of risk management practices in defense against biological threats (Meyerson & Reaser 2002).

In an effort to provide *"a unified definition of biosecurity,"* Meyerson and Reaser noted that *"increasingly however, the term biosecurity has been applied more broadly to encompass efforts to prevent harm from both intentional and unintentional introductions of organisms to human health and infrastructure and environment, as well as to the agricultural crop and livestock industries."*

In recent years, new disease threats such as SARS, Ebola, Zika, Monkey pox, Avian flu, mad cow disease, drug resistant strains of malaria and tuberculosis have raised further interest in pushing biosecurity threats to health on the political agenda. Actions on the biosecurity front



now include public health and medicine experts, those working in the field of emergency management, national security agencies and global humanitarianism (Meyerson & Reaser 2002).

WHO report (WHO 2007) noted that series of factors –demographic changes, economic development, global travel and commerce - have “heightened the risk of disease outbreaks,” ranging from (then) emerging infectious diseases such as HIV/AIDS, and drug resistant tuberculosis to food borne pathogens and bioterrorist attacks. In the globalized 21st century world, simply stopping disease at national borders is not adequate. It is also not sufficient to respond to disease after they have been established in a population. Rather, it is necessary to prepare for unknown outbreaks in advance, something that can be achieved only if there is immediate alert and response to disease outbreaks and other incidents that could spark epidemics or spread globally and if there are national systems in place for detection and response should such events occur across international borders.

The WHO report proposed a range of actions for securing health against new or newly recognized illogical threats. There are other guidelines, projects and initiatives that build on a growing perception that new biological threats challenge existing ways of understanding and managing collective health and security (Lakoff & Collier 2008). Proposed biosecurity actions include prevention, early detection, rapid alert and response, cross-cutting issues, personnel, coordination and cooperation, policy and regulation, information management, research, education and outreach (Meyerson & Reaser 2002). Critical to responding to these new biological threats challenges is understanding its distribution among and within populations.

Biosecurity threats and Nigeria: In Nigeria, frameworks for human and animal disease surveillance have been subscribed to/adopted. In reality however, the implementation of these frameworks have been fraught with challenges resulting in poor conduct of disease surveillance and management of epidemics (Nigerian Academy of Science 2016). While some knee jerk reactions proved effective in combating outbreaks such as the Ebola Virus Disease in 2014 in Nigeria, the same (even temporarily) was non-existing for reemerging zoonotic disease outbreaks like the Lassa fever in 2018. Biosecurity preparedness is yet to transition into fully institutionalized mechanism for emerging infectious diseases and reemerging ones (which can be a result of loss of treatment effectiveness e.g. drug resistant TB) in Nigeria.

To address these challenges, there must be increased conscious efforts to initiate measures that will boost preparedness at national and cross boarder levels as all aspects of human and environmental well-being are vulnerable to violations of biosecurity. To afford true protection,



policies, regulations, and management strategies must be implemented through a comprehensive approach—fragmented efforts, undertaken without cooperation and coordination among agencies, will not suffice (Meyerson & Reaser 2002).

Ize Adava

Ize works as a researcher in fields across agriculture, health and environment among others. She is an avid advocate for public health with interest in HIV/AIDS, TB & Malaria. She serves/supports nonprofits.

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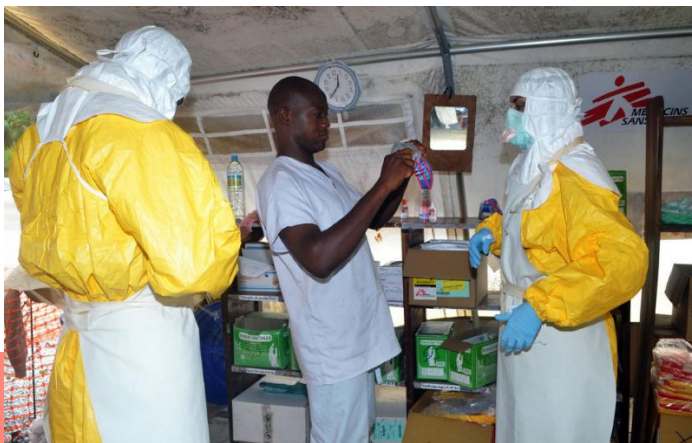
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Outbreak Response during West African Ebola Outbreak



3rd African Conference on Emerging Infectious Diseases and Biosecurity



News from the 2017 GET Conference in Ghana



B3Africa: Bridging Biobanking and Biomedical Research across Europe and Africa

The B3 Africa project is an EU funded project which aims to implement a cooperation platform and technical informatics framework for biobank integration between Africa and Europe. Comprises of seven countries and other partners with expertise in law, informatics, bio-informaticians and medical doctors. It is a two-leg project; one on the ethical issues and the other leg is the informatics part.

Why B3Africa: Bridging Biobanking and Biomedical Research across Europe and Africa – to create a technical and cooperative for biobanking integration between different groups, sharing data between Africa and Europe; and this platform will dramatically improve and facilitate the development of better predictive, preventive, and personalized health care worldwide.

The rapidly evolving African biobanks are an invaluable resource because the African population has the greatest genomic diversity on the planet and represents an incredible resource of information to advance biomedical research. This collaboration involves standardized ethical and legal framework, biobank data representation to create bio-informatics for sharing data and knowledge. No one can work for themselves today, neither African nor European continents cannot work for themselves.

The idea therefore is to create a computing platform with all the contents and all the ethical or legal consideration at one place, sample and information management, data analysis or actual analysis. This platform will have potential or new innovations.

Erik Bongcam-Rudloff

He is a doctor in Medical Sciences, Professor in Bioinformatics, Head SLU- Global Bioinformatics Centre, Coordinator B3Africa SLU, Uppsala

ECOWAS Regional Biobank Project



The ECOWAS regional biobank project came into being when the states met the challenges of insufficient diagnostic capacities, weak national / regional capacity, lack or absence of collaboration between reference laboratories leading to delays in laboratory diagnosis. ECOWAS authority of Heads of State and Government during their 45th Ordinary Session held on the 10th of July 2014 therefore established a solidarity fund which allowed ECOWAS members and WAHO to deploy professionals to the countries which were affected by the Ebola outbreak. One Health Technical and Ministerial Meeting also took place in Dakar from 8th to 11th of November, 2016 to discuss the implementation of the ECOWAS Regional “One Health” Framework.

At the 47th Conference of ECOWAS Heads of State and Government held in Accra on the 19th of May, 2015, the decision to create the ECOWAS Regional Centre for Surveillance and Disease Control (RCSDC) was taken. The RCSDC will have its headquarters in Nigeria. The African Union will also support the establishing of the Africa CDC with Regional Collaborating Centers in the sub-regions. WAHO will make the necessary arrangements to expedite the implementation and operationalization of the RCSDC.

The 48th Conference of ECOWAS of Heads of State and Government held in Abuja on the 16th and 17th of December, 2015 member states adopted the regulation establishing the operating procedures of the ECOWAS RCSDC. Its responsibilities are to (i) plan, implement and monitor the Africa CDC programs in line with its strategic plan; (ii) Provide technical support and capacity building to Member States; (iii) Receive and consolidate reports received from Member States; and (iv) Introduce Africa CDC monitoring and evaluation standards and systems in Member States.

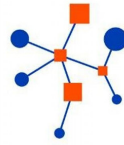
A regional laboratory network was established to develop the terms of reference and standard operating procedures for the Regional Biobank in Abidjan. The network is expected to be provide the West African region with the needed technical capacity for the conservation and management of biological and environmental resources including data, in accordance with international standards. These investment should help improve scientific cooperation and research in the ECOWAS region.

Dr. Abdourahmane Sow

Po Epidemics Control / Laboratory services , West African Health Organization



What is the BBMRI-ERIC?



It is a research infrastructure established to operate and develop a pan-European distributed research infrastructure of Biobanks and BioMolecular resources. The infrastructure should support high quality BioMolecular and medical research. BBMRI-ERIC shall implement its Work Program as adopted by the Assembly of Members.

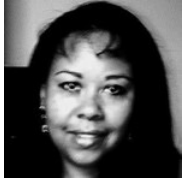
The focus is on Europe. However, BBMRI-ERIC is global in its work and outreach with links to other countries, projects, research infrastructures through projects like B3Africa. There is increasing concern about the reliability of medical research, with recent article suggesting that 85% of research funding is wasted. BBMRI-ERIC recognizes quality grades of biobanks. The central role of BBMRI-ERIC is to keep track and contribute to the biobank relevant international standard developments, act as an information hub by communicating expert knowledge of the Working Group of ISO to the BBMRI-ERIC community and vice versa,

BBMRI –ERIC has improved access to biobanks, data and samples. Currently it is linked to 626 biobanks with 1363 collections and an estimated more than 100,000,000 samples. It has an Access policy to aid accessibility to biobanks samples and data. BBMRI- ERIC provide ethical Legal support and societal issues related to biobanking through its common services ELSI.

Michaela Th. Mayrhofer

Chief Policy Officer CS ELSI/Chief Coordination Officer BBMRI-ERIC

Global Emerging Pathogens Treatment Consortium: Research Ethics During Emergency Outbreaks



Historical Perspective

The GET consortium was first involved with research during the outbreak, in 2014 when the Ebola Virus Disease (EVD) epidemic was raging across West Africa. Conducting research during a health emergency situation is extremely complex. This complexity hinges on a myriad of different issues. For this consortium, spurred on with support from the Lagos state Commissioner of Health, Dr. Jide Idris, a partnership with a global north partner and two foundations was born. Initially, there were limited financial resources and what appeared to be a logistical feat, as members were spread across the continent of Africa, Europe and North America. The consortium was registered in the United States during this crucial time with partners providing support for the secretariat. The importance of ensuring effective and efficient communication across continents could not be underscored, as borders were closed at the time. As a result, the consortium resorted to the use of modern technology to communicate to members and hold weekly meeting, where documents were worked on and shared, while meetings were in progress. This helped to transmit information in real time and ensure protocols were reviewed without convening physical meetings.

The Outbreak and Community Engagement

During the 2013-2016 Ebola Virus Disease outbreak, there were certain factors which exasperated the situation. In addition to the lag in response, there was a lack of connectedness between stakeholders. There was limited or lack of understanding about the indigenous African traditions amongst foreign public health and aid agencies. This was worsened by a gross inability to connect and create rapport with the local people, which resulted in anxiety, panic and mistrust. For example, it was reported that most infections happened during traditional burial practices. This involved interacting closely with the body of the deceased as well as feasting and interacting with the bereaved family, including those exposed to the virus while taking care of the deceased. Despite all these risk practices, researchers and public health workers from external agencies had limited understanding and found it difficult to appreciate the traditional African burial practices, let alone know how to constructively sensitize the affected communities against them. This huge knowledge gap created unnecessary tension and animosity between the community, whose behaviour and practices were seen by external agencies and researchers as primitive, while on the other hand, the external agencies' and researchers' attitude was seen as paternalistic and



subordinating by the community. No doubt that this antagonism resulted into too much tension, misconceptions and misunderstanding, which created a conducive environment for the virus to continue spreading.

In order to make the community feel part and parcel of the planning and execution of the initiatives aimed at addressing the potential risk behaviours, the GET consortium opted to identify and engage different strata of the community in different community engagement (CE) activities. For example, the first ever- high level African Voices meeting was held in Dakar, in January 19th and 20th, 2015 where different stakeholders and role players were brought together to dialogue and discuss with a view to unpack the key issues affecting the region. In February, 2015, a workshop was held in Freetown and a town hall meeting in Monrovia. Following these successful engagement workshops, the ECEPAS working group was instrumental in the development and review of the World Health Organization manual and guidelines on CE during an epidemic. In addition, the working group helped to establish and offer support to the growing networks of survivors in the three affected countries. There were instances where issues of mistrust between the community and public health workers were clearly manifested and ECEPAS could advise on how to address them.

The consortium worked hard to ensure that the voices of the survivors were heard. It also supported them to develop income generating activities and look for and apply for grants in order to get them back to their normal lives. During the process, it became evident that both EVD survivors, as well as their relatives and friends were grossly discriminated in the community. Surviving EVD was not something to celebrate, rather it caused stigma and untold anguish to those involved. In addition, different post EVD sequelae emerged, which made it difficult for EVD survivors to settle back to their communities and families. During this period, this consortium employed various therapeutic and social theory strategies, to reach out to the community, to educate and create awareness about the important role EVD survivors could play in the community, especially in EVD vaccine and therapeutic research. Art, including drawing and photo therapy sessions were held with survivors in Sierra Leone, and motivational talks with EVD survivors were organized in order to give hope to those affected by the disease. An important lesson learned during this process was that, it is critical for all stakeholders and role players globally to identify the best ways to connect with communities in a mutually respectful way. This may involved, but not limited to ensuring the community is well education and sensitized about the prevailing situation and involving all key stakeholder, role players and opinion leaders in the planning and execution of any planned activities that involve the community. Doing so helps to provide public health workers and local people the opportunity to learn about disease transmission, ensure a successful outbreak response and in the process build capacity on the ground.



Research bound

The transportation of a massive air cargo including three completely outfitted blood mobiles complete with apheresis equipment, were dropped in three countries in one day. The welfare of the staff and aircraft crew were of utmost concern to the leaders of the consortium and partners, as the drop to the designated countries was made. The blood mobiles with all the equipment and supplies were driven off the plane while wearing personal, protective equipment in Liberia and Guinea. Lagos, Nigeria, on the other hand had other logistical issues. On the ground, in the affected zone, preparations were underway for community engagement and sensitization in anticipation of the clinical trials. Understandably, this was a time of fear and stigma which were common emotional responses to the unknown.



ECEPAS Workshop:
Community Leaders.
Monrovia February 2015

Bio-ethics in research during an epidemic

There were two Convalescent Clinical trials during the outbreak: In Monrovia, Liberia with Dr. Jerry Brown as the Principal Investigator at ELWA 2 Hospital (in partnership with the GET); and at Donka Hospital in Conakry with Dr. Johan van Griensven, of the Institute of Tropical Medicine in Antwerp (this study was funded by the European Union, Ebola-Tx Project). A protocol was developed with the input of the GET Principal Investigator, Prof Akin Abayomi, for the clinical trials. The ECEPAS working group reviewed the protocol providing valuable feedback after which a manuscript by Kombe et al, 2015 was developed and published - ethical considerations in the review of the protocol were discussed. (Kombe et al, 2015).

Participants were recruited into the studies at a most vulnerable time. All was ensured to enable that the decision-making process was sound by abiding by bio-ethics protocols, and in addition, the African perspective and indigenous knowledge of the consortium. Some of the ethical considerations debated included are participants too vulnerable to think through and make



an informed decision when they are in this state? How does fear of the unknown/death play a part in the decision to participate in clinical research? Does the research provide a false sense of hope that the participant will be cured?

A Data and Safety Monitoring Board (DSMB) was set up for the clinical trials in Liberia with experts from Kenya, Nigeria, Liberia and the United States. There was pressure on researchers to conduct research before the end of the epidemic which created a paradox that could have resulted in a conflict of interest. The DSMB kept those issues in check during the trials.

Novel treatments and bioethics

According to Mupapa et al (1999), in 1995, 8 very ill patients in Kikwit, Democratic Republic of Congo, received convalescent blood which contained Ebola (EBO) haemorrhagic fever antibodies. Only one of the patients died. The convalescent plasma trials of Monrovia and Conakry offered an opportunity for researchers to examine the efficacy of convalescent plasma. These clinical trials involved a process known as plasmapheresis. Plasmapheresis works by drawing blood, separating blood products into plasma and cells, and transfusing the cells back into the bloodstream. In the case of the two clinical trials at Donka Hospital, Conakry and ELWA 2 in Monrovia, the harvested blood plasma and antibodies from survivors was then transfused into participants who were ill with EVD. In theory, the antibodies from survivors would help their chances of survival.



GET ECEPAS Working Group

The convalescent plasma trials involved community engagement, working with the two survivor associations in Liberia and Guinea. Plasma donors were recruited from amongst the survivors, which many stated, made them feel good because they were helping others. This also gave survivors, who were often shunned and stigmatized, a sense of purpose and a reason why they had suffered so greatly.

Technology & data; Confidentiality & Privacy

The collection of data from participants on clinical trials and the confidentiality of data, in general, in the light of the emergence of technological advancements, cannot guarantee without reasonable doubt, that there will not be a data breach. Some questions asked are: Which data is stored? Is this data identifiable in any way? Where are the servers that the data is to be housed located? This question is asked because of mistrust: have they carted away our data like they did our artefacts? Other questions are: how secure are the servers; who has access to the information; and what is the potential for the breach of confidentiality and privacy? These ethical considerations compound the topics surrounding the potential for social harm which cannot be tangibly quantified.

The GET consortium played a crucial role in research and humanitarian responses during the EVD outbreak in West Africa. Strong, focused, African leadership, a pool of African expertise from diverse backgrounds, efficient and effective communication strategies and platforms, partnerships with stakeholders on the ground and in the global north, enabled the working groups to be effective during the outbreak, harnessing resources in the fight to end the epidemic in West Africa.



ECEPAS working group members

Jennyfer Ambe

Jennyfer Ambe is a member of the ECEPAS and CASE working groups and International Coordinator of the GET. Jennyfer's work is in community health, workforce development and community outreach support for underserved populations.

Francis Kombe

Francis Kombe is a consultant, UNESCO trained Ethicist who is currently involved in training Research Ethics Committee members and capacity building. He is the Chair of the Ethics Community Engagement and Patient Advocacy Working Group, the GET Consortium.



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The GET Consortium



Biosecurity Experts Meeting at the 3rd African Conference on Emerging Infectious Diseases & Biosecurity



Bonnie Jenkins and GET Principal Investigator Akin Abayomi



Ada Igonoh and Yusuf Koroma at the 1st African Conference on Emerging Infectious Diseases & Biosecurity



Jim Vaught, Akin Abayomi, Ida Biunno and Pasquale de Blasio at the 2nd annual conference



Dr Jide Idris Health Commissioner for Lagos State Government and GET Co-Founder



Launch of the Lagos State Biobanking & Biosecurity Project 2018



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