

ASRIC Advisory Board on STI Strategic Intervention for Covid-19

“Actions and Intervention”

The analyses of the inventory table of the 14th April, 2020 meeting output helped the Board to come out with following interventions and actions. The intervention has three pillars and each pillar is composed of several sub-pillars (actions). The three pillars are: Enabling Environment, Research and publicity

STI Intervention to Covid-19			
Enabling environment	<ul style="list-style-type: none"> Development of policy briefs/guidelines on investment in health care & health research systems. Development of guideline on IP protection in joint research and collaboration during outbreaks. Development of guidelines on research translation. Development of AU Guidelines on outbreak hazard and STI intervention. Health professional training/ capacity building. 	Research & Development	<ul style="list-style-type: none"> Afro-centric non pharmaceutical interventions for outbreak. Covid-19 pandemic modeling. Development and/or validation of rapid testing kit. Mapping out and inventory of the pandemic. Inter-Africa STI cooperation. Clinical trials. Impact on the covid-19 on Africa’s health system.
		Publicity and outreach	<ul style="list-style-type: none"> Identification of stakeholders Publicity campaigns that are tailored to stakeholders

1- Enabling Environment:

In the context of this document Enabling Environment consists of development of supportive legal and policy frameworks and their implementation and enforcement; Institutional strengthening including coordination, defining clear roles and responsibilities of key entities (government, non-state actors including civil society); Capacity strengthening of all actors so they can play their roles; and Social dialogue including participation of stakeholders. To ensure that STI in position to address covid-19 and future pandemic the following policies and frameworks need to be recognized, developed and implemented by the stakeholders.

1.1. Policy briefs/guidelines on investment on health care & health research systems:

The policy briefs/guidelines should address the following among others:

a. Relevance of investment in health care sector improvement & health research systems:

- Remind Governments for their role in providing funding support and enabling health-related STI in Africa by recalling decisions, agreements, treaties signed or committed by the AU Member States. In April 2001, the Head of States and Governments of the African Union met and pledged to set a target of allocating at least 15% of their annual budget to improve the health sector; Abuja Declaration 2001.
- African Governments should implement agreed GDP contribution to research (1% GDP).
- Innovative approaches to finance and strengthen health infrastructure and equipment supply.
- Strengthen the health care system, infrastructures, resources and financing in Africa.
- Strengthen/develop scientific and technological research and innovation system, resources and financing including biomedical and health research system

b. *STI entrepreneurship for the betterment/improvement of health care system in Africa:*

- Identify services and interventions including regulation and financial aid that is to post entrepreneurship “aiming at enable inventors in Africa to successfully bring their technologies and business ideas to market” to strengthen the competitiveness and innovative capacity of African health-related industries and businesses.
- Enhance competitiveness of the African pharmaceutical and healthcare industries by addressing challenges and opportunities of research-based SMEs as the main economic drivers of healthcare systems including biotechnology and pharmaceutical technologies.
- Creating conducive environment for innovation in the health sector in both public and private institutions.
- Highlight the tools and mechanisms for pharmaceutical and healthcare intervention’s, innovations and related activities during and post the pandemics “covid-19”.

1.2. Development of guideline on IP protection in joint research and collaboration during outbreaks:

From experience, after any outbreak of diseases research institutions and pharmaceutical companies race to develop live-saving drugs and vaccines to combat these pandemics, while this is going on there is components IP that is needed to be considered. The IP rights are usually compromised or seems to be ignored by the international research partners which is the case in Africa. Mostly in such situation, the continent is exploited for pathogens which are used for materials for vaccine research and developments as well as for development and validation of diagnostics, this is usually done in total disregard to IP issues and benefit to the continent.

On the other hand, International cooperation with international partner research institutions and pharmaceutical companies is one way or in the alternate allows these countries to develop research capacities and improve Africa’s response to current pandemic and future ones.

For Africa’s R&D institutions and pharmaceutical companies a guideline on IP protection in joint research and collaboration during outbreaks is imperative to protect their rights. The guidelines may address the following:

- IP Rights and benefits during the testing and manufacture of a drug and/or a vaccine***
- Types of IP rights and their differences***
- Options to reserve rights of investigators and researchers including research partners:*** such as licensing (limited time licenses, limited to geographic area or location”; joint production of the technology; and equity sharing among others.
- Highlight the opportunities on the expired IP and how it could be utilized.***
- Develop a draft cooperation agreement on joint research that to protect Africa’s research rights in collaborative research.***

1.3. Development of guidelines on research translation:

In epidemic times a strong research translation guideline that agreed by most of the AU Member States will shorten the time of intervention and will ensure vaccines and drugs are available on time along with other clinical support and intervention systems. The guideline may develop based on the AU framework on research translation along with other relevant frameworks. The guidelines may address the following among others:

- Protocols on mutual recognition of Independent Ethics Committee (IEC);***
- Protocol on Mutual recognition of national Standard Operating Procedures (SOP);***
- Protocol on recognizing the output of clinical trials rustles that conducted within an AU Member State;***
- Protocols on conducting joint clinical trials;***
- Protocols on data sharing and handling;***
- Establishment of the AU Independent Ethics Committee along with and African Union Standard Operating Procedures (SOP).***

1.4. Health professional training/ capacity building:

Building technical and professional capacity of Africans in combating the pandemic is a critical factor success. In all continental policies, strategies and frameworks emphasis the need for training and retraining towards building critical mass of professionals in driving the continent.

There is need to assess the training needs and the gaps in combating the COVID-19 pandemic along the STI interventions and that will be according to the desired actions and interventions. The Advisory Board need to prioritize and group as short, medium- and long-term training as per the interventions and advice the ASRIC accordingly. The ASRIC will then, identify and select training institutions and consortium to develop modules tailored to the needs of Member States, this is due to the facts that STISA-2024 stated that AU Member States' capacities (human and infrastructure) are at different levels.

1.5. Development of AU Guidelines on outbreak hazard and STI intervention:

This is a guideline to be developed post-outbreak to document the experiences gained and lessons learned from the covid-19 outbreak. This guideline will be based on an 'audit' of interventions (type and timing) in countries from index case to present time and outcomes of the interventions. Finally, it is to help AU Member States precedence and interventions to future outbreaks.

2- Research & Development:

Research and development (R&D) is the main pillar that is to ensure the success of any intervention that may take place; before, during and after pandemic. Africa needs to rely on its resources (human, scientific and technological infrastructure) in the continent and Diaspora. On the other hand, collective research approach will foster the production of a tangible output since it builds on our scientists "that may come from different Member States and/or disciplines" comparative advantage. These can be achieved by introducing research clusters and virtual lab aspects.

2.1. Outbreak Afro-centric non pharmaceutical interventions:

Outbreak impact on community may be delayed or prevented by introducing non pharmaceutical interventions, an informed guideline may result in community survival. Such non pharmaceutical interventions may include (self-isolation when the people are sick, social distancing, handwashing hygiene improvements, working from home, and closing the schools, and/or national lockdown).

So far, Africa is not hit hard by covid-19, but it is potentially fertile land for rapid spread and it is already suffering due to challenges resulting from strict lockdown measures on some of the AU Member States recalling that a large percentage of the Africa's populace lives on daily wages. In furtherance, Africa has 18 million displaced persons in Africa out of which 12.5 million are internally displaced persons with limited access to utilities and having a poor living condition. The fact also is that while Northern Africa has 92% safe water coverage, Sub-Saharan Africa remains at a low 60% of coverage – leaving 40% of the 783 million people in that region without access to clean drinking water.

As such there is a need to develop a guideline on Afro-centric non-pharmaceutical interventions that is driven by the following among others:

- a- Understanding of the covid-19 behavior that includes transmission and spread patterns;
- b- Considering the limitation to non-accessibility of majority of Africa's population to safe water;
- c- Demographic population in rural areas and the case is worse in internally displaced persons (IDPs) camps;
- d- Majority of the African workforce are earning on daily bases (daily wage);
- e- socio-cultural background of diverse African communities.

2.2. Covid-19 pandemic modeling:

For our governments and policy makers to be in position to take an informed decision on the interventions such as resource allocation to health care facility, social distancing, country lockdown among others, pandemic modeling is the tool needed. However, scientists still facing challenges as of the existence of a gap on covid-19 viral behavior such as its transmutation, seasonal effect and lack of widespread testing along with weak reporting systems in some countries. Yet model projections are needed to forecast future health care demand, including how many intensive care unit beds will be needed, where and when shortages of ventilators will most likely occur, and the number of health care workers required to respond effectively.

In general terms, modeling of pandemic is a tool based on mathematical formulations that to shed a light on what is possible in the future such as when is the peak of cases expected? If social distancing is effective and the number of

new cases that require hospitalization is stable or declining, when is it time to consider a return to work or school? Can large gatherings once again be safe? Among others.

ASRIC with the support of its Advisory Board is to assemble a cluster of modelers to develop an African tailored covid-19 that is based on existing models that is accepted worldwide and built on any existing infectious disease modeling that may exist in the AU Member States and predict the pandemic evolution (epidemic peak, the slow down phases) in the countries to better inform policy makers on appropriate strategies.

2.3. Development and/or validation of rapid testing kit:

COVID-19 testing can identify the SARS-Cov-2 virus and includes methods that detect the presence of virus itself RT-PCR and isothermal nucleic acid amplification and those that detect antibodies produced in response to infection. Detection of antibodies serology can be used both for diagnosis and population surveillance. Antibody tests show how many people have had the disease, including those whose symptoms were minor or who were asymptomatic. An accurate mortality rate of the disease and the level of herd immunity in the population can be determined from the results of this test.

Due to limited testing, as of March 2020 no countries had reliable data on the prevalence of the virus in their population. As of 18 April, the countries that made public their testing data have on average performed a number of tests equal to only 1.1% of their population. There are variations in how much testing has been done across countries e.g. the United States was testing 100,000 people per day by March 27 while 247 person per day is the Ethiopian testing capacity.

Africa need to start preparing for testing the largest population to distinguish between those who are “Antibody positive and protected” and those who are symptomatic needing specific care and contacts investigation and those who are asymptomatic carriers, the most difficult to manage (quarantine, and contacts investigation).

As such development and/or validation of rapid tests, including point of care diagnostic platforms for accurate detection of nucleic acid, antigen and antibody will be essential for rapid diagnosis of cases in Africa.

ASRIC with the support of its Advisory Board is to assemble a cluster of Scientist foster the development and/ or validate of rapid test kit.

2.4. Mapping out and inventory of the pandemic:

For ASRIC research team and clusters, along with other scientists in the Continent and Diaspora have to be informed on the researches that are conducted on recently and publications, that gave rise to the need to have mapping out and inventory for all the existing data and information. As of 19 of April the WHO website under the Global literature on coronavirus disease shows a number of 3,494 publications coronavirus disease. For a quick win on this race against the pandemic, sharing experiences related to diagnostics tests, respiratory ventilators, and other necessary equipment to deal with severe respiratory cases, health professional protection among the Union Member State is must, as such ASRIC to establish platforms/forum for exchange of ideas and interaction.

It is also obvious that Africa has a good number of continental advisory bodies, working groups, and institutions working on covid-19, where ASRIC need to ensure synergy and minimizing duplication. On the other hand, many researchers are demanding to have reliable data on the epidemic on national, continental, world level to conduct their research.

As of that ASRIC need to pile up and collect data in the following sectors:

- a. *Development of an inventory of interventions and research being carried out by various research groups in Africa on Covid-19. The targeted research is the one covers: modelling, case finding, diagnostic tests, surveillance, intervention drugs, vaccines, equipment manufacturing, health system strengthening etc. Where ASRIC need to establish two inventory working group for mapping out research in the continent while the other will be to address the mapping out of research that is conducted outside Africa. These working groups will be requested to summarize the research work along with examining its value.*
- b. *Covid-19 ASRIC platform on research output exchange:*

- *The ASRIC and AU-STRC to send out a call to all Member States (Ministries of Health & Ministries of STI) to share their experience research findings on diagnostics tests, respiratory ventilators, and other necessary equipment to deal with severe respiratory cases, health professional protection.*
 - *A similar call to be sent out through the AUNS to its Members.*
 - *The AU-STRC to avail the software and the medium for collecting the information*
- c. Identifying continental advisory bodies working groups, and institutions working on covid-19 in the interest of ensuring synergy and minimizing duplication. While in the other hand, an advice on how ASRIC and such structures can benefit from each other to be tabled for ASRIC Bureau consideration.*
- d. The ASRIC website is to be linked to the ACDC website to avail an updated on national and continental pandemic.*

2.5. Inter-Africa STI cooperation:

As mentioned earlier in this document, collective research approach will foster the production of a tangible output since it builds on our scientists “that may come from different Member States and/or disciplines” comparative advantage; in complimentary to adopting vertical research approach is a game changer. Vertical research platform is established to optimize the use of available human and infrastructure and training capacities, regional collaboration, coordination and data/information/materials/products sharing among other. *ASRIC also needs to form research clusters and virtual labs in the following research area: modelling, case finding, diagnostic tests, surveillance, intervention drugs, vaccines, equipment manufacturing, health system strengthening among others.*

ASRIC and its advisory body of covid-19 is to develop research proposals and guidelines that address the priority research under each of the predefined research areas/interventions. (guided/targeted research)

It would be essential to achieve a “quick win”, including full operationalization of African network of BSL-3 facilities, which should lead and be a part of critical operational research, including international studies led by the WHO, e.g. “Unity Studies: WHO early sero-epidemiological investigations for covid-19”. *ASRIC to develop concept note on the networking that address (What kind of joint research to do, why the network, and etc.).*

On another note *ASRIC to set up a team from Africa’s inventors and research-based SMEs to build and produce Equipment, kits and protective gears needed.*

2.6. Clinical trials:

AU and its Member States should embark as early as possible in available clinical trials and /or set up clinical trials in a collaborative manner to ensure the current tested drugs and protocols could be used in Africa environment. This is to be steered by strong guidelines on research translation (see, 1.4).

ASRIC is to act as follow:

- a. Conduct a survey/inventory on potential drugs; vaccines; and clinical trials sites*
- b. Design different clinical trials for testing potential drugs, vaccines and protocols*

2.7. Impact on the covid-19 on Africa’s health system:

A study based on fact findings survey on the impact of covid-19 on Africa’s; *the study should address the following among others:*

- *Impact of covid-19 on the health institutions and its resources (Financial, utilities, supplies, services, human resources among others)*
- *Impact of covid-19 on the health provider personal.*
- *Impact of covid-19 on un-infected patients and the services provided to them.*

This study is to be developed jointly with socio-economic impact of covid-19 working group. On another note this study is to feed in to **AU Guidelines on outbreak hazard and STI intervention** (1.5 of this document).

3- Publicity and outreach

To build public understanding, confidence and raising awareness on covid-19 and its impact on each individual's well-being; and nations' human and economic capacities a strong publicity and outreach strategy should be in place. A strategy that is addressing all spectrums of predefined stakeholders, beneficiaries and the masses to spread out the knowledge and information of the pandemic.

3.1. Identification of stakeholders:

A deeper stakeholder needs to be conducted however the following is a preliminary stakeholders analyses that may be improved over time: policy makers on all levels; Scientists in Africa and Diaspora; Health service providers in all levels; community leaders that includes traditional leaders and religious leaders; NGO's and aid providers; African citizens in all age spectrum i.e. elderly, young, and children; African citizens with different literacy level; prospective donors and sponsors e.g. African capitalist; public; international partners and funding Agencies.

3.2. Publicity campaigns that are tailored to stakeholders:

Recalling that popularization anywhere is to be raised in the context of particular culture and a set of economic conditions and it is driven by the mindset of the recipient and the change needed. The publicity campaigns would be developed and tailored in accordance to target group that is to be identified from the stakeholders. Such campaigns should be linked to the STI intervention output.

Whoever as of the fast nurture of this pandemic and the political support and interventions needed the Advisory Board to develop:

- *A white paper for policy makers, and*
- *ASRIC statement for the Public on covid-19*

4- Interventions and actions to be outsourced;

The following table shows the interventions and actions that to be outsourced:

SNo	Intervention	Action
1	Establishing a COVID-19 virtual procurement Platform involving a consortium of African /companies/industries and researchers to scale up success stories in some countries	This is a recommendation that to be directed to the ACDC since they are more linked to the Member States Ministries of Health.
2	The most vulnerable people will be the most affected by the COVID-19, if not by the disease itself, it will be due to the hunger and job loss.	Social issue (To be taken inboard with the socio-economic impact working group)
3	Operational research during outbreak should include sociological and anthropogenic factors contributing to the spread and prevention of covid-19 spread.	Social issue (To be taken inboard with the socio-economic impact working group)
4	The population knowing the lockdown could not last longer or even not be appropriate in some countries.	Social issue (To be taken inboard with the socio-economic impact working group)
5	Adopt health in all policies approach in the new model of health system governance.	Directed to ACDC as recommendation to STC-Health