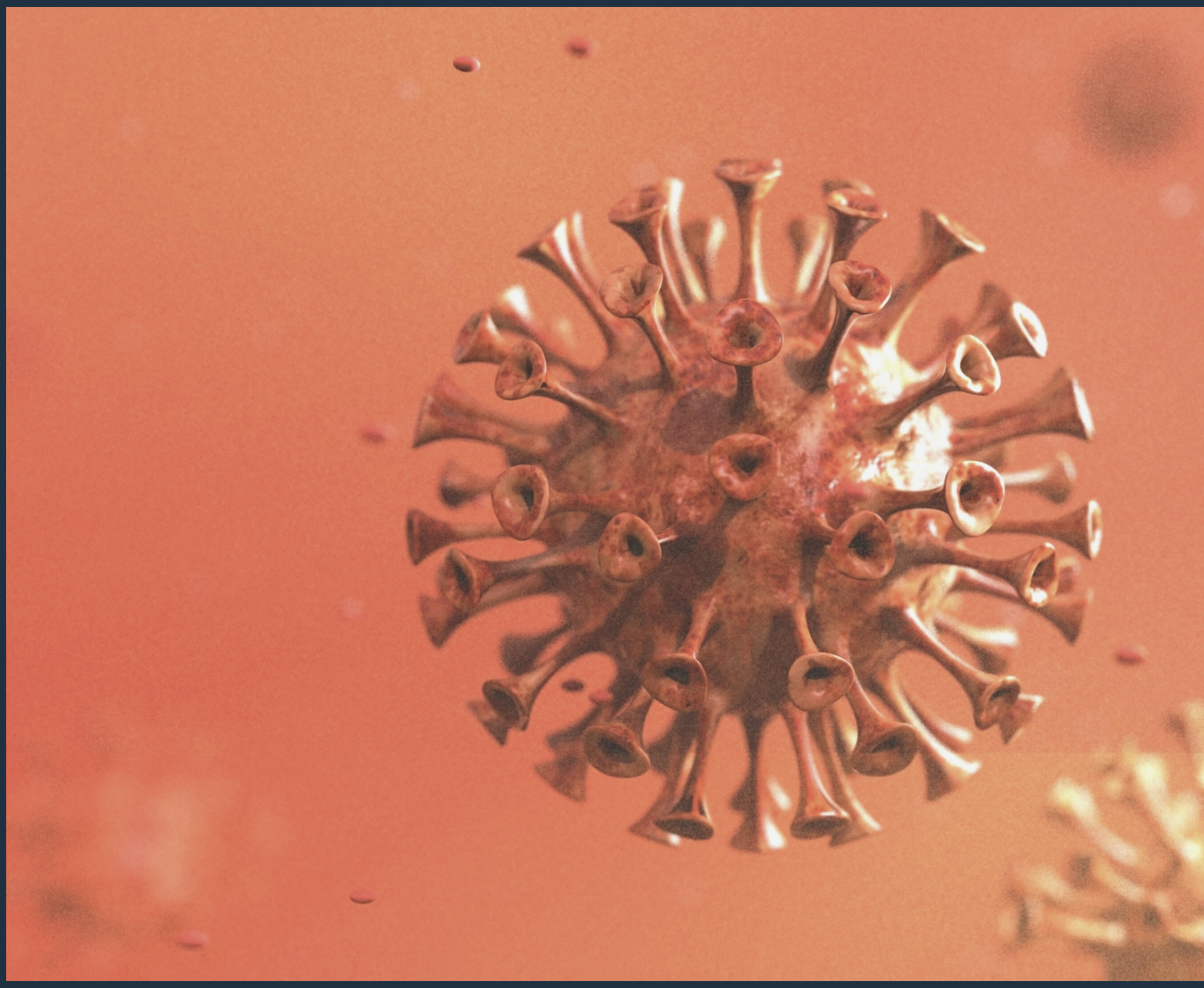
COVID-19 in West Africa

Summary Report of Sub-regional Webinars



THE NIGERIAN ACADEMY OF SCIENCE

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COVID-19 in West Africa
Summary Report of Sub-regional Webinars

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Disclaimer

The views and opinions expressed in this publication are those of the meeting speakers, and do not necessarily reflect the position of the Nigerian Academy of Science (NAS).

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List of Acronyms

COVID	*Coronavirus disease*
IPC	*Infection Prevention and Control*
NAS	*The Nigerian Academy of Science*
NPI	*Non-Pharmaceutical Intervention*
PHSMs	*Public Health and Social Measures*
RMNCAH	*Reproductive, Maternal, New-born, Child, and Adolescent Health*
RTSL	*Resolve To Save Lives*
WHO	*World Health Organization*

About the Nigerian Academy of Science

The Nigerian Academy of Science (NAS) is the foremost independent scientific body in Nigeria which was established in 1977 and incorporated in 1986. NAS is uniquely positioned to bring scientific knowledge to bear on the policies/strategic direction of the country and is also dedicated to the development and advancement of science, technology, and innovation (STI) in Nigeria. The aims and objectives of the Academy are to promote the growth, acquisition, and dissemination of scientific knowledge, and to facilitate its use in solving problems of national interest. The Academy strives to do this by:

- Providing advice on specific problems of scientific or technological nature, presented to it by the government and its agencies, as well as private organizations
- Bringing to the attention of the government and its agencies problems of national interest that science and technology can help solve
- Establishing and maintaining the highest standards of scientific endeavours and achievements in Nigeria, through the publication of journals, organization of conferences, seminars, workshops, and symposia, recognition of outstanding contributions to science in Nigeria, and the development of a working relationship with other national and international scientific bodies and academies

As with national academies in other countries, NAS is a not-for-profit organization with a total membership (since inception) comprising 278 Fellows (who have distinguished themselves in their fields both locally and internationally), elected through a highly competitive process. Some of her members have served as vice-chancellors of universities, directors-general of government parastatals, and ministers in federal ministries. The Academy, given its clout, also has the ability to attract other experts from around the country and internationally when needed. NAS is Nigeria's national representative on such bodies as the International Science Council (ISC – the umbrella body for all science associations and unions) and the Inter-Academy Partnership (IAP – the umbrella body for all national science academies globally). The Academy is a member of the Executive Committees of IAP for Science, IAP for Policy, and IAP for Health and a founding member of the Network of African Science Academies (NASAC).

Introduction

Since the outbreak of the coronavirus disease (COVID-19) towards the end of 2019 in Wuhan, China, the disease has spread to virtually all countries of the world. The World Health Organization (WHO) declared the coronavirus outbreak as a Public Health Emergency of International Concern (PHEIC) on January 30, 2020, and later as a pandemic on March 11th, by which time it had spread to over 110 countries with over 118,000 cases[1]

Given the severe public health and socioeconomic implications of the pandemic, there is need for research to provide effective ways to manage the disease in the short and long term. According to the WHO, experience with past epidemics has underscored the importance of research as an integral element of the response to any epidemic[2]. Ultimately, outputs from such research endeavors need to be shared with relevant stakeholders in science, public health, and policymaking for societal application; and such outputs help to determine the most effective and efficient routes for delivering public health interventions.

The NAS, working with the Ghana Academy of Arts and Sciences (GAAS), Académie Nationale des Sciences et Techniques du Sénégal (ANSTS), Academie Nationale des Sciences, Arts et Lettres du Benin (ANSALB), and Académie Nationale des Sciences du Burkina Faso, and with support from the the US National Academies of Science, Engineering, and Medicine (NASEM), undertook the 'Disseminating Evidence-Based Policy Briefs on COVID-19 in West Africa' project between July and October 2020. This project was aimed at disseminating the content of policy briefs/ reports on the COVID-19 pandemic. The policy briefs and reports are developed by Resolve To Save Lives (RTSL) consortium, as outputs of her research on the COVID-19 pandemic in Africa. The objective of this dissemination project was to engage stakeholders, through the West African national science academies, to discuss the key messages/policy recommendations contained in the RTSL policy briefs on COVID-19. This was carried out through four virtual dissemination events, with each event specifically aimed at discussing key messages from selected policy briefs.

During these events, experts (both from within the academies' memberships and beyond) discussed the implications of the key findings and recommendations from selected policy

[1] WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020. Available at https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020

[2] World Health Organization. An R&D Blueprint for Action to Prevent Epidemics. Plan of Action, May 2016. Available at https://www.who.int/blueprint/about/r_d_blueprint_plan_of_action.pdf

reports with relevant stakeholders. Topics discussed covered a range of relevant subjects including the history of NPIs usage in previous epidemics, risk communication in COVID-19 response, challenges in routine healthcare delivery during epidemics, applications of digital technologies in healthcare delivery, best practice measures, stakeholders' roles in addressing the current pandemic, and strengthening health systems in preparation for possible future epidemics.

Chapter 1 - Non-Pharmaceutical Interventions (NPIs) in COVID-19 Containment in Africa

Public Health and Social Measures in West Africa

Dr. Emmanuel Agogo – Country Representative (Nigeria), Resolve To Save Lives

Public health and social measures (PHSMs) for COVID-19 require adaptive behavioural changes on a massive scale, and over a long period of time. As a uniform approach to managing the pandemic would not suffice, governments have had to adapt control strategies to find the balance between political, social, economic, and health impacts. The Partnership for Evidence-based Response to COVID-19 (PERC) uses multidisciplinary analysis as a tool for decision-making. Data (social, economic, epidemiological, and population) from member states is used to help determine the acceptability, impact, and effectiveness of PHSMs for COVID-19. These data sources include country and regional briefs, reports, webinars, epidemiological and testing data, surveys, and ad-hoc government analyses. Decision-making is based on:

- Disease situation: Transmission and severity of COVID-19, taking into consideration testing capacity
- PHSM implementation and adherence: Access to the means to follow recommendations, as well as the motivation to do so; public perceptions of risk and personal agency
- Public health and health system capacity: Capacity to mobilize the public health system to conduct testing and contact tracing at the scale needed, protect healthcare workers from disease transmission, and increase the healthcare system's ability to meet the needs of infected patients
- Secondary burden of disease: Secondary impacts on the community, including livelihoods and economic burden, food security, access to essential health services, and social disruption.

Total Cases (Cumulative incidence per 100,000 population)	Total Deaths	Diagnostic Tests (Tests per confirmed case ratio)	Case-Fatality Rate
50,488 (25)	985	363,331 (7)	2.00%

Figure 1: Coronavirus disease dynamics in Nigeria

Source: https://preventepidemics.org/wp-content/uploads/2020/09/09082020-nigeria.pdf

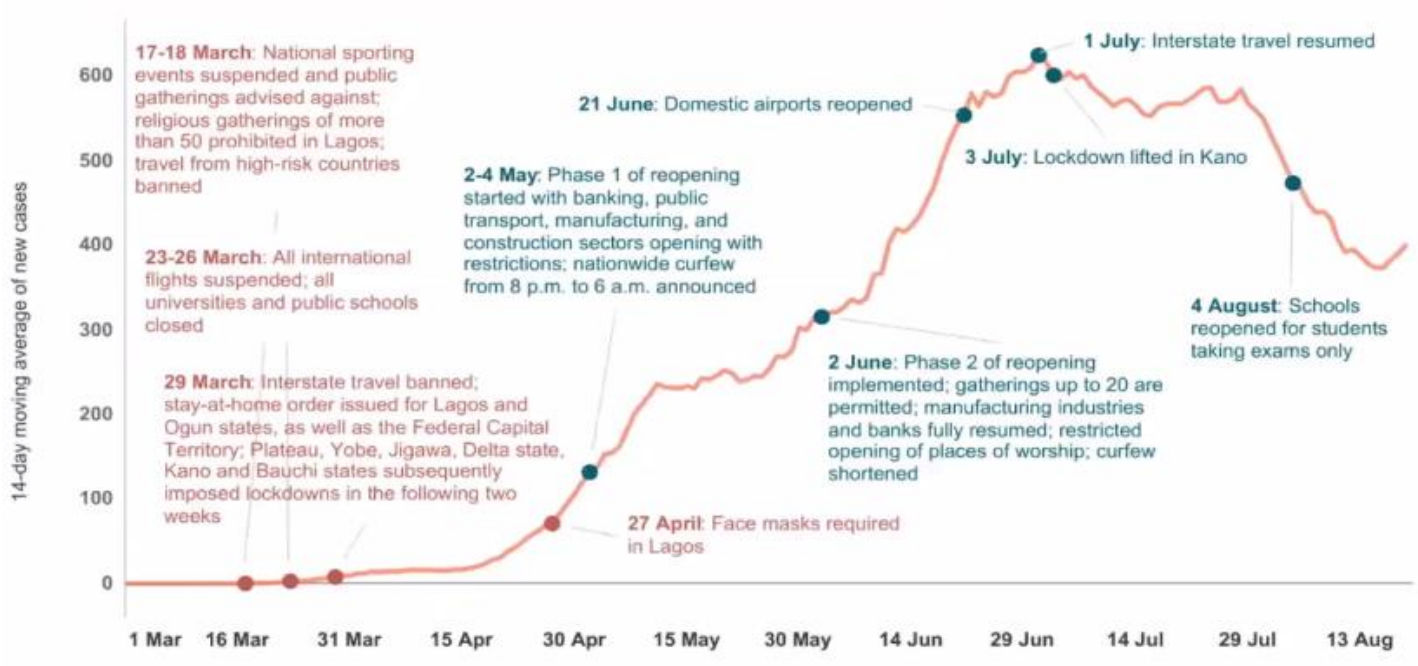

Figure 2: PHSM implementation in Nigeria (March-August 2020)
Source: Africa CDC, Google Community Mobility Reports

The application of PHSMs helped slow the spread of COVID-19 in a number of West African countries. However, available data showed that adherence to restrictions on public gatherings was limited due to effects on economic activities. Governments can increase effectiveness of PHSMs by tailoring them to local conditions, and implementing relief measures to mitigate social and economic impacts.

Nationally aggregated datasets are unavailable for most health indicators. Data collection capacity should be improved as data is the key to implementing appropriate public health measures.

NPIs in COVID-19 Containment: The Evidence Base

Professor John Gyapong - Vice Chancellor, University of Health and Allied Sciences, Ghana

Overview of NPIs: NPIs are interventions used to reduce exposure of susceptible people to infection. As the name implies, they exclude the use of pharmaceuticals i.e. vaccines and drugs. The focus of NPIs is to:

- Reduce an individual person's risk for infection (by hand hygiene, wearing of face coverings)

- Reduce local spread by isolation of infected persons; monitoring and quarantine of exposed persons, and social distancing measures, such as cancellation of mass gatherings and closure of schools
- Limit international spread of the infection agent such as through travel restrictions, pre-travel test requirements, etc
- Communicate health risks to the public through public addresses and online information by the government and health organizations

History of NPIs: NPIs have traditionally been used for infection prevention and control. For instance, during the Spanish Flu of 1918, measures such as maritime and land quarantine, individual/family isolations in Australia, Madagascar, and Canada were used to prevent entry of the disease. Other measures such as the closure of schools, churches, and theatres in the United States proved to be effective. In the case of the Severe Acute Respiratory Syndrome (SARS) Epidemic of 2003, entry and departure screening of travellers using questionnaire and thermal scanning machines, enhanced contact tracing and social distancing measures, as well as infection prevention and control processes in health facilities were some of the control measures used. Also, the use of protective face masks reduced the odds of infection in Beijing and Hong Kong.

For the Avian Flu H1N1 pandemic of 2009, studies in Japan and the United States found that asking family members with influenza-like symptoms to stay home on paid leave was associated with a reduction in influenza infections. The avian flu pandemic disproportionately affected children. The 0-4-year-old age group had greater than twice the hospitalization rate (per 100,000) of other age groups, although deaths were highest among those aged 50-64 years. School re-opening had the potential to result in a surge of cases. School closure therefore could have been the reason for the substantial reduction in transmission in both Mexico and Canada (between 29% and 50% reduction).

During the Ebola crisis in 2014, contact screening, surveillance and testing, quarantine of contacts, travel restrictions, isolation of infected persons, lockdowns, border closures, closures of schools, markets and workplaces, curfews, as well as disinfection and improved sanitation were used to control the virus across the West African countries of Guinea, Liberia, Nigeria, and Sierra Leone[3].

[3] Vital Strategies: Implementation of Non-Pharmaceutical Interventions: Evidence Base and Application To The African Context CORONAVIRUS — APRIL 2020

NPIs used for COVID-19 in West Africa

- Hand-washing; though access to water, soap and receptacles, as well as compliance have presented a challenge
- Face masks: Accessibility was a great challenge at the beginning, but was addressed in part with the use of cloth masks. Compliance has also been a great challenge
- Periodic updates and risk communication from governments and health agencies
- Social distancing and movement restrictions: Lockdowns were imposed in several countries. The effect of lockdowns on the economy was great, and was arguably the most uncomfortable intervention for governments and individuals
- Travel restrictions: Border closures were also implemented as an intervention to reduce the importation of the virus. The challenges with this culminated in price hikes and shortages of goods although the borders were not closed to cargo.

Lessons learnt

- NPIs are important pandemic control strategies but shouldn't be a one-size-fit-all approach (context-specific NPIs is vital)
- NPIs are relatively cheaper and cost-effective pandemic response options particularly for resource poor countries
- Preparedness and early response to pandemics yield higher dividends at lower cost than "fire-fighting" and late responses
- Effective blend of multiple NPIs are more likely to yield better outcomes than piecemeal single interventions
- Concurrent community and health facility-based interventions deliver better results in pandemic prevention and control
- Effective communication and taking advantage of community resources promotes trust in health interventions

In conclusion, pandemics are unpredictable. Therefore, health systems preparedness is the surest way for containment. The use of NPIs in the absence of vaccines/therapeutics will reduce the disease impact. Historical lessons in respect of NPIs should guide Africa in future pandemics to mitigate the impacts on lives and livelihoods. NPIs are likely to produce better outcomes when guided by effective community/stakeholder engagement and risk communication.

NPIs in the West African Context

Professor Samuel Ayodele Jegede - Department of Sociology, University of Ibadan, Nigeria

In the absence of effective and safe vaccines to protect against the associated risks of COVID-19, non-pharmaceutical interventions became the most effective public/community response. Social norms are core determinants of human behavioural response to disease and health.

It has been found that social context, community norms, and the perceived probability of expected outcomes influence the adoption and practice of NPIs. Sociocultural issues to be considered include taboos and stigma associated with infectious diseases, which in turn influence the level of care and support given to an infected person. The table below shows some responses to the COVID pandemic, at individual, household, and community levels, a result of a survey conducted in the Ibadan Metropolis, Oyo State, Nigeria.

Table 1: Responses to the COVID-19 pandemic in Ibadan, Nigeria

	Actions	**Description**
INDIVIDUAL	Self-isolation	Voluntary self-isolation
	Religion	• Prayer • Faith • Rituals/sacrifices
	Compliance with control measures	• Facemask • Use of hand sanitizers • Regular hand washing
	Personal hygiene	• Regular washing of hands and face with alcohol • Regular bathing
HOUSEHOLD	Food	Fortify food intake with medicinal ingredients
	Home remedies	• Steaming • Consumption of preventive substances
COMMUNITY	Neighbourhood watch	• Monitor neighbourhood gates • Observe returnees/visitors condition • Enforce self-isolation and quarantine
	Social distancing	• Enforce compliance with social distancing measures • Remind people of their obligation to comply
	Ban on public gatherings	Closure of markets, worship places, and communal playgrounds

	Risk communication	Information sharing: • Person-to-person • Networks • Social media – WhatsApp, Facebook, etc

In summary, no singular approach applies to everyone. The methods used in any given society are dependent on public perception, social norms and beliefs, and the governance/leadership structure.

Risk Communication in COVID-19 Response

Professor Papa Salif Sow - Infectious Diseases Physician, University of Dakar

Building trust in governments during epidemics: Communication plays a critical role in enhancing the adoption of NPIs. Risk communication, at each phase, should be tailored to ensure public understanding, as well as the acceptance of, and adherence to, the NPIs being implemented. It is also important to involve community leaders (religious and social), and people of all genders and age groups, from the early stages, for meaningful and sustained community engagement. It is the government's responsibility to provide adequate knowledge about the disease, address informational gaps, and motivate adherence. Communication should use clear language, be age-appropriate (also targeting children), and be available in multiple local languages, so as to include those with low or no literacy. Badly judged communication approaches can result in members of the community becoming complacent, panicky, or otherwise acting in unhelpful ways.

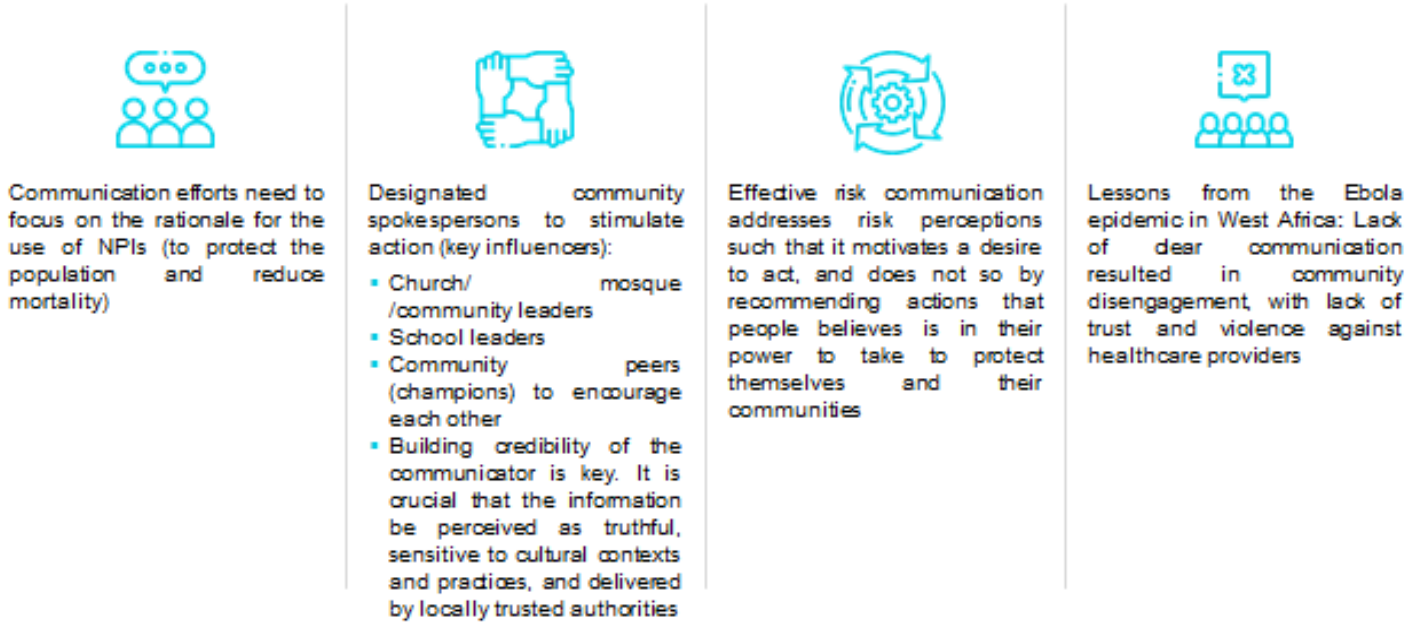

Figure 3: Effective risk communication during epidemics

Strict measures such as lockdowns, curfews, and border closures have negative socioeconomic impacts on people and communities. To mitigate these effects, it is important for governments to provide economic and social support, including the provision of basic and daily needs. These could be in the form of:

- Provision of rations of food by governments and international agencies, e.g. World Food Programme
- Funding for low paid workers, those who would not be paid if away from work, self-employed, casual employees, those who are unable to work from home
- Providing face masks, hand sanitizers, etc for those who cannot afford them
- Supporting vulnerable families for continuing education during school closures (such as by access to computers, free internet connection at home)

Controlling health misinformation: Social media platforms, unlike broadcast media (TV, radio) and print media (newspapers, magazines) remain largely unregulated. As such, they could be major disseminators of false information during pandemics. When used as an information source, social media may present a health risk for communities; for example, spreading conspiracy theories which distort the truth, and act to inhibit health-protective behaviours. In a joint statement by the WHO and other international agencies, governments were urged to take stronger actions to promote the timely dissemination of science-based

information and prevent the spread of false information, while respecting freedom of expression. According to the WHO, misinformation and disinformation put health and lives at risk, and undermine trust in science, in institutions, and in health systems[4].

Ethical and legal considerations in implementing NPIs: Important questions have arisen about the ethics and legal authority to restrict individual rights in times of public health emergencies, especially as coercive measures are likely to be abused by governments and security bodies, and erode public trust in the government. Before an action is implemented, public health authorities should ascertain that:

- The intervention is likely to be effective
- The action is proportional to the threat of the disease
- The measure is provided for and carried out in accordance with law
- The intervention is necessary for effective control of the disease
- It is in the interest of a legitimate objective of general concern (public health safety)
- The intervention can be implemented with the least infringement on individual liberties

Using these principles, interventions should then be applied in a transparent and non-discriminatory manner, respecting the dignity, human rights, and fundamental freedoms of persons. Recommended measures should be based on scientific evidence and not drafted or imposed in an arbitrary or discriminatory manner. In addition, governments must work to meet basic needs including food, medical, and psychological support for communities during the implementation of NPIs, in order to cushion their socioeconomic impacts.

Additionally, there should be a monitoring and evaluation plan in place. This will help determine whether to tighten or relax restrictions depending on epidemiological trajectories.

[4] https://www.who.int/news/item/23-09-2020-covid-19-pandemic-countries-urged-to-take-stronger-action-to-stop-spread-of-harmful-information

Participants Reflections

- Emergency preparedness by all governments is key, and an important aspect of this should be community engagement and enlightenment
- Provision of basic water and sanitation infrastructure would go a long way in ensuring compliance to NPI measures, controlling the spread of the coronavirus, as well as other communicable diseases
- For there to be any effective compliance to NPIs and other control measures in Africa, governments need to address the poverty pandemic, as small businesses have been found to be most impacted by the pandemic
- Continuous monitoring and analysis of the barriers to adherence to NPI measures should inform strategies to increase public adherence
- Re-opening society and lifting travel restrictions introduces a potential risk of resurgence. Therefore, new entry requirements such as mandatory testing and quarantine are to be put in place to mitigate risks. These will most likely prevent resurgence of new cases
- An effective blend of multiple NPIs is more likely to yield better outcomes than single interventions

Chapter 2 - Essential Health Services amid COVID-19 and Future Epidemics

Maintaining Essential Health Services amid COVID-19

Professor Akin Osibogun – Professor of Public Health, College of Medicine, University of Lagos

As the COVID-19 pandemic broke out, patients avoided visiting health facilities so as to limit the chances of exposure to the virus, and some health centres/workers also shut down routine services for fear of contracting the virus. Community lockdown measures also restricted people's movement and created public transportation challenges. Also, airport and border closures affected the supply of drugs and other health supplies. A lot of resources (human, facility, infrastructure, financial, etc) had to be shifted from regular health services to the COVID response. These factors affected service delivery and uptake of health services. The Lagos State government responded to this situation by providing extra-budgetary funds to all public health facilities to enable them provide free health services to vulnerable members of society.

Globally, the most frequently disrupted services[5] included:

- Routine immunization services – outreach services (70%) and facility-based services (61%)
- Diagnosis and treatment of non-communicable diseases (69%)
- Family planning and contraception (68%)
- Treatment for mental health disorders (61%)
- Antenatal care (56%)
- Cancer diagnosis and treatment (55%)

Response strategies to disruptions in healthcare delivery include:

- Sorting of patients with referral of suspected cases of COVID-19 to dedicated centres
- Adoption of telemedicine and remote consulting
- Targeted subsidies to ensure access to health services by vulnerable population groups.

[5] https://www.who.int/news/item/31-08-2020-in-who-global-pulse-survey-90-of-countries-report-disruptions-to-essential-health-services-since-covid-19-pandemic

With just 13% of the world's population, sub-Saharan Africa accounts for 24% of the global burden of disease (before COVID-19), 3% of global health workforce, and only 1% of global health expenditure[6]. The COVID-19 outbreak therefore compounded an already existing challenge of under-funding and under-staffing of sub-Saharan Africa's health sector. Fortunately, Africa experienced a relatively mild virulence of the COVID-19 virus and clinical presentation of the disease.

Health service delivery, especially for routine services and non-communicable diseases, need to be more resilient, or else Africa may suffer even higher mortalities from non-COVID diseases/health challenges.

Strengthening Health Systems in West Africa amid COVID-19: Investing for the Future

Dr. Blami Dao – Technical Director, West and Central Africa, JHPIEGO

Using the WHO health system building blocks[7] as a benchmark, it is important to consider how the health systems in West Africa have impacted on the COVID-19 response. These blocks include *governance and leadership*, *service delivery*, *health workforce*, *health management information system*, *medical products, vaccines and technologies*, and *financing*.

[6] The World Health Report (2006). Why the workforce is important. https://www.who.int/whr/2006/overview/en/

[7] https://www.who.int/healthinfo/systems/WHO_MBHSS_2010_full_web.pdf

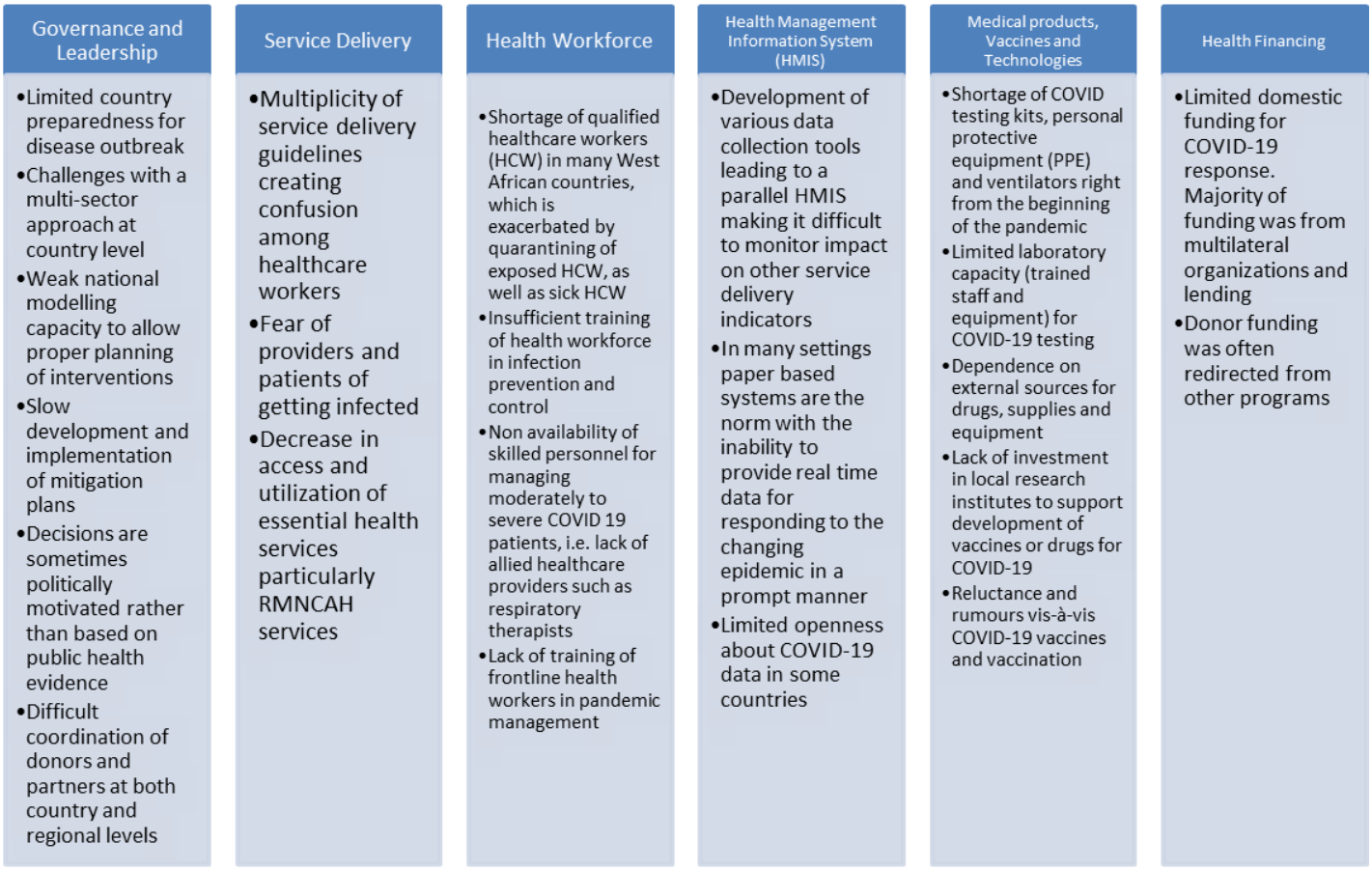

Figure 4: Challenges of the West African health system

In the light of these prevailing challenges, epidemiological modelling predicted a worst-case scenario for Africa's weak health systems. However, Africa seems to have escaped the 'doomsday' prediction. It is therefore imperative for West Africa to use the COVID-19 pandemic as an opportunity to build resilient health systems. Again, using the WHO building blocks, some recommendations for building a more efficient health system are highlighted below.

Leadership and governance: There should be high-level political commitment. Ministries of Health at all levels are to take responsibility for fighting global health threats through a better coordination of local, regional, and international partners. The government should also strengthen the capacity and leadership of emergency/pandemic response units through relevant trainings and adequate funding. Also, there should be a well-coordinated multi-sectoral approach to health.

Service delivery: Health service providers and other stakeholders should tap into the opportunity of digital platforms, as access to mobile technology expands in the sub-region.

The government should also expand the role of community health workers to reach rural and marginalized areas.

Health workforce: The West Africa Health Organization (WAHO) harmonized health professionals training curricula should allow for sharing human resources within the sub-region through the Economic Community of West African States (ECOWAS) Emergencies Workforce Database**.** Governments should also integrate pandemic response and management into pre-service education for healthcare workers and intensify training on key aspects of epidemic management such as infection prevention and control, risk communication and community engagement, contact tracing, healthcare workers' protection and mental health, as well as case management.

Health Management Information System: West African governments should operationalize the ECOWAS Regional Centre for Surveillance and Disease Control, and ensure the capacity to have integrated databases for cross-border decision-making

Medical products, vaccines and technologies: West African countries should establish a mechanism of bulk purchasing for health commodities and equipment, develop quality local pharmaceutical capacity, while also ensuring sustained access to quality vaccines and essential medicines through international partners. Governments, industry and other stakeholders should also develop local production and distribution of PPEs, sanitizers, and other health supplies.

Health financing: The Abuja 2000 commitment for allocating 15% of national budget to the health sector should be implemented. The private sector should be involved in the funding and management of the health sector.

In conclusion, West African countries should collectively strengthen their health systems to address health priorities during and beyond pandemics. This encompasses actual implementation and regular evaluation of policies and programs put in place by ECOWAS through the WAHO in light of current realities.

Monitoring Essential Health Services in a Public Health Emergency: the Place of Health Data

Dr. Franklin Asiedu-Bekoe – Head, Disease Surveillance Unit, Ghana Health Service

Essential health services include the management of emergency health conditions that require time-sensitive interventions, maternal and new-born health, caring for young children and elderly people, management of non-communicable diseases like diabetes and hypertension, disease prevention services such as immunizations, auxiliary services (for

example basic diagnostic imaging, laboratory, and blood bank services) etc. Provision of these essential services has been severely impacted by the breakout of COVID-19. Health systems around the world are being challenged by an increasing demand for the care of people with COVID-19, limitations on movement that disrupt the delivery of health care for all conditions, limited human resources, closure of health facilities due to staff infection/isolation, and contamination of in-patient wards, resulting in fewer available health facilities. These challenges are worsened by fear and stigma associated with the disease, as well as misinformation.

Due to reduced access to essential health services and, in some cases, failure to access needed care for pre-existing conditions due to fear of COVID-19 infection, there have been acute exacerbations of chronic conditions, and increase in indirect mortality from preventable and treatable conditions. Some indicators for monitoring the continuity of essential health services during COVID-19 include:

- Total number of outpatient attendance
- Total number of hospital discharges, including deaths (related and unrelated to COVID-19)
- Number of facility births
- Number of maternal deaths
- Number of children younger than 1 year receiving their third dose of diphtheria-pertussis-tetanus (DPT3) or their first dose of measles vaccine
- Number of new and relapse tuberculosis cases
- Percentage of people living with Human Immunodeficiency Virus (HIV) currently receiving antiretroviral therapy

These essential services indicators can be analysed using measurements, for instance, the number of clinic visits for specific conditions, or the number of new and relapsed cases of tuberculosis, or the incidence of a specific condition per 10,000 outpatient or clinic patients. Trends in health data can also be compared; for example, comparing current year rates of malaria cases to the previous three to five years or, where data is limited, to the previous year.

Figure 5 shows trends observed from routine data collected between 2016 and 2020 (January-June) by Ghana's health system. There was a sharp decrease in visits to the out-patient department in 2020, compared to previous years. An increase in the total number of

deaths is shown in Figure 6. A decrease in malaria admissions is seen in Figure 7, probably caused by patients' fear of visiting health facilities.

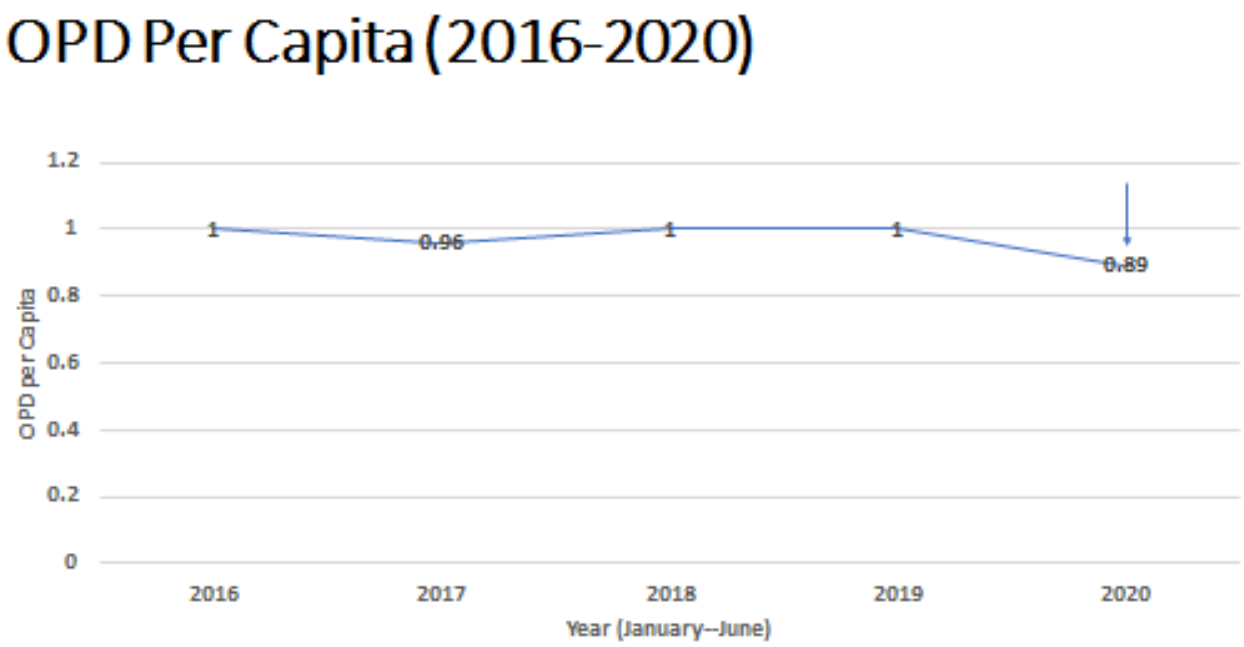

Figure 5: Number of out-patients per capita

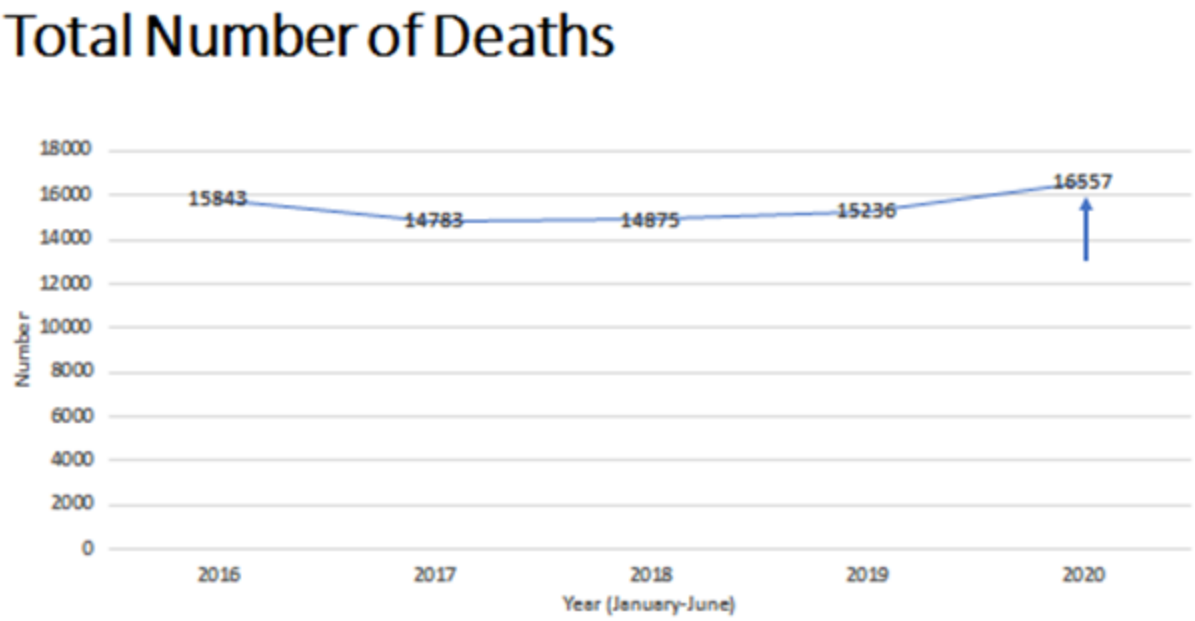

Figure 6: Number of recorded deaths

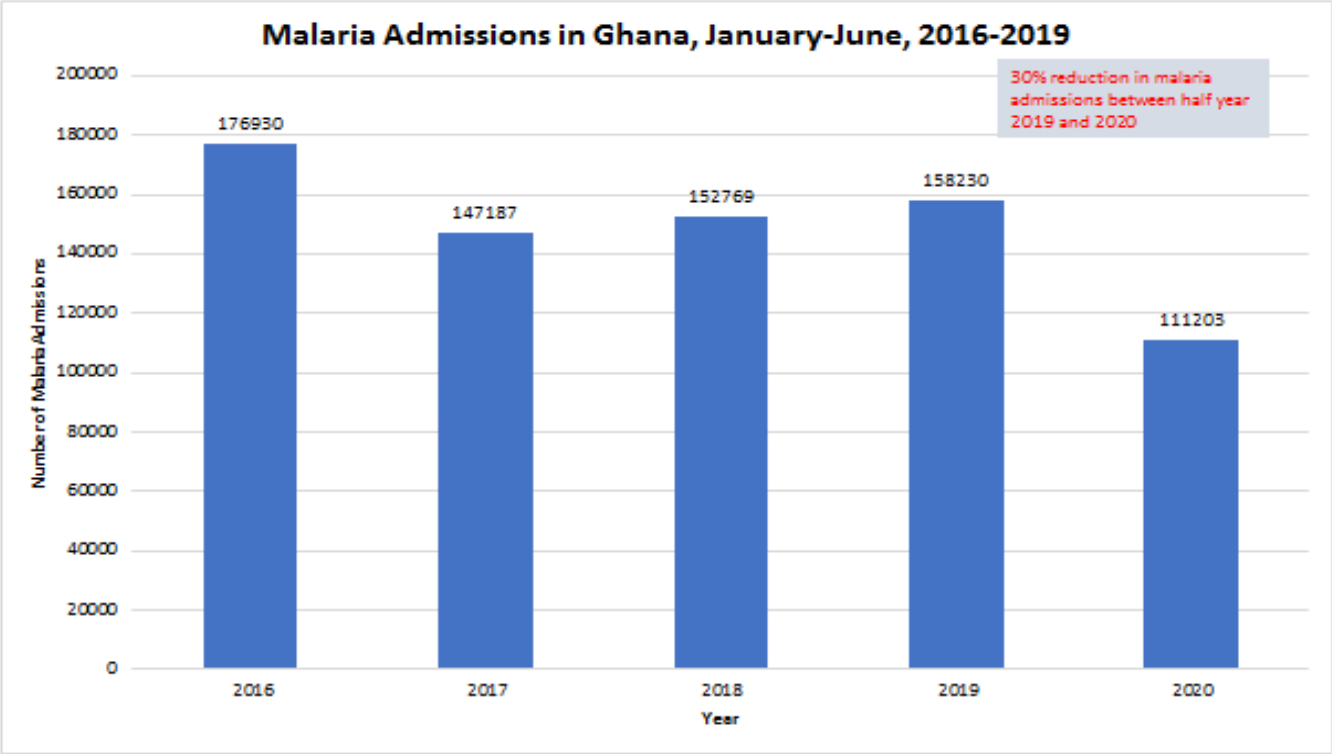

Figure 7: Number of malaria admissions
Source (Figures 5-7): Ghana Health Service

Recommendations and Key Discussion Comments

- Measures should be put in place to ensure that essential health services are maintained as much as feasible during epidemics. Provision of health services can be adjusted based on available resources.
- Capacity strengthening for frontline healthcare workers in pandemic management, as well as infection prevention and control, would be useful towards preparing for future pandemics, and in healthcare delivery in general
- Data collection systems are necessary to investigate the cause and level of disruptions to health services
- There should be clear communication to assure the public about the continuity of essential services and the measures put in place to ensure safety of patients in order to allay their fears

- It is important to focus on disease conditions where signs and symptoms overlap that of COVID-19, for early detection, to increase self-surveillance, and reduce the spread of the virus
- There should be continuous stakeholder engagement to address bottle necks, as well as resource mobilization to ensure that limited public and private sector resources provide the maximum benefit for populations
- Building resilient health systems requires a multi-sectoral approach that should cut across policymakers, health-workers, and governance roles
- A roadmap should be created for progressive reduction and restoration of services as pressure on the health system surges and recedes
- Government and health providers should anticipate restoring suspended services based on changing needs as public health measures are gradually eased and address any new barriers to access
- Government and healthcare providers should ensure the continuity of risk reduction and mitigation measures for COVID-19 transmission, and strengthen Infection Prevention and Control (IPC) measures in health service delivery

Chapter 3 - Technology for Healthcare during and Beyond COVID-19

Background and Scope of Telemedicine

Professor Akinyinka Omigbodun FAS – College of Medicine, University College Hospital, University of Ibadan

Telemedicine is the transmission of health information from a person at one location to another person at another location, using electronic communication channels. The earlier form of telemedicine involved a healthcare provider with a patient in one location, exchanging information with a more highly-skilled health worker at a different location, to improve the quality of care the patient receives. It could also take the form of a patient with a health problem communicating directly with a healthcare provider via an electronic medium (mConsulting) to receive care. Both telemedicine and mConsulting now form part of the general field of *Digital Health/eHealth*, one of the most rapidly developing branches of healthcare delivery. Acceptance and utilization of eHealth has been fast-tracked by the COVID-19 pandemic, and these new developments are likely to be further expanded to create a new normal.

Figure 8: Word cloud showing perception of mConsulting in Nigeria[8]

[8] Omigbodun A, Owoaje E, Fayehun O, Ajisola M, Harris B, Bolaji S, Popoola O, and Griffths F. Perception by Service Providers and Policy-Makers of the Impact of Mobile-Phone Consultations on Nigeria's Health System, 2020

Tools for telemedicine include mobile phones, smartphones, tablets, and computers. The modes of communication include voice conversations, text messaging, exchange of graphics/photos/teleradiology, remote monitoring of attached devices, two-way video conversations, and use of specialized apps. mConsulting systems can be used for drug prescriptions, patient record keeping, patient follow-up and referrals to specialists, and providing information on health facilities[9].

Challenges to the practice of telemedicine include:

- Poor awareness of available services
- Abuse of health-seeking behaviour, quackery, and misdiagnosis on the part of healthcare providers
- Expensive technology for digital health platforms and high cost of data access
- Poor internet connectivity and erratic mobile telephone networks
- Unstable power supply
- Problem of acceptability in rural areas
- Patients' lack of skills in using digital health platforms
- Challenges in receiving/making payment for services received
- Poor integration of care
- Poor data and information sharing systems for effective continuity of care
- Protracted or rapidly advancing illnesses may be difficult to manage using digital platforms
- Privacy concerns

These challenges can be resolved by putting in place quality assurance systems for certifying physicians, physician-patient consultation review, patient-physician satisfaction ratings, facility inspection, requesting a second opinion from other physicians, and cyber-security measures.

[9] Fayehun F, Omigbodun A, and Owoaje ET. Mobile technology can improve access to healthcare in Nigeria – if it's regulated (2020) https://theconversation.com/mobile-technology-can-improve-access-to-healthcare-in-nigeria-if-its-regulated-137182

In conclusion, telemedicine has gradually established itself as a major platform for health care delivery, a role whose importance has been accelerated by the COVID-19 pandemic. Major technological advances in ICT (information and communications technology) now make it cost-effective to do video consultations for a variety of ailments, a scenario that was unthinkable as recently as a decade ago. Consultations via mobile devices (mConsulting) is becoming more accessible, even to those in disadvantaged circumstances such as those dwelling in slums and remote rural settlements[10]. It will soon be a key element in health systems globally. When combined with access to complementary diagnostic tools (laboratories, imaging etc), a large proportion of healthcare needs can now be addressed without face-to-face interactions with primary healthcare providers. However, there is an urgent need to strengthen regulatory frameworks for the practice and delivery of health services, to ensure that quality of care is assured, and that the rights of both the care providers and the care receivers are better protected.

Telemedicine in West Africa: Regulatory and Legal Frameworks

Professor David Ofori-Adjei FGA – Professor of Medicine & Therapeutics; and Clinical Pharmacology, University of Ghana Medical School

All over the world, there are established standards and ethics by which healthcare providers are expected to operate. These standards should not change irrespective of the medium of communication with patients. The use of telemedicine creates new situations that still require the application of established professional principles of privacy, confidentiality, and security of patient information. Also, there should be appropriate record keeping, and patient follow-up.

Regulatory framework: Existing regulatory frameworks are in the form of professional health bodies e.g. Medical and Dental Council, Allied Health Professionals Council, Traditional Medicine Practice Council; health policies and legislations; ministries of health; health facilities regulatory agencies; licensing of healthcare professionals, and disciplinary measures for erring professionals.

[10] Griffiths F, Watkins JA, Huxley C, Harris B, Cave J, Pemba S, Chipwaza B, Lilford R, Ajisola M, Arvanitis TN, Bakibinga P, Billah M, Choudhury N, Davies D, Fayehun O, Kabaria C, Iqbal R, Omigbodun A, Owoaje E, Rahman O, Sartori J, Sayani S, Tabani K, Yusuf R, Sturt J. Mobile consulting (mConsulting) and its potential for providing access to quality healthcare for populations living in low-resource settings of low- and middle-income countries. Digital Health, 2020, 6: doi.org/10.1177/2055207620919594

Legal framework: The National Constitution of Ghana for example provides that there should be ethical and legal justification for disclosure of personal information. It states in Section 18 (2):

No person shall be subjected to interference with the privacy of his home, property, correspondence or communication except in accordance with law and as may be necessary in a free and democratic society for public safety or the economic well-being of the country, for the protection of health or morals, for the prevention of disorder or crime or for the protection of the rights or freedoms of others.

Other countries also have similar frameworks that protect patients' medical information.

Best practice measures and considerations for telemedicine: A WHO survey reported that 69% of countries reported a disruption of health services during the COVID-19 pandemic. Telemedicine offers a solution to limited access to health services and some other health delivery inefficiencies. Some existing measures that facilitate telemedicine in Ghana include the use of drones for the delivery of health supplies, an electronic personal identification, which is linked to the National Health Insurance Service and electronic health records. Also, some internet service providers offer health insurance packages on their mobile money service. Best practice examples based on existing telemedicine implementation should be well-planned and deployed, taking local conditions into account. Some recommendations are as follows:

1. Existing laws, regulations, policies, strategies etc. require review to integrate telemedicine practice.
2. The government should create an implementation committee (which could be part of an already existing governance structure) that is multi-disciplinary with a charge to develop, implement, and regulate the use of telemedicine.
3. Definite time-bound goals should be set to improve patient care, increase access to specialists, ensure end-to-end privacy and security, and recommend appropriate telemedicine platforms for patients at all socioeconomic levels.
4. Financing arrangements, including public-private partnerships, grants, platforms for payment for services, and government investments, are required.
5. Public-private sector collaborations should be encouraged, as well as knowledge-sharing platforms. Integration of service platforms – clinical, laboratory, imaging – should also be encouraged.
6. Quality and safety concerns should be addressed by adhering to clinical policies, guidelines, and protocols.

7. Community support, and inclusion of both urban and rural dwellers in implementation plans are necessary.
8. Training is crucial and must cover technical and professional aspects, particularly good communication to clients.
9. Consultations and financial transactions should be documented, and patient confidentiality should be assured. Access to records and use of data should be clearly defined (assuring anonymity where necessary).
10. Regular facility inspections to determine physical layout, wireless capability, internet connectivity, security (physical and electronic), and availability of data backups/disaster recovery plan should be conducted.

Going forward, West African countries need to recognize their current limitations in terms of technology and data security concerns. Policies should address these limitations, towards a more efficient delivery of digital healthcare. Political commitment is also necessary for allocation of funds.

Increasing Access to Telemedicine

Dr. Olajide Adebola – Society for Telemedicine and E-health, Nigeria

Currently, infrastructural capability for telemedicine across West African countries remains weak. However, factors which may drive telemedicine adoption in West Africa include:

- Growth in mobile telephone usage: At the end of 2018, there were 185 million unique mobile subscribers in West Africa[11]. According to the report, future growth will largely be driven by young consumers owning a mobile phone for the first time; as more than 40% of the sub-region's population are below 18 years old
- Increase in e-commerce and mobile banking
- Shortage of human resources for health
- COVID-19 Pandemic
- Teleconferencing and use of collaboration apps for virtual meetings

[11] GSMA (2018). The Mobile Economy of West Africa

Challenges to the use of telemedicine include self-limiting cultural beliefs, lack of well-implemented policies and legislations on telemedicine, health insurance limitations, and infrastructural deficits[12]. To increase access to telemedicine, there is a need for appropriate legal and regulatory mechanisms, integration in national/private health insurance platforms, and continuous stakeholder engagement. Stakeholders include industry, government, consumers, healthcare providers, academic/research bodies, accreditation bodies and non-governmental organizations (NGOs).

Market	Description	Implications for planning
Fully regulated	Government drives the development and adoption of eHealth from a central mandate. eHealth is generally implemented through large-scale national or state programmes and projects.	• Government is responsible for developing the national eHealth vision. • Limited stakeholder consultation is conducted on the current eHealth environment and feedback on the national vision; the content of the plan is primarily driven by the government.
Guided market	Government provides central coordination of eHealth in areas of national significance. There is greater flexibility and reduced central control and regulation in areas where the health sector and market are best positioned to play a role in developing the eHealth environment.	• Government is responsible for leading and managing the development of the national eHealth vision. • Government works with stakeholders to develop the strategic context, vision and supporting recommendations. Stakeholders may provide subject matter expertise on the current and future eHealth environment. • Content of the plan is driven by both the government and important multi-sector stakeholders.
Free market	Government provides no central authority or governance over the development of the national eHealth environment. There is heavy reliance on external parties (such as customers, care providers, and suppliers) to cooperate and collaborate with each other to develop the national eHealth environment.	• Government facilitates the process by which stakeholders are brought together to develop the national eHealth vision. • Government does not provide significant input or content, but may play a facilitating and advisory role to assist in the development of a national eHealth vision, which different stakeholders will endorse.

Figure 9: Government roles towards achieving increased access to telemedicine[13]

A national enabling environment is a pre-requisite to tap into the potential technological advances that telemedicine brings to healthcare delivery.

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[12] Okereafor K., Adebola O., Djehaiche R., Exploring The Potentials Of Telemedicine And Other Non-contact Electronic Health Technologies In Controlling The Spread Of The Novel Coronavirus Disease (Covid-19). International Journal in IT & Engineering (IJITE), Volume 8, ISSUE 4, April 2020, ISSN: 2321-1776. Available at http://ijmr.net.in

[13] WHO /ITU National eHealth Strategy Toolkit

Recommendations and Key Discussion Comments

- As the practice of telemedicine begins to proliferate in the face of the COVID-19 pandemic, the government and other stakeholders, such as NAS, need to take responsibility for necessary infrastructure setup, as well as quality assurance and control measures
- The government also has to take steps to minimize challenges associated with the practice of telemedicine such as power supply, illiteracy, and access to rural dwellers
- Care continuity has been identified as one of the key challenges associated with telemedicine. This is due to limited or lack of access to medical records from a patient's primary care provider, to other health providers. Information sharing should therefore be encouraged across healthcare practitioners
- People would be more likely to embrace telemedicine if it is relatively cheaper than physical contact and when the health practitioner is accessible. Relevant stakeholders should therefore take steps to ensure that an enabling environment is created to make telemedicine attractive to potential users

Chapter 4 - COVID-19: Towards a New Normal

Defining the New Normal

Professor Richard Adegbola FAS – Consultant, Nigerian Institute for Medical Research

COVID-19 is a pandemic of uncertain duration. In the new normal, new habits of avoiding crowds, social and physical distancing, hand washing and the use of sanitizers, as well as the wearing of face masks need to be learned and practiced.

In preparing for the next pandemic, there are important realities to be considered:

- The whole world is looking to the science and medical fields for solutions to the pandemic
- As the years go by, disease outbreaks will be more frequent than ever, because humans are interacting with nature at an unprecedented and unhealthy rate. Checks have to be put in place for more responsible use of nature and its resources
- Humans need to embrace and explore symbiosis as a way forward for interacting with microbes and other organisms
- Research alone won't be enough to solve all science-oriented problems. Technology and other fields, more than ever, have major roles to play in keeping the world safe. A multidisciplinary approach to problem solving, and building partnerships in Africa is needed
- Contributions are needed from Africa in the fight against COVID-19. Africa needs to explore local ways to solving global problems instead of a 'cut and paste' approach

Recommendations and Key Discussion Comments

- African governments must ensure compliance to public health and social measures to prevent a second wave of the COVID pandemic
- Risk communication should be tailored to particular society contexts, to ensure understanding and adherence to control measures. The government also needs to control the spread of myths and misinformation about COVID-19, especially in the area of vaccinations

Appendix

Participants list (combined for all four webinars)

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