RAPID REPORTS AND PERSPECTIVES FROM THE FIELD

Building Health System Resilience in Africa During the COVID-19 Pandemic

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Abstract

Many essential health services have been paused because of the COVID-19 pandemic. To ensure that adequate health delivery is not impeded during the COVID-19 pandemic, this study aimed to describe the strategies for building health system resilience in Africa during the COVID-19 pandemic. The integration of COVID-19 care into routine healthcare delivery across African countries should be prioritized. Investment in human and material resources for the health sector should be prioritized by policymakers. Adequate community engagement should be prioritized across all communities in Africa. Investment in leadership development training across all health sectors would promote initiative-driven decision making and promote infection control practices in health facilities.

Keywords: Coronavirus; COVID-19; Community engagement; Healthcare system; Africa.

Introduction

The novel Coronavirus disease (COVID-19) was first reported from Wuhan city, China, where pneumonia-like symptoms were manifested during the fall period in 2019 [1]. Shortly afterwards, the World Health Organization (WHO) declared COVID-19 a public health emergency of international concern on 30 January 2020 [1]. As of 20 December 2021, 9,289,363 COVID-19 cases and 226,479 deaths had been recorded in Africa of the 275,376,379 cases and 5,374,014 deaths recorded globally [2]. To provide adequate care to COVID-19 cases and avert preventable deaths, the health system needs to be strengthened, especially in Africa where weak health systems exist [3].

The WHO has proposed a framework for describing health systems, with the following building blocks; service delivery, health workforce, health information management system, medicines and technologies, financing, and leadership/governance [4]. A good and effective service delivery entails building networks of close-to-client primary care, provision of a package of comprehensive and integrated range of public health interventions, and development of evidence-based standards to ensure that all dimensions of quality are provided: safety, effectiveness, and people-centeredness in a continuum [5]. A well-performing health workforce, on the other hand, is one that is responsive to the needs and expectations of its population, while maximizing the available resources in a fair and efficient manner to achieve the best outcomes. A good health information management system provides timely intelligence on health financing, trends and needs for health workforce, health risks, and a national monitoring and evaluation plan. A health system with essential medicines and technologies makes marketing authorization and safety monitoring, supported by relevant legislation, and national lists of essential medical products. Leadership and governance ensure that health authorities take responsibility for steering the entire health sector, while providing effective regulation through a combination of guidelines backed up by legal measures and enforcement mechanisms [5].

A good health system is one that responds and adapts to the health needs of its population in a balanced and resilient manner. Such a health system improves the health status of individuals, families, and their communities, defends the population against identified health threats, offers some protection against catastrophic health expenditure, provides equitable and people-centred care, and enhances community participation in health-related decision-making processes [6]. Biosecurity refers to the protection, control, and accountability measures implemented to prevent the loss, theft, misuse, diversion, or intentional release of pathogenic agents and related resources as well as unauthorized access to, retention or transfer of such material" [7-9]. It is a strategic and integrated approach to analyzing and managing relevant risks to humans, animals, plant life and health, and associated risks for the environment. Improved health and well-being of human populations are the ultimate outcomes of functioning biosecurity systems [10]. Biosecurity systems are usually integrated into the national health system of any given country. While preventing the proliferation of hazardous biological materials and enhancing diagnosis during surveillance for infectious diseases, biosecurity reduces people's exposure to health threats and helps to achieve one of the goals of a good health system: health promotion. To chart the strategies for building the resilience of the health system, it is

important to describe the strengths and gaps of the national health system across African countries. This perspective thus aimed to describe the strength, gaps and strategies for improving the resilience of African health systems in responding to the COVID-19 pandemic.

Strengths of the national health systems on the African continent

Some progress has been made in the health system of many African countries over the years, however they still fall below the recommended standard. In Ethiopia, for instance, 80% of the population are covered in the nation's health system [7]. The progress reported by the Ethiopian health system could be attributed to an increase in mobile health facilities, creation of emergency care at the secondary level, use of modern tools, and community engagement. Stratification of the health system in Tanzania has helped to build steady defense against illnesses and diseases [7]. The village health services provide preventive primary care through the engagement of only two village health workers, while the dispensary health services provide a higher level of preventive care for 6,000 to 10,000 people (<1% of the Tanzanian population) [11,12]. Tanzania's third level of healthcare provides advanced health services and make referrals to the district hospital situated at the next level where modern equipment are used by doctors that have undergone basic training.

Through the commencement of health insurance and free healthcare services in many African countries, basic healthcare for all is being achieved. Through the National Health Insurance Scheme and the Health Maintenance Organization, many Nigerians have been able to save ahead of unprecedented health events and are thus not denied treatment due to unbearable catastrophic health expenditure [13]. In 2006, the provision of 80% subsidy policy for all deliveries in Burkina Faso and the introduction of free services for pregnant women in Burundi helped to improve delivery in health facilities and enrolment in antenatal services respectively [11]. Similarly, Ghana's introduction of free delivery care in 2004 caused maternal deaths to plummet from 500 per 100,000 live births in 2004 to 350 per 100,000 live births in 2008. Mali and Mauritania, likewise, introduced social insurance schemes to improve affordability of healthcare costs and to reduce maternal and neonatal deaths [11].

Gaps in the national health systems in African countries

Many African countries fall short of the above-named criteria for a good health system. Health systems in Africa are plagued by many challenges from political, institutional, and technical aspects. Inadequate health infrastructure, finance, and work force has also limited the capacity of the health system in many African countries [14]. Although the responsibility for steering the entire health sector lies with the leadership and governance pillar of the health system, backup of effective regulations with legal measures and enforcement mechanisms is lacking in Nigeria and

Ghana [14]. In both countries, the Pharmaceutical Council regulate the duties of Pharmacists and patent/proprietary medicine vendors. Patent/proprietary medicine vendors are responsible for providing basic medical services such as temperature checks and dispensing common medications, e.g., paracetamol and antimalarials after being prescribed by a doctor. Many vendors, however, currently exceed their work limit by providing medical services that are beyond their scope as determined by the Pharmaceutical Society of Nigeria [15]. In many instances, this has contributed to an indiscriminate use of antimicrobials, including antibiotics, antivirals, antifungals and antiparasitics [16]. The increasing prevalence of antimicrobial resistance is an emerging threat to biosecurity. The lack of Amoxicillin capsules for nearly 134 days in district hospitals and 70 days in other hospitals in Malawi elucidates the gross shortage of drugs in the health sector [11]. In Malawi, Amoxicillin capsules were out of stock for an average of 134 days in district hospitals compared to 70 days in other hospitals in the country in 2008 [17].

Delayed responsiveness of health systems to health emergencies has been stated in some African countries. For instance, the Nigerian health system was reported to have been indecisive in making prompt decisions about complete border closure to prevent the importation of COVID-19 cases when cases were being reported from other countries across the globe [18]. Thus, the international borders were opened (due to political interference) against the provisions of the International Health Regulations, and as a result SARS-CoV-2 was introduced into Nigeria [18]. Although contact tracing and other surveillance measures were effective, primary preventive practices were not adopted. The flexibility of the health system in Egypt, Nigeria, Liberia, and other African countries to adapt to changing outbreak events to a timely response during emergencies is lacking [19]. Although emergency funds are often incorporated into the annual health budget, these funds are inadequate to respond to an actual outbreak event.

In the health workforce, vacancies reached a height of 27% in Namibia and 49% in Uganda in 2008 [11]. The same was said of health workforce vacancy in Zambia where 50% of laboratory staff offices in 2006 and 77% of nursing staff positions were unoccupied in 2008. A contributing factor to the public sector vacancies in Uganda was due to recruitment freezes [11]. Overall, a disparity in the distribution of healthcare facilities existed, with a concentration of health resources in urban areas. Availability and provision of drug treatments and vaccines, inclusive of oral rehydration salts, Coartem, Cotrimoxazole, measles vaccines, tracer pills and primary line drug treatments, inclusive of anti-malarial pills, have been a chief hassle in these countries, as a few areas did not have 50% of the resources needed [11]. The stratification adopted in the Nigerian health system and the involvement of healthcare workers at the grassroots level improve the population's access to healthcare and improves healthcare coverage [14]. Across many African countries, there exists immense

opportunities for the supply of hospital facilities, recruitment of technical operational personnel for equipment, and funding, and many of these opportunities are embraced by donor organizations.

Dramatic improvements in the healthcare coverage have been shown in Africa following the decentralization of the national health system and engagement of community health workers [20]. However, the increased engagement of community health workers that are frequently described as unskilled health workers could be a shortfall for many African countries to achieve biosecurity. This is because unskilled health workers do not possess adequate technical know-how of the strategies for achieving biosecurity as their skilled counterparts. The engagement of community health workers in the response to health events in Africa further accentuates the health workforce disparity between developed and developing countries [20], where the skilled health professionals constitute nearly three-quarters of the health workforce in the former. Brain drain in the health system in many African countries, for example Kenya, has accounted for the low proportion of available health workforce [21]. Thus, the provision of a favorable atmosphere (through positive working conditions and good incentives) could improve the retention of healthcare workers within the national health system to achieve biosecurity across African countries.

The extent to which community members were involved in health-related decision-making was rated as poor in East and Southern (48.8%), West (44.0%) and Central African regions (41.8%) [19]. These proportions indicate that community members are not sufficiently included in decision-making within the health reform agenda.

Strategies for improving health system resilience to improve responsiveness and biosecurity systems
Investment in human and material resources

Investment in health infrastructure especially in public health facilities is a sure way to promote health delivery for the average individual during the COVID-19 pandemic and beyond. It further reduces the disparity occasioned by the differences in socio-economic status. The establishment of decentralized COVID-19 testing centers, testing kits, and reduced turnaround time for testing results would present a true reflection of the COVID-19 situation [22,23]. To alleviate shortages in supplies, local companies could be contracted for mass mask production, and donations from corporate organizations and individuals should be encouraged via public-private partnerships [24]. However, such funds must be adequately managed by seasoned financial and public health experts.

Availability of infrastructure and experts to manage them overcomes the challenge of inequity in accessing healthcare present in developing countries [25]. Given the shortage of skilled healthcare workers in many African countries, the population of infectious disease experts may be inadequate for a robust outbreak response. Hence, volunteer workers and medical trainees should be appropriately harnessed to create a stop gap in health human resource [26]. The engagement of dedicated personnel such as infectious disease experts and community health volunteers would enhance home-based care management of mildly symptomatic COVID-19 cases, a strategy which enhances community participation. However, training exercises need to be conducted for these volunteers to educate them on ethical issues related to handling of infectious materials, as well as infection prevention and control practices to adopt. Asset mapping would enable timely execution of tasks, promotes innovation for change, and enhances professionalism within the health system [25].

Integration of COVID-19 care into routine healthcare

The adoption of a horizontal approach which enables the primary, secondary, and tertiary levels of healthcare to plan their statutory roles is needed to improve the national health system during the COVID-19 pandemic [3]. For individuals with chronic diseases, provisions should be made to ensure medication refills at home through medical social workers in each health facility. In addition, telemedicine, an avenue through which consultations could be done through mobile phone conversation, should be encouraged. When these plans are adequately made, stakeholders at each level of healthcare become actively involved to ensure the successful execution of strategies approved at the national level.

Promotion of social responsibility and community involvement

Social responsibility has been emphasized as a critical tool to break the transmission chain of COVID-19. The practice of recommended public health preventive measures such as physical distancing, hand hygiene, and use of face masks could be achieved through effective community engagement [23]. The involvement of local community leaders and health institutions is of dire need to reduce COVID-19 transmission and improve the health system across African countries. When community stakeholders are involved, mobilization of community members becomes possible, and acceptance of health interventions such as COVID-19 testing becomes achievable [23]. This would enhance health research and the dissemination of results for which appropriate actions would be taken during the COVID-19 pandemic.

Effective COVID-19 vaccines have recently been rolled out for use. At first, the vaccines were only administered to healthcare workers, and subsequently Nigeria has expanded their COVID-19 vaccination capacity, thus providing vaccines for the general population. However, evidence obtained from many African communities suggest hesitancy regarding the COVID-19 vaccine [27]. To counter the myths and allay the fears surrounding the COVID-19 vaccine, adequate involvement of community stakeholders should be accorded as top priority. Likewise, the health information management pillar of

the health system building blocks should be designed to provide accurate, time-relevant information related to the risks of infection, as well as preventive measures.

Improved leadership and governance

To build effective teams in a resilient health system in Africa, good governance is crucial. Healthcare decisions should be made in a timely fashion, with measures implemented concurrently. The COVID-19 pandemic helps to breed learning leaders, who constantly seek a more robust response strategy, draw lessons from past success and failures, and source for health-improvement ideas. Thus, leveraging on collaborative action is key to an improved leadership in Africa during the COVID-19 pandemic. Practical strategies for improving leadership and governance include the improved regulation of Pharmacists and patent/proprietary medicine vendors [15]. Enforcement and/or disciplinary action should be adopted to ensure that the duties of these health workers are not left unchecked. For instance, seizure of one's practicing license could be declared as the penalty for every one that crosses his/her work limits. Community health awareness campaigns should be organized to educate people to discourage the practice of self-medication. It should be made known that for optimal health outcomes, only skilled health professionals should be consulted. These measures will help reduce the impending surge in antimicrobial resistance and improve the effectiveness of medications. Also, leadership and governance should undertake the organization of an efficient outbreak response team to respond during any outbreak event. Such teams should comprise of a minimum of four professionals, namely: an infectious disease epidemiologist, an infection prevention and control nurse, a health economist, and a disease surveillance personnel. These teams could be organized at the national level as well as health facility level. The assignment of specific funds for managing outbreak events and making plans for such funds is required by the Ministry of Health in each country. Likewise, improving public involvement in matters relating to their own health will improve case reporting, surveillance, and overall responsiveness of the health system.

Rather than introducing new strategies always, the evaluation of the successes and failures of COVID-19 implemented measures through a cause-result evaluation in each African country would provide vital information on the contributory factors for each experience [22]. It is however needed to ensure that review activities are executed by objective individuals. Channels of health information should be strengthened, and disruption in information flow should be removed. When COVID-19 information is communicated via a top-down approach with feedbacks received in a reverse direction, sufficient decision-making becomes possible for health system enhancement [4,5]. In addition, investment in leadership development training across all levels of the health sector would promote initiative-driven decision making and promote infection control practices in health facilities. This would in turn reduce the vulnerability of healthcare workers to COVID-19 and promote community health in Africa.

Conclusion

Many essential health services have been paused because of the COVID-19 pandemic. To ensure that adequate health delivery is not impeded during the COVID-19 pandemic, it is required that the resilience of the health system is built across African countries. We therefore recommend the integration of COVID-19 care into routine healthcare delivery across African countries. Investment in human and material resources for the health sector should be prioritized by policy makers. The identification and mobilization of matching skills and competencies for each professional area in the COVID-19 response should be immediately considered. Adequate community engagement should be prioritized across all communities in Africa to ensure adherence to COVID-19 preventive measures, and reduction of burden on the national health system. Overall, all efforts should be geared towards building the resilience of the health system across all countries in Africa.

Declaration of competing interests
The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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