

Africa Union (AU) Africa Centers for Disease Control and Prevention Role in the fight against COVID-19 in Africa: An Analysis of Frontline Health Workers' Perspectives

Daniel Dramani Kipo-Sunyehzi (✉ dkipo-sunyehzi@ug.edu.gh)

University of Ghana <https://orcid.org/0000-0003-3697-3333>

Research Article

Keywords: African Union, Africa CDC, COVID-19, frontline health workers, Ghana

Posted Date: May 18th, 2022

DOI: <https://doi.org/10.21203/rs.3.rs-1618934/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Background: This article examines the role of the Africa Union (AU) Africa Centers for Disease Control and Prevention (Africa CDC) and other international partners in the fight against the global pandemic on the continent (Africa). It analyzes the governance structure of the Africa CDC and the policy strategies to slow the virus and at the best end the pandemic. The Africa CDC works through its regional offices across the continent intending to strengthen the public health systems of AU member states in response to disease outbreaks. In this regard, the perspectives of frontline health workers were analyzed in an AU member state (Ghana).

Methods: Data is obtained largely from qualitative sources through in-depth interviews, focus groups discussion, the use of official documents and some direct observations in the field (in offices and health facilities). Purposive and snowball sampling methods were utilized in which 40 participants took part in the study including national, regional and local level workers who worked or interacted directly with clients (COVID-19 patients, persons with suspected cases among others).

Results: The results show that many international partners are identified as key partners that are directly involved in the fight against the novel coronavirus disease 2019 (COVID-19) in Africa. It is interesting to note that the World Health Organization, UNICEF and the US CDC are more prominent in the fight against COVID-19 in Ghana than the Africa CDC. The reason for this is that the Africa CDC worked through its Regional Coordinating Centers (RCC) instead of working directly with the AU member states. Thus, the Africa CDC occupied the fourth position of the international partners who played crucial roles in the fight against the global pandemic in Ghana.

Conclusion: The study concludes that strengthening public health systems is crucial in Africa and that the fight against COVID-19 is a collective one for all states and international partners. It recommends that the Africa CDC should find a way to work directly with the AU member states including Ghana.

Introduction

The African Union (AU) is a continental body for the 55 African states and was established officially on July 9, 2002, in Durban South Africa. It has since then been the most formidable political bloc. The AU replaced the Organization of African Unity (OAU) which was formed on May 25, 1963, by some independent states and at the peak of other African states' struggle for their independence. The Assembly of the AU is a key decision-making body, made of heads of states and governments. *The Assembly of the Union* is the 'supreme organ of the Union'. The Assembly has the power to establish any other organ for the AU, as deemed as necessary for the Union [1]. As a result of the powers vested in the Assembly of the Union, it pushed for the establishment of a specialized public health agency known as the Africa Centers for Disease Control and Prevention (Africa CDC), which was established in January 2016 on the 26th Ordinary Assembly of Heads of State and Government. This specialized organ or body of AU was officially launched in January 2017. Also, the Africa CDC was established to support and collaborate with

AU member states on health-related issues for the 1.3 billion people on the continent. Thus, the Africa CDC has the mandate to work to detect, prevent, control and act swiftly and promptly on disease outbreaks or threats in Africa. Moreover, the Africa CDC is to promote public health practice in terms of surveillance, prevention, diagnosis, treatment as well as the control of novel coronavirus disease 2019 (COVID-19) in Africa [2, 3].

The governance structure of the AU Africa CDC is well outlined in the statute that established it. The statute identifies the seat of the Africa CDC in Addis Ababa, Ethiopia as the AU Headquarters. Per the governance structure of the Africa CDC, the highest body is the *Governing Board*, followed by the *Advisory and Technical Council* and the *Secretariat*. Membership of the bodies cut across the five regions of AU, other partner organizations or experts as deemed necessary. Officeholders have nonrenewal for three years, others are two years nonrenewable as applicable. The Africa CDC is headed by a Director, who serves as Secretary to the Board, the Council and the CDC Secretariat. The Director shall serve for four years and be subject to renewal once [2]. Besides the Secretariat, the Africa CDC has five regional offices outside the AU headquarters. The Africa CDC Regional Collaborating Centers (RCC) are located in the five sub-regions of the continent which include Southern, Northern, Eastern, Western and Central Africa specifically representing these countries: Zambia, Egypt, Kenya, Nigeria and Gabon respectively [2, 4].

The first recorded case of COVID-19 in Africa was on February 14, 2020, in Egypt and Ghana in March 2020. The Africa CDC has reported extensively on the pandemic in terms of the number of countries affected, and the number of recoveries and deaths since March 2020. As at April 15, 2022 the Africa CDC reported of 11,369,166 infections, 251,666 deaths, 10,741,627 recoveries and 103,845,682 tests across Africa from COVID-19 [5]. Thus, this study analyzed the health policy strategies or the interventions adopted by the Africa CDC against the global pandemic (COVID-19) in Africa.

The African Union (AU) Africa CDC adopted several health policy strategies for the member states in the fight against COVID-19. One of such health policy strategies is the *Africa Joint Continental Strategy for COVID-19 Outbreak*. This policy strategy has two main/broad objectives:

- 1) To coordinate efforts of Member States, African Union agencies, World Health Organization (WHO) and other partners to ensure synergy and minimize duplication.
- 2) To promote evidence-based public health practice for surveillance, prevention, diagnosis, treatment, and control of COVID-19.

In implementing this strategy, the Africa CDC used two major operational units namely: (a) Africa Task Force for Coronavirus (AFTCOR) and (b) Africa CDC's Incident Management System. The two represent the implementation structure of the policy strategy through the five Regional Economic Communities (RECs) of Africa specifically Africa CDC Regional Collaborating Centers (RCC) [3].

These COVID-19 tactics were adopted as the continental policy strategy to limit transmission and minimize harm through rapid diagnosis and isolation, quarantine infected persons and embark on

contract tracing with persons who had close contact with the infected person(s) and the practice of social distancing. The Africa CDC collaborated with the AU member states in enforcing these tactics through its RCC. Also, helped and assisted member states with technical and some logistics to boost continent health facilities to respond to the pandemic including the use of 'intravenous antibiotics, oxygen, ventilatory or hemodynamic support' as well as the management of complex co-morbid conditions' [3]. While the WHO issued an advisory note urging member states to keep their borders open, most African states closed their borders at the peak of the pandemic from March 2020 thereof. The COVID-19 preventive measures impacted negatively on the economies of AU states. Key partners of Africa CDC in the fight against COVID-19 in Africa include the African Union, AU member states, partnering with the various RECs on the continent to implement Africa CDC COVID-19 guidelines and tactics and partnership with private sector actors on airport screening, among others, and some assistance/support from multilateral/bilateral agreements [3].

Some tactics the Africa CDC adopted towards COVID-19 objective 2 are a collaboration between Africa CDC and AU member states in terms of COVID-19 surveillance data, high quality diagnostic, genotyping services, rigorous hand hygiene practice in schools, and other high risks of widespread transmission, strengthening countries health facilities, effective communication in dealing with misinformation through media, effective supply chain management and care for vulnerable [3].

Africa CDC Role in the fight against COVID-19 in Africa

The Africa CDC policy examines the impact of COVID-19 in Africa, especially on health and development. The study identifies six key priority areas namely COVID-19 transmission dynamics including disease epidemiology and surveillance, diagnostics, the clinical classification of cases, clinical trial of COVID-19 vaccine, and the impact of COVID-19 on the health systems of Africa, as well as social science and policy research. Also, the Africa CDC through the support of key partners developed the COVID-19 Antigen Rapid Self-testing guidance in the fight against the global pandemic. The studies show that over 94 million tests were conducted across 55 AU member states, interestingly records show 9 tests performed per confirmed COVID-19 case as of January 31, 2022. Though the testing rate is below the WHO recommended rate of 10-30 tests performed per confirmed case as the benchmark for effective testing to control the spread of COVID-19 [6, 7]. Also, Africa CDC guidance on self-testing addresses other areas including risk-based scenarios, quality assurance, safety, ethical considerations and COVID-19 self-testing data management [7].

One key partner of the African Union Africa CDC is the Partnership for Evidence-based Response to COVID-19 (PERC) which has conducted several studies in the form of surveys across Africa on COVID-19 on the effectiveness or otherwise of the public health and social measures (PHSMs) in the fight against COVID-19. Some of the measures include the closure of borders, compulsory nose masks wearing in public and restrictions on public gatherings including avoiding large gatherings and places of worship among others. The AU member states urge to enforce these measures to slow the spread of the virus in Africa. The results show that mask-wearing, hand washing and physical distancing have higher support

to stop the spread in Africa than restrictions on gathering, movement and travel bans at member states airports and other entry and exit points [8, 9].

Literature Review

Africa CDC and COVID-19 in Africa

There was a great worry for the African continent's ability to fight the pandemic in terms of their preparedness, due to AU member states' weak health systems including inadequate surveillance, laboratory for diagnostic services, challenges of public health human resources and low financial resources among others. In terms of the spread of the virus, Africa was also at a high risk since it was first reported in Wuhan China in 2019 due to the 'high volume of air traffic and trade between China and Africa' [10, 11]. These were some fears from researchers and several studies pointed to the risks at the beginning of COVID-19 on the high risk of Africa importing the virus from China. Three African states were identified namely Egypt, Algeria in the North and South Africa in the south as countries with the highest importation risk but with the moderate to high capacity to respond to the COVID-19 outbreak in Africa. However, other African states like Angola, Ethiopia, Ghana, Kenya Nigeria, Sudan and Tanzania are identified as with moderate risk and a high rate of vulnerability [12]. Thus, the Africa CDC in partnership with other organizations including WHO developed the Africa Taskforce for Coronavirus Preparedness and Response (AFTCOR) to respond and act fast and collectively in the fight against COVID-19 in Africa. The action was taken in six streams namely laboratory diagnosis, surveillance (screening at points of entry), infection prevention at facilities, clinical management of severe cases, effective communication of risk, and supply chain management as well as stockpiles [11]. Africa CDC and AFTCOR coordination and partnership made efforts to increase laboratory testing to accurately diagnose COVID-19 in member states. The Ebola outbreak 2014-2016 tells how fragile the health systems of Africa are and the need for AU member states to adequately prepare for COVID-19, with the active role of the Africa CDC [13].

African states were prepared and to some extent on high alert for the COVID-19 before it was first reported in Egypt on 14 February 2020 partly due to their experience of the Ebola Virus outbreak and the creation of Africa CDC, its RCC and World Health Emergencies Programme in Africa as well as their collaborative efforts to enhance COVID-19 diagnostics and creation of quarantine centers or designated hospitals for COVID-19 suspected cases/infections across the continent [12-14]. The Africa CDC played a crucial role in the fight against the global pandemic in many areas including the creation of integrated surveillance, laboratory workforce, and networks for quick disease detection and action/response, disease control and prevention as well as for the provision of clinical care in Africa. Such a critical workshop had the support of Africa CDC, WHO and the African Society for Laboratory Medicine. The participants included both public and private sector actors [15].

In Africa particularly Sub-Saharan Africa (SSA) most states spent less on health. According to World Bank records the SSA states spent 5.18% of the total Gross Domestic Product (GDP) on health against 9.78% spent by the Economic Co-operation and Development (OECD) states. This thereby creates some

challenges in the health systems of SSA including inadequate staff, supplies of personal protective equipment (PPEs), beds in the intensive care unit (ICU) ventilators and other medical accessories or necessities [16-18]. Moreover, there was a great political will of SSA state governments to confront the global pandemic with all seriousness by enforcing the various preventive measures outlined by Africa CDC and WHO and other states/government public health agencies and the role of the Southern Africa Center for Infectious Disease Surveillance (SACIDS). These collective efforts helped the COVID-19 task force (AFTCOR) to achieve success on the continent. In addition, the Africa CDC Trace, Test and Track (CDC-T3) helped the fight against the virus [18, 19]. Other measures SSA state governments took included mobile testing (South Africa), face to face learning in schools replaced with electronic (E-learning)/virtual in many other states [16, 20].

Materials And Methods

Study Setting

The study setting is Tamale Metropolis of Ghana where some data was obtained from the field. The Metropolis has a population of 374,744 to the Ghana Statistical Service [21]. Tamale is the third biggest city in Ghana and the biggest in Northern Ghana. The preventive measures that were taken to protect the inhabitants of the city against COVID-19 by the government in response to the measures and advisory notes of the Africa CDC and WHO among others at the international level. The national level measures of the Ministry of Health (MoH) and the Ghana Health Service (GHS) which is a state agency that is responsible for the execution of health policies in Ghana.

Research Design and Data Sources

The research design is largely qualitative. It utilizes these sources of data: on-site observation, in-depth interviews, groups or focus group discussions, document review, and the administration of open-ended questions or semi-structured questions using interview guide as the instrument [22]. Moreover, qualitative research design emphasizes more text (words) than numbers (quantification) in data collection as well as data analysis [23-24, 25]. In this study, the researcher interviewed the study participants face to face while observing the COVID-19 safety protocols including social distance, use of nose masks before, during and after interviews for in-depth interviews and focus groups discussions with frontline health workers involved in provision of COVID-19 healthcare and other services in offices and at healthcare facilities (hospitals and clinics). Some information including the number of tests, contact tracing, infected cases, deaths and recoveries were obtained from official documents (reports and records). The Northern Region recorded cases are 569, 1,274 and 20 respectively for 2020, 2021 and 2022 with the total of 1,863 [32].

Sampling Techniques and Sample Size

The target population is health workers in the Tamale Metropolis who are directly involved in COVID-19 related activities. Some of these COVID-19 related activities include contact tracing, health workers in

isolation centers, regional and district COVID-19 taskforce, and diagnoses (testing) among others. From the target population, the researcher purposively selected the frontline workers who work in the following units at health facilities and or offices of Ghana Health Services (GHS): disease control, health promotion, health information, public health nurses, COVID-19 taskforce, and surveillance units. The frontline workers were selected through the use of the purposive sampling technique. Though it is a non-random sampling technique, the researcher considers the positions and units of the frontline workers before their selection. This is a way to minimize selection bias. This purposive sampling technique is useful as it helps to select persons from each of the crucial groups that are directly involved in COVID-19 activities without leaving out any of the groups of frontline health workers. Moreover, this technique is crucial because the 'sample groups data can be easily matched' to the target population of the Metropolis and with some homogeneity of subjects [26].

The other sampling technique used in the study is snowball. This enabled the researcher to identify other frontline health workers directly involved in COVID-19 activities in the Tamale Metropolis of Ghana through networks or information obtained from the first group of participants interviewed. Once other frontline workers' names and in some cases their units and location were mentioned, the researcher reached out to such participants. It helped to convert non-probability to probability by selecting subjects randomly within each stage [26, 27]. Thus, an initial sample size of 20 frontline workers increased to a manageable 40. The data collection started in December 2021 and ended on March 6, 2022. The study participants and their units, offices or health facilities are in Table 1.

Table 1 Participants and their units in offices/health facilities in Tamale/Ghana

Frontline health workers	UNITS	Total
Ministry of Health	Health Policy Planning, M & E Division	1
Regional Health Directorate	Disease Control/surveillance/Information	3
Metropolitan Health Directorate	Disease Control/Nutrition/Info/H. Prom//PH	5
Tamale Central Hospital	Disease Control/Nutrition/Public Health (PH	6
Tamale West Hospital	Disease Control/Health Promotion	4
Tamale SDA Hospital (Private)	Disease Control/Informatio/Nutrition/Promotion	8
Bilpeila Health Centre	Disease Control/Nutrition/Public Health	4
Kpanvo CHPS Compound	Disease Control/C.Nursing (1 Focus G. D.=5 1F)	5
Bamvim CHPS Compound	Disease Control/Public Health/C. Nursing	2
Yong-Dakpemyili CHPS C.	Disease Control/Public Health/C. Nursing	2
Total No. of MoH/GHS Staff		40

Data Analysis

The essence of this study is to examine the role of the Africa CDC in the fight against the global pandemic. In this regard, the researcher solicited the views or perspectives of frontline health workers. The data gathered in the field was analyzed through the establishment of themes and subthemes. The design of COVID-19 protocols from international organizations including Africa CDC/WHO among others and how AU member states adhere to the protocols in the fight against the pandemic. The occurring themes or patterns were coded or recorded and presented as study findings/results in tables, among others as part of the analysis of the data gathered from the field. These five steps are crucial in the analysis of qualitative data namely compiling, disassembling, reassembling, interpreting and concluding [28]. By compiling data the researcher transcribed the interview data. The next, the researcher used coding (reassembling) along with similarities and differences and verbatim words. Then utilized reassembling-building themes/patterns from codes. Interpretation of data gathered was done (making meanings out of data) and concludes. The Nvivo 11 software was utilized as part of the data analysis process.

Ethical Approval:

This research received ethical approval from the University of Ghana Ethics Committee for the Humanities (ECH) (ECH 249/ 21-22) and approval from the GHS/facilities and the participants' informed consent.

Theoretical Framework/The Analytical Framework

Theory of Change of Behavior

The research seeks to apply the 'social practice theory' [29]. This theory helps individuals in society/community to understand the world around them better and develop a sense of self. It claims that sources of change in behavior of people lie in the people's social practices. The aim is to answer 'how and why' the need for a change of behavior or practice of people towards a new practice (like the observance of COVID-19 protocols) that seeks to promote the people's health and wellness in general (that is health of all members of society) but not only the 'most vulnerable in society' [30]. It acknowledges some differences in individual reactions or struggles to act [31].

Research Questions

1. Which are the possible partners (local/international) in the fight against coronavirus?
2. What are some of the measures you (staff) adopt to prevent the coronavirus disease?
3. What do you think is the solution to COVID-19 in Africa and Ghana?

These three questions form part of the several questions that make up the research project.

The Analytical Framework

[See figure 1]

Results

The study presents some empirical observations/findings from Ghana, a West African state. The study's purpose is to examine the role of the continental body (Africa CDC) which has the mandate to ensure the health and safety of 1.3 billion people in Africa. The Africa CDC is to detect, prevent, control and act swiftly and promptly on disease outbreaks or threats in Africa [2, 3]. In this section, the researcher presents the perspectives of frontline workers in Ghana on the role of Africa CDC and other international partners in the fight against COVID-19 in Africa and Ghana.

The Role of International Partners in the fight against COVID-19

The essence of the first question is to find out the level of knowledge/awareness of frontline health workers on the role of Africa CDC and other international partners that are involved in coronavirus disease 2019 (COVID-19) related activities towards slowing the spread and at best end pandemic in Africa as in figure 1.

Table 2 International Partners that are involved in the fight against COVID-19 in Africa/Ghana

Participants	WHO	UNICEF	US CDC	AFRICA CDC	WB IMF	GAVI/ COVAX	JICA	USAID
BHC DCU.1	1	1	1					
BHC S.N. 2					1			
BHC E.N. 3	1	1			1			
BHC N.4	1							
KPANVO 5	1	1						
KPANVO 6								
KPANVO 7								
KPANVO 8								
KPANVO 9								
BAMVIM 10	1	1						
BAMVIM 11	1	1						
YONG D. 12								
YONG D 13								
METRO NI.14								
REG HIU15	1	1		1				
SDAH NIU16	1	1						
SDAH BU17								
SDAH HIU18	1		1	1			1	1
SDAH NU19	1							
SDAH NU20	1			1				
SDAH DCU21	1	1				1		
SDAH NU 22	1					1		
SDAH NIU 23	1						1	
METRODC 24				1				
METRONIU25	1	1						
WH DCU 26	1		1					
REG DCU 27	1	1	1					
REG SU 28	1	1	1		1		1	
CH CHNU 29								
CH DCU 30	1		1					1
CH E. N. 31						1		
CH DCU 32	1							
WH DCU 33	1	1						
WH DCU 34								
WH HPU 35	1	1						
METROHPU36	1	1				1		
METROPHU37	1							
CH DCU 38								
CH HPU 39	1	1						
MoHPPBMED40	1	1	1	1		1		1
Total	40	26	16	7	5	3	5	3

Fieldwork Interview Data, December 2021-March 2022

NOTE: WHO-World Health Organization; **UNICEF**- United Nations International Children's Emergency Fund (United Nations Children's Fund); **US CDC**-United States Center for Disease Control and Prevention; **Africa CDC**-Africa Centers for Disease Control and Prevention; **WB**-World Bank/**IMF**-International Monetary Fund; **GAVI**- Global Alliance for Vaccines and Immunization (Vaccine Alliance)/**COVAX**- COVID-19 Vaccines Global Access;

In Table 2, the most common international partner involved in the fight against COVID-19 in Africa and Ghana is WHO while the least international partners are JICA, WB/IMF and USAID. The findings are based on the number of times the participants mentioned the international partners.

Also, the researcher presents the views or perspectives of frontline workers who participated in the study and reported their responses verbatim on question 1 (role of international partners in the fight against COVID-19 in Africa/Ghana). The presentation is from the national, regional and local levels.

This is what an official at the Ministry of Health (MoH) said:

The fight against COVID-19 is not a lone fight of the African or Ghana governments, it is a collective fight against a global pandemic. International actors like WHO, UNICEF, COVAX and the Global Vaccine Alliance are deeply involved in the fight likewise the CDC US and our dear Africa CDC.

An official from the Regional Disease Control Unit of the Regional Health Directorate of the Ghana Health Service (GHS) has this to say on the role of international partners in Africa:

Africa/Ghana alone cannot succeed, we need others like international partners since we cannot do it alone. Partners like WHO, CDC (US, Africa) and UNICEF support funding, logistics, and fridges, in the fight against COVID-19 in Africa.

Similar views were expressed by the other two officials at the Regional Health Directorate of GHS from the Surveillance and Health Information units.

A frontline health worker (Health Promotion Unit, in Tamale Metropolitan Health Directorate of GHS) has this to say:

Africa is not alone at all in the fight against COVID-19, it is a collaboration with international partners like WHO, UNICEF, COVAX facility, and most international NGOs partner Government of Ghana, GHS.

The fight against COVID-19 in Africa is seen as a collaborative one, similar views were shared by colleagues in the Metro office in the Disease Control, Health Information and Public Health Units.

Also, the researcher shared frontline health workers from the peri-urban and the rural perspectives:

Africa and Ghana are not alone, they work with donors like the US government and other international partners like CDC (US), WHO and UNICEF.

The other frontline health workers added other partners in the fight against COVID-19 in Africa.

Two frontline health workers in rural health facilities indicated a lack of knowledge/awareness of any international partners while two other rural facilities workers mentioned WHO and UNICEF.

The Measures Staff adopt to prevent the Coronavirus Disease 2019 (COVID-19)

This second main question seeks to solicit the views or perspectives of the frontline health workers who are engaged in COVID-19 related activities such as contact tracing, quarantine/isolations at the various centers, treatment, administration of COVID-19 vaccines at health facilities, homes and communities, health promotion, health education at homes and facilities on personal hygiene and sanitation, surveillance, diagnostic services at laboratories, emergency services including rapid response and COVID-19 taskforce teams among others in Tamale Metropolis of Northern Ghana. The frontline health workers are supposed to be the crusaders against the spread of the coronavirus so their perspectives on the measures against the global pandemic are crucial to the study. Also, some of the challenges of the frontline health workers in the observance of the various COVID-19 protocols (preventive measures) in offices and facilities are reported (local issues as in figure 1).

This is what the national official at the Ministry of Health, Ghana said in response to the question:

You know how the government paid attention to COVID-19 and procured a lot of equipment for the health sector including nose masks, ventilators, liquid soaps, hand sanitizers, medical accessories, creation of designated health facilities for COVID-19, use of media to educate the public on preventive measures et cetera.

At the Regional Health Directorate, an official from the Surveillance Unit has this to say:

To prevent COVID-19 at the workplace, we strictly enforce the various protocols of handwashing with soap, social distance, mask-wearing and use of hand sanitizers.

The other two officials at the regional directorate reiterated what is said. By direct observations, I observed the mounting of the veronica buckets with water at the entrance for all people entering the Health Directorate to wash their hands with running water and with soap, a sprinkling of hand sanitizers as part of the measures to slow or control the spread of the virus at workplace (offices).

In the Metropolitan Health Directorate at the Disease Control Unit, an official shared his views on the preventive measures they adopt at the workplace (offices):

As measures to stop the spread of the virus within the population, we adopted these measures: mask-wearing even in the offices, observing social distancing, using hand sanitizers, wear protective equipment not to affect or be affected by the disease or spread it.

The four other officials interviewed at the Metropolitan Health Directorate shared similar views. Besides the interviews, I also observed some issues at the directorate on the preventive measures against the global pandemic. I noted that the Metro Health Directorate provided liquid soaps and encouraged the use

of nose masks in addition to COVID-19 vaccination as part of the efforts to stop the spread or end the global pandemic. Moreover, the researcher observed the provision of chairs at the open reception for visitors with some respect for social distancing.

The private hospital official (a Disease Control Unit and member of the COVID-19 task force) has this to say on the question of the measures staff adopt to prevent COVID-19 at the workplace (health facilities):

The measures to contain it in the facility include the provision of handwashing soap, an increase in veronica buckets for hand washing, the sitting arrangement at the OPD, use of a nose mask to reduce the chances of transmission.

The seven other workers who were interviewed at the SDA Hospital mentioned such measures. I noted the presence of the handwashing equipment at the entrance to the hospital and other measures.

The Central Hospital frontline health worker at Disease Control Unit has this to say on the issue:

We maintain personal hygiene, cover the nose when coughing, use hand sanitizer, frequent handwashing with soap, and social distance as ways to prevent the spread of the disease.

I also solicited the views of the other frontline workers in the same health facility on the measures.

Besides the perspectives of the frontline workers in the urban part of the Tamale Metropolis of Ghana, I also interviewed some frontline health workers in the rural parts of the metropolis. This is what one of them said concerning the measures they adopt to prevent COVID-19 at the workplace:

We wear nose masks, use hand sanitizers, and social distance in the facility to limit the spread, and control the outbreak, to limit it as much as possible. (Focus Group Participant 3, Kpanvo CHPS Compound)

This is what another frontline health work said at the faraway rural facility (Yong Dakpemyili):

We wear nose masks, practice social distance, hand washing under running water and take vaccines to protect ourselves and limit the spread of the disease.

The other seven rural frontline health workers that were interviewed indicated that they practiced the various protocols (preventive measures) against COVID-19, especially at the peak- 2020/2021.

From the several in-depth interviews, the one FGD and the direct observations from the study field some challenges were mentioned by the study participants while the researcher observed others in the offices/health facilities. These challenges are summarized in Table 3.

Table 3 Some Challenges in the measures staff adopt to prevent the COVID-19 in Tamale/Ghana

Four Levels/Categories of Participants	Some Challenges to the Preventive Measures
National, Regional, Local Level	
<i>National Level</i> *Ministry of Health	-The biggest challenge is behavioral change where many Ghanaians struggle to change their mind, practice/behavior to observe COVID-19 protocols.
<i>Regional Level</i> *Regional Health Directorate, GHS	-Behavior change is the biggest challenge in Tamale, Ghana and the government's continual support. -Also, funding has come down so much in Ghana.
<i>Local Level</i> *Metropolitan Health Directorate, GHS	-Getting to communities to educate them on the protocols is challenging in terms of fueling vans. -Some people believe COVID-19 does not exist.
Tamale Urban Level	
*Tamale Central Hospitals *Tamale West Hospital *Tamale SDA Hospital	-Frontline workers at health facilities (hospitals) The government started supply of personal protective equipment (PPEs), gloves, nose masks, sanitizers to hospitals but now we have to buy all these with our own money. These are challenges for the hospitals. So observing the various protocols is now very low.
Tamale Peri-Urban Level	
*Bilpeila Health Centre	-The PPEs are no more available, government stop -Also due to the mindset of the people that there is no COVID-19 so facility nose mask-wearing is low -There is no transparency in reporting COVID-19. -Unwillingness of people to change to the new order.
Tamale Rural Level	
*Kpanvo CHPS Compound *Bamvim CHPS Compound *Yong Dakpemyili CHPS Compound	-Now COVID-19 items are finished, hard to buy. -No pipes for hand washing under running water. - I have to bring water from home to practice the protocols. This is a big challenge at the facility. -We don't get COVID-19 payments at the bottom.

Fieldwork Data (December 2021-March 2022): in-depth interviews, FGD and on-site direct observations in offices/facilities

The Solution to COVID-19 in Africa and Ghana

The second main question attempts to solicit the views of the frontline health workers on a possible solution to the global pandemic. The researcher sums the perspectives of the frontline workers in the four categories: national, regional, metropolitan and urban and rural health workers in Table 4.

Table 4 the perspectives of frontline health workers on a solution to COVID-19 in Africa/Ghana

Frontline Health Workers	Perspectives on Solution to Covid-19 in Africa and Ghana
National level	The continual observance of COVID-19 protocols in Africa/Ghana and uptake of vaccination (FHW, Nat 1).
Regional Level	-Efforts on COVID-19 vaccine manufacturing in Africa/Ghana and deal with misinformation about vaccines (FHW, RO 1) -Help health systems to be proactive in handling cases and early contact tracing in Africa/Ghana (FHW, RO 2). -The solution is breaking cultural practices to respect protocols to prevent spread (FHW, RO3).
Metropolitan (Local) level	-Vaccine production in Africa and Ghana to own vaccines and use vaccination towards herd immunity (FHW, MO 1, HPU 1) -The best way out is to continue to observe protocol and take the jabs in Africa/Ghana (FHW, MO 2, PHNU 1). -The solution in Africa and Ghana is adherence to the protocols FHW, MO 3, HIU). -The best solution is effective health education on the mode of spread of the virus (FHW, MO 4, DCU). -The best solution is that there is the need for more sanitization through the media/social media (FHW, MO 5, HIU).
Tamale Urban Level	
Tamale Central Hospital	-More education and strict to obey the protocols (FHW, TCH 1-2 CHNU and Enrolled Nurse*2 -The best solution in Africa and Ghana is vaccination and education (FHW, TCH 3, DCU). - The best solution is adherence to protocols (FHW, TCH 4, DCU) -The best solution in Africa/Ghana is for governments should carry the education instead of health workers (FHW, TCH 5, DCU). -The best solution is to get vaccinated and adhere to protocols in Africa and Ghana (FHW, TCH 6, DCU).
Tamale West Hospital	-The solution to COVID-19 in Africa and Ghana is by mass testing and improve on vaccination (FHW, TWH 1, DCU). -Solution is education on COVID-19 and jabs on mass media and the use of postures on vantage points (FHW, TWH 2-3, DCU). -The solution is on vaccination and observance of protocols in Africa and Ghana (FHW, TWH 4, HPU).
Tamale SDA Hospital (A Private Hospital)	-The solution to COVID-19 is adherence to all protocols and rapid testing and contact tracing (FHW, SDAH 1, DCU). -The solution to COVID-19 in Africa and Ghana is through vaccination to get herd immunity (FHW, SDAH 2, NU). -Solution is adhering to protocols and vaccination in Africa and Ghana (FHW, SDAH 3, NIU). -Solution is to enforce rules -protocols (FHW, SDAH 4-5 NIU) -There is no solution for now. It is all about adopting preventive measures

	in Africa and Ghana (FHW, SDAH 6, BU).
	-The best solution is through sanitation (environmental) and domestic (personal hygiene) (FHW, SDAH 7, NU).
	-Solution? One day we will get the solution but not yet. Not much research in Africa (FHW, SDAH 8, NU).
Tamale Peri-Urban Level	
Bilpeila Health Centre	-The solution is government need to support public health and not concentrate more on curative (FHW, BHC 1, DCU).
	-The solution is to put more measures to reduce the spread of the virus in Africa/Ghana (FHW, BHC 2-3, Staff/Enrolled Nurses)
	-The best solution on the continent is to get oneself vaccinated and improve personal hygiene (FHW, BHC 4, NU).
Tamale Rural Level	
Kpanvo CHPS Compound	-There is no solution to COVID-19, as people don't believe there is COVID-19. So once there is no belief so there is no solution (Kpanvo CHPS Compound, FGD Participant 5).
	-The solution in Africa is to educate the people that the vaccines will not kill them (FGD Participant 2).
	-The solution is more education, the use of key stakeholders to lead the fight in Africa and Ghana and change ways (Participants 3-5).
Bamvim CHPS Compound	-The solution is cleanliness (Bamvim CHPS C, O. 1)
	-Best solution, we insist on protocols (Bamvim CHPSC, O. 2)
Yong Dakpemyile CHPS C.	-The best is we all take the vaccines (YDY CHPS C., O1)
	-The solution in Ghana is to adopt measures for COVID-19 (YDY CHPS C., O2)

NOTE: FHW-Frontline Health Worker, NO-National Officer; RO-Regional Officer; MO-Metropolitan Officer, NPU-Health Promotion Unit, PHNU-Public Health Nursing Unit, DCU-Disease Control Unit; TCH-Tamale Central Hospital, CHNU-Community Health Nursing Unit; TWH-Tamale West Hospital, SDAH-Seventh Day Adventist Hospital, NU-Nutrition Unit, HIU-Health Information Unit, BU-Biostatistics Unit; BHC-Bilpeila Health Centre; FGD-Focus Group Discussion; CHPS- Community-based Health Planning and Services, C-Compound; YDY-Yong Dapkemyile, O-Officer

The study findings show the frontline workers had varied opinions, views or perspectives on the solution to the global pandemic. Most participants emphasized on enforcement or observance of the various protocols and vaccination while a few suggested there is no solution to the pandemic now.

Discussion

The findings revealed that the continental CDC is relatively known to frontline health workers as a public health agency mandated to detect, prevent, control and act promptly on disease outbreaks in Africa. The findings show the Africa CDC is the fourth most mentioned international partner involved in the fight against COVID-19 on the continent. This implies the WHO, UNICEF and US CDC are more known in the fight against COVID-19 on the international front. However, the Africa CDC is acknowledged to be crucial in the promotion of public health practices including surveillance, prevention, diagnosis, treatment and the control of (COVID-19) in Africa [2, 3]. The findings suggest that the Africa CDC needs to re-strategize its mode of operation to be closer to the African public health workers. Also, there is an over-reliance of the Africa CDC on its RCC for direct dealings with the AU member states [2, 4]. This working arrangement may need to be re-examined thoroughly and possibly learn to work directly with AU member states governments as illustrated in the study analytical framework. The Africa CDC secretariat's direct workings with AU member states' ministries of health may increase its popularity and its influence on the continent in terms of becoming the mouthpiece of public health emergencies and measures during outbreaks.

The findings confirmed that the majority of the study participants have knowledge or awareness of the international partners involved in the fight against COVID-19 on the African continent. From Table 2, the findings showed that 29 participants mentioned the names of international partners, that are involved in the fight against the global pandemic in Africa and this represents 72% of the study participants. Moreover, it is interesting to note that most participants (frontline workers) from the interviews (one-on-one and FGD) mentioned international partners that are involved in the fight against the global pandemic (COVID-19). This suggests that the health workers have knowledge or are very aware of the involvement of international partners in the fight against COVID-19 in Africa.

The findings confirmed that the frontline health worker has adequate knowledge of the various protocols initiated by Africa CDC and other international partners to prevent or slow the spread of the virus on the continent (continental issues as in figure 1). All the health workers mentioned at least one of the various protocols from the interview responses and in Tables 3 and 4. The findings show that nose mask-wearing, the washing of hands under running water with soap and maintaining social distances at the workplace, homes and other public areas have stronger support from the people than restrictions on gathering, movement and the travel bans in various member states airports and other entry and exit points [8, 9].

This study's findings and others in Africa did not support the earlier predictions that African states may not be able to contain the spread of the virus and may suffer more fatalities compared with the developed world and other continents. The findings show fewer infections and fatalities in Africa compared with developed countries in Europe, America, and Australia among others. Despite the 'high volume of air traffic and trade between China and Africa', Africa managed the COVID-19 infections and fatalities better and maybe the continent with the least recorded cases [10, 11, 12, 13]. This study's findings confirmed with other studies that many African states took COVID-19 serious and introduced

many innovations, and measures including local remedies and therapies at work and schools to control COVID-19 [16, 18, 19, 20].

Conclusion And Future Research/work

This study concludes that the fight against COVID-19 has not ended and African states must not let down their guard. The AU member states should take the advisory notes of Africa CDC serious and learn from other states or regions' CDC advisory notes or alerts and act right. Future studies may utilized a quantitative research design with a larger sample size for statistical generalizations.

Abbreviations

AU: African Union (AU); Africa CDC: Africa Centers for Disease Control and Prevention; AFTCOR: Africa Task Force for Coronavirus; RECs: Regional Economic Communities; MoH: Ministry of Health; GHS: Ghana Health Service (GHS); RCC: Regional Coordinating Centers; PERC: Partnership for Evidence-based Response to COVID-19; PHSMs: Public Health and Social Measures; SSA: Sub-Saharan Africa; OECD: Economic Co-operation and Development; SACIDS: Southern Africa Center for Infectious Disease Surveillance.

Declarations

Acknowledgements

My special thanks go to the Ghana Health Service (GHS) and the University of Ghana/Legon Centre for International Affairs and Diplomacy for their support.

Funding

Not Applicable.

Availability of data and materials

The data sources are not available in any repository but the data used and analyzed in the study can be made available from the corresponding author upon reasonable request.

Declarations

Ethical Approval

The study received ethical approval with the number (ECH 249/ 21-22).

Informed Consent

The informed consent of all participants was sought and granted before the commencement of the interviews.

Conflict of Interest

The author declares no conflict of interest.

Author details

Daniel Dramani Kipo-Sunyehzi University of Ghana, Legon Centre for International Affairs and Diplomacy (LECIAD), P. O. Box LG 25 Accra Correspondence: dkipo-sunyehzi@ug.edu.gh

References

1. Union A. The Constitutive Act. Addis Ababa. 2000 Jul. p. 8.
2. Union A. Statute of the Africa Centres for Disease Control and Prevention (Africa CDC). 31 January 2016.
3. Union A. Africa Joint Continental Strategy for COVID-19 Outbreak. Africa Centres for Disease Control and Prevention (Africa CDC), African Union Commission, Roosevelt Street W21 K19, Addis Ababa, Ethiopia. 5 March 2020.
4. Africa CDC. <https://africacdc.org/regional-collaborating-centres/> (Accessed on 15.04 22)..
5. Africa CDC. <https://africacdc.org/covid-19/> (Accessed on April 15, 2022).
6. Union A. Research and Development Priorities for COVID-19 in Africa. February; 2021.
7. Union A. Covid-19 Rapid Antigen Self-Testing: Interim Guidance to African Union Member States. February 2022.
8. Union A. Partnership for Evidence-Based Response to COVID-19 (PERC). AU, Africa CDC and allied partners (PERC), 2020.
9. Responding to COVID-19 in Africa: finding the balance, Part IV Calls to Action. PERC, Survey 2021.
10. Nkengasong J. China's response to a novel coronavirus stands in stark contrast to the 2002 SARS outbreak response. *Nat Med.* 2020. <https://10.1038/s41591-020-0771-1>. published online Jan 27.
11. Nkengasong JN, Mankoula W. Looming threat of COVID-19 infection in Africa: act collectively, and fast. *The Lancet.* 2020 Mar 14;395(10227):841-2. [https://doi.org/10.1016/S0140-6736\(20\)30464-5](https://doi.org/10.1016/S0140-6736(20)30464-5).
12. Gilbert M, Pullano G, Pinotti G, et al. Preparedness and vulnerability of African countries against importations of COVID-19: a modelling study. *Lancet.* 2020. [https://doi.org/10.1016/S0140-6736\(20\)30411-6](https://doi.org/10.1016/S0140-6736(20)30411-6). published online Feb 19.
13. Kapata N, Ihekweazu C, Ntoumi F, Raji T, Chanda-Kapata P, Mwaba P, Mukonka V, Bates M, Tembo J, Corman V, Mfinanga S. Is Africa prepared for tackling the COVID-19 (SARS-CoV-2) epidemic. Lessons from past outbreaks, ongoing pan-African public health efforts, and implications for the future.

- International Journal of Infectious Diseases. 2020 Apr 1;93:233–6.
<https://doi.org/10.1016/j.ijid.2020.02.049>.
14. Corman VM, Landt O, Kaiser M, Molenkamp R, Meijer A, Chu DK, Bleicker T, Brünink S, Schneider J, Schmidt ML, Mulders DG. Detection of 2019 novel coronavirus (2019-nCoV) by real-time RT-PCR. *Eurosurveillance*. 2020 Jan 23;25(3):2000045. <https://doi.org/10.2807/1560-7917.ES.2020.25.3.2000045>.
 15. Amukele T. Africa CDC. establishing integrated surveillance and laboratory networks for rapid disease detection and response, control, prevention, and clinical care in Africa. *African Journal of Laboratory Medicine*. 2017 Mar 16;6(1):1–3. <https://hdl.handle.net/10520/EJC-89a0eab51>.
 16. Osseni IA. COVID-19 pandemic in sub-Saharan Africa: preparedness, response, and hidden potentials. *Trop Med health*. 2020 Dec;48(1):1–3. <https://doi.org/10.1186/s41182-020-00240-9>.
 17. World Bank. World Health Organization Global Health Expenditure database (apps.who.int/nha/database). The data was retrieved on January 30, 2022. <https://data.worldbank.org/indicator/SH.XPD.CHEX.GD.ZS?contextual=max&end=2017&locations=ZG-1W&start=2000> (Accessed on 16 April 2022).
 18. Nuwagira E, Muzoora C. Is Sub-Saharan Africa prepared for COVID- 19? *Trop Med Health*. 2020. <https://doi.org/10.1186/s41182-020-00206-x>.
 19. Africa CDC. <https://africacdc.org/news-item/african-union-and-africa-centres-for-disease-control-and-prevention-launch-partnership-to-accelerate-covid-19-testing-trace-test-and-track/> (Accessed on April 16, 2022).
 20. SA rolls out mobile COVID-19 testing units. <https://www.sanews.gov.za/south-africa/sa-rolls-out-mobile-covid-19-testing-units> (Accessed on April 16, 2022).
 21. Ghana Statistical Service. Ghana 2021 Population and Housing Census. General Report Vol 3A, Sakoa Press Limited, Accra. November 2021. 2021, p. 60.
 22. Kipo DD. Mixed research methods: Reflections on social public policy. *Asian Social Science*. 2013 Dec 1;9(17):259. <http://dx.doi.org/10.5539/ass.v9n17p259>.
 23. Miles MB, Huberman AM. *Qualitative data analysis: An expanded sourcebook*. sage; 1984.
 24. Miles MB, Huberman AM. *Qualitative data analysis: An expanded sourcebook*. sage; 1994 Jan 12. (2nd ed.).
 25. Bryman A. *Social research methods* 4th ed. 2012.
 26. Pandey P, Pandey MM. *Research methodology tools and techniques*. Bridge Center; 2021. Mar 6.
 27. Etikan I, Bala K. Sampling and sampling methods. *Biometrics & Biostatistics International Journal*. 2017 May;5(6):00149.
 28. Castleberry A, Nolen A. Thematic analysis of qualitative research data: Is it as easy as it sounds?. *Currents in pharmacy teaching and learning*. 2018 Jun 1;10(6):807 – 15.
 29. Hargreaves T. Practice-ing behaviour change: Applying social practice theory to pro-environmental behaviour change. *J consumer Cult*. 2011 Mar;11(1):79–99.

30. Kipo-Sunyehzi DD. Global social welfare and social policy debates: Ghana's Health Insurance Scheme promotion of the well-being of vulnerable groups. *J Social Service Res.* 2021 Jan;47(1) (2):73–87.
31. Holland D, Lave J. Social practice theory and the historical production of persons. In *Cultural-Historical Approaches to Studying Learning and Development 2019* (pp. 235–248). Springer, Singapore.
32. Northern Regional Health Directorate. Situational Update of COVID-19. Tamale. SITREP: NR-691 (Wednesday 2 March 2022).

Figures

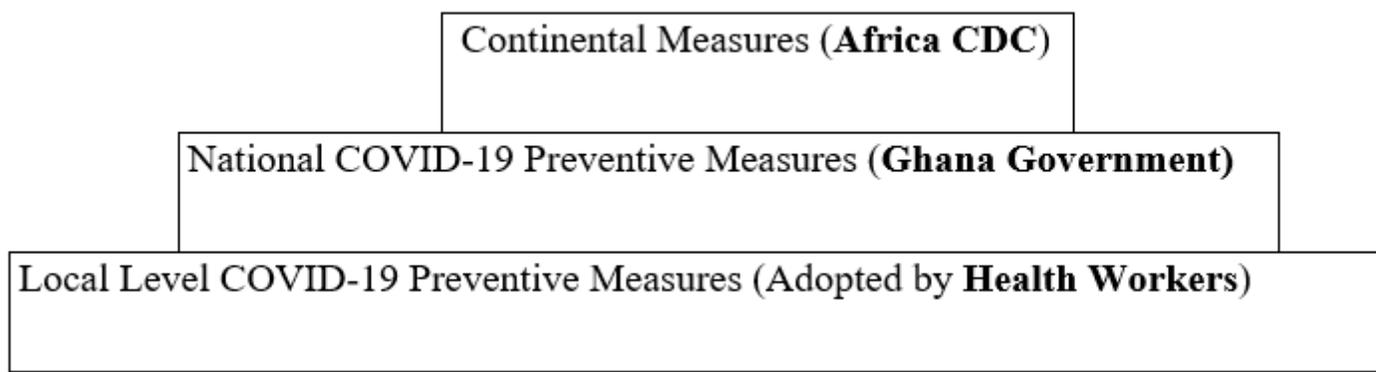


Figure 1

The Study Analytical Framework developed by the researcher