

# UTILIZING PRIMARY HEALTH CARE FOR COVID-19 TESTING AND CONTACT TRACING IN GHANA

## COVID-19 PROMISING PRACTICES

### EXECUTIVE SUMMARY

- Ghana is a lower-middle income country consistently demonstrating improvement and strengthening of their health system through implementation and expansion of their [Community-based Health Planning and Services \(CHPS\) program](#) and [National Health Insurance Scheme](#).
- Ghana's first local case of COVID-19 was in March 2020 resulting in a concerted contact tracing and testing effort at the national level. As cases rose, testing and contact tracing was anchored at the district level, which substantially relies on Ghana's existing primary health care (PHC) infrastructure.
- Rapid innovation and learning is also a major strength in Ghana's COVID-19 response as demonstrated by iterative development of mobile applications for data collection, a partial transition to electronic health records, and the utilization of pool testing to address resource limitations.

### GHANA PHC AT A GLANCE



Population: 29.77 M  
 GDP/Capita: \$2,202 (current USD)  
 Human Development Index: 0.596  
 Life Expectancy at Birth: 63.78 Years

- The [Ghana Health Service](#) is responsible for implementation of the country's PHC system, while the [Ministry of Health](#) provides guidance.
- [Ghana's health system](#) is divided into three tiers: district, regional, and national. Primary Health Care (PHC) is centered at the district level, which includes Community-based Health Planning and Services (CHPS) compounds, health centers, and district hospitals. These facilities also play a [critical role in disease surveillance](#) throughout the country.
- The [CHPS program](#) is at the heart of PHC in Ghana. CHPS was established in 1994 and is anchored in the principles of volunteering and community engagement. The CHPS model provides community-based care via Community Health Officers (CHOs), Community Health Nurses (CHNs), midwives, and volunteers, all of whom [provide door-to-door-service in their catchment areas](#) as well as in CHPS compounds.
- 52% of PHC funding is public, while 39% is private and 9% is funded by international donors. Ghana is in the midst of implementing its [National Health Insurance Scheme \(NHIS\)](#), which covered [40% of the population in 2014](#); the NHIS does not require co-payments for maternal and child health services, nor PHC services.

### COVID-19 IN GHANA



As of 7 July 2020

21K

TOTAL CONFIRMED CASES

16K

RECOVERIES

129

DEATHS

13 MAR 20

1ST CONFIRMED COVID-19 CASE

21 MAR 20

CLOSURE OF ALL LAND, AIR AND SEA BORDERS

1 APR 20 - 21 APR 20

PARTIAL LOCKDOWN

The President of Ghana announced a [five step approach](#) to combating COVID-19 through (1) limiting its import into the country, (2) containing its spread, (3) providing care for the sick, (4) limiting COVID-19's impact on social and economic life, and (5) using the emergency to expand Ghana's domestic capability and strengthen its self-reliance. The health system response has largely focused on testing and contact tracing, and from [March through May 2020](#), Ghana conducted 218,425 COVID-19 tests, expanded from two to ten testing labs, and significantly scaled up domestic production of personal protective equipment (PPE). Ghana is also working with major development partners, including the [World Bank](#) and [USAID](#), to ensure continued expansion of testing supplies, PPE, and hospital equipment to build capacity and health systems resilience for future health emergencies.

# LEVERAGING PRIMARY HEALTH CARE STRUCTURES FOR TESTING AND CONTACT TRACING

## AN INTERVIEW WITH DR. ERNEST KENU



*Dr. Ernest Kenu is the Director of the Ghana Field Epidemiology Laboratory and Training Program and a Senior Lecturer at the University of Ghana School of Public Health. His research interests include disease surveillance, outbreak investigation and infectious disease control. Dr. Kenu is currently supporting the coordination of contact tracing efforts for COVID-19 in Ghana at the national level.*

**Question:** What are the priorities for combating COVID-19 in Ghana?

**Answer:** Ghana's biggest priority is testing, contact tracing, and isolation of positive cases. As of 13 June 2020, Ghana has been able to conduct **254,311 COVID-19 tests**; however, testing capacity is dependent on the availability of funds and supplies which may be a limitation moving forward. To help mitigate these concerns, the Ghanaian government, along with development partners, is investing significant funds to ensure continued high rates of testing and capacity building.

Contact tracing and isolation are also of significant importance for combating COVID-19 in Ghana, however asking individuals to self quarantine has proven difficult. Adherence to the **COVID-19 Self Quarantine Guide** is very difficult in crowded metropolitan areas and for individuals who are caretakers or dependent on others. Ultimately, both Ghana's testing and contact tracing efforts seek to manage and slow the spread of disease in order to minimize the number of severe cases in the country, which may otherwise overwhelm the health system due to the lack of intensive care supplies.

**Question:** How has testing and contact tracing for COVID-19 been rolled out in Ghana? What were the main principles of testing and contact tracing utilized to rapidly evaluate exposed populations?

**Answer:** Both testing and contact tracing began as concerted efforts at the national level. Initially, Ghana only had two facilities--one in Accra and one in Kumasi--capacitated with equipment to process COVID-19 tests. The case definition for **probable**

**and suspected COVID-19 from the WHO** was used to screen individuals, and anyone meeting the case definition was tested. National contact tracing teams were then able to systematically identify and list contacts of the positive cases and follow them for 14 days.

As community transmission of COVID-19 was detected in Ghana, it became necessary to expand capacity beyond what could be handled at the national level, and decentralization of testing and contact tracing efforts to the district and subdistrict levels began. Testing now continues at other health facilities and testing labs have expanded from two to ten. Implementation of testing and contact tracing efforts have varied by a district's case density. In districts with high caseloads, the country enforced partial lockdowns including in Greater Accra and Greater Kumasi. In these locations, enhanced contact tracing was done where household contacts and individuals within a 2-kilometer radius of a positive patient are tested for COVID-19 based on the risk profile of the patient (i.e. where the patient undertook key neighborhood social activities).

To support contact tracing, testing centers call known contacts of COVID-positive individuals with updated information and ensure they get tested. If the individual tests negative, a repeat test is conducted in 14 days. If the individual tests positive for COVID-19, they are taken into a treatment facility for a minimum of 14 days to limit additional spread, and a team works to identify the recent contacts of this individual as well. Of the **254,311 tests conducted** thus far, 83,152 were through routine surveillance and 171,179 were through contact tracing efforts.

**Question:** How were existing PHC structures leveraged for decentralized testing and contact tracing?

**Answer:** As efforts to fight COVID-19 in Ghana decentralized to the district level, it became clear that greater man-power was required for rigorous testing and contact tracing. PHC--and CHPS in particular--was a natural home for these efforts, given that PHC is at the core of Ghana's district health services and has deep roots in community engagement. This engagement has allowed for effectively tailoring the response to local needs. This is critical because "when a disease gets to the community level, it takes the community to best address the issue."

Leveraging the CHPS program facilitated the mobilization of volunteers to support sample transportation and contact tracing at the community level through mobilization of community health volunteers and CHPS staff as well as university students. Volunteers were trained out of CHPS centers and aided in the preparation and transportation of samples, as well as contact tracing. CHPS staff carried out house-to-house visits in their catchment areas to further support ongoing efforts. Task shifting was also employed in areas with high caseloads to allow Community Health Officers to engage in COVID-19 in contact tracing efforts in place of their usual day-to-day activities.

Ghana's PHC system is anchored in strong community engagement and community health workforce structures (see their Vital Signs Profile for more details). These strengths have been leveraged to effectively educate and inform residents about COVID-19 symptoms and precautions, mitigate stigma surrounding COVID-19, and aid in gaining community trust in local efforts.

**Question:** How has rapid innovation and learning allowed for an efficient and coordinated testing and contact tracing effort in Ghana?

**Answer:** As testing and contact tracing efforts became more decentralized, greater coordination of information systems was required for improved efficiency and effectiveness. This led to the development of mobile applications and a switch to an electronic record keeping system through the collaboration of the public, private, and academic sectors.

Ghana launched multiple iterations of mobile applications which can be downloaded by any health workforce member to document positive cases and contact tracing efforts at the subnational level into a national database. Initially, clinical teams in Ghana utilized Surveillance, Outbreak Response Management and Analysis System (SORMAS), a tool developed by GIZ. However, the application was unable to document geocodes which are critical for analyzing geospatial locations of the positive cases. To address this gap, a team across the University of Ghana and USAID quickly developed a supplementary application to incorporate ArcGIS in data collection while SORMAS was updated.

COVID-19 also demonstrated an urgent need to share timely, complete, and accurate medical information across regions. Initially, there were large delays in data transfer due to the paper-based system used for information collection by SORMAS, but Ghana was able to demonstrate a rapid switch to an electronic system for COVID-19 record keeping. Survey123, an application which digitized laboratory data forms collecting information on demographics, travel, symptoms and contact tracing, was developed to feed electronic data into a national database. Staff were quickly trained on application use and the electronic system allowed for rapid analytics to communicate the current status of COVID-19 for prompt decision making. This is demonstrated by the installation of a real-time COVID-19 tracker in the President's War Room.

Another area of innovation that Ghana has embraced is "pooled testing." In this strategy, the test samples of 10 individuals are pooled into one assay. If the assay comes back positive, the samples of each individual are separately tested. This strategy has helped to save resources and rapidly expand testing, and was particularly critical when Ghana was limited to two lab facilities.

**Question:** What lessons have you learned from Ghana's approach to testing and contact tracing? Do you think the changes made in practice will go beyond the COVID-19 pandemic?

**Answer:** Ghana's approach to testing and contact tracing thus far has highlighted research which is still needed to overcome COVID-19 in a timely manner. While testing and contact tracing have been occurring at a rapid pace, the identification of positive patients can be strengthened through studying the profile of COVID-positive patients who present as symptomatic versus asymptomatic. Studying this is critical to continue adapting the country's current approach to case identification for testing, and can help in disease

management. Current testing and contact tracing efforts have also highlighted that while healthcare teams can help in mitigating the spread of COVID-19, public adherence to social distancing regulations and protocols is as important in lessening the burden of COVID-19.

COVID-19 has led to several, positive long-term changes to Ghana's health system which will last beyond the pandemic. This includes the increased use and effectiveness of electronic **data management** for keeping and sharing medical information. While this shift has occurred on a small scale at this time, it will likely continue to be utilized and expanded in the aftermath of the pandemic. Mobile technology and smartphone applications have also proven to be a useful tool for concerted **surveillance** and data collection at the national level. This electronic data collection also promotes the use of rapid analytics for the quick identification and resolution of future health epidemics and emergencies. Overall, there have been many important lessons learned and changes made which will continue to be expanded upon to help strengthen the capacity and resilience of Ghana's healthcare system for years to come.

## RELEVANT RESOURCES

### RELEVANT IMPROVEMENT STRATEGIES

- [Community Engagement](#)
- [Workforce](#)
- [Information Systems](#)
- [Surveillance](#)
- [Innovation and Learning](#)

### GLOBAL LEARNING TOOLS AND RESOURCES

- WHO Resources
  - [COVID-19 Operational guidance for maintaining essential services during an outbreak](#)
  - [Operational considerations for case management of COVID-19 in health facility and community](#)
  - [Considerations in adjusting public health and social measures in the context of COVID-19](#)
  - [Webpage on Community Health Workers](#)
- [PATH Resources to support COVID-19 in LMICs](#)
- [STRATIS - Community-based Care Coordination – A Comprehensive Development Toolkit](#)