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# Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>AA</td>
<td>Access Accelerated</td>
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<tr>
<td>CHAG</td>
<td>Christian Health Association of Ghana</td>
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<td>CHPS</td>
<td>Community-Based Health Planning and Services</td>
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<tr>
<td>DHIMS</td>
<td>District Health Information System II</td>
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<tr>
<td>GHS</td>
<td>Ghana Health Services</td>
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<td>MOH</td>
<td>ministry of health</td>
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<tr>
<td>NCDCP</td>
<td>Non-Communicable Disease Control Programme</td>
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<td>NCD</td>
<td>noncommunicable disease</td>
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<tr>
<td>NGO</td>
<td>non-governmental organization</td>
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<td>NHIA</td>
<td>National Health Insurance Authority</td>
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<td>NHIS</td>
<td>National Health Insurance Scheme</td>
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<td>PHC</td>
<td>primary health care</td>
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<td>PLWNCD</td>
<td>people living with NCDs</td>
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<td>SDG</td>
<td>Sustainable Development Goals</td>
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<td>UHC</td>
<td>Universal Health Coverage</td>
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<td>WHO</td>
<td>World Health Organization</td>
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Noncommunicable diseases (NCDs), such as cardiovascular disease, cancer, and diabetes, are the leading cause of mortality in the world.\(^1\) Every year, 41 million people die from NCDs, 15 million of them between the ages of 30 and 69. Despite the many proven solutions, progress has been slow and uneven globally. In Ghana, the World Health Organization (WHO) 2016 Profile noted that NCDs were estimated to account for 43 percent of all deaths, with distribution being for cardiovascular (19 percent), cancers (5 percent), diabetes (3 percent), chronic respiratory diseases (2 percent), and other NCDs, including mental health (13 percent).\(^2\) Recognizing the increased burden that NCDs contribute to the overall health and economic status of the country, Ghana developed a National Policy for the Prevention and Control of Chronic Non-Communicable Diseases in August 2012. The NCD policy proposes an integrated approach to implementation of NCD-related programs prioritizing health promotion, early detection, and health system strengthening.

In support of Ghana and its NCD control efforts, PATH and Access Accelerated (AA) included Ghana, along with Kenya and Vietnam, in a targeted, coordinated, multisector action aligned with the national NCD policy. Activities are focused on three areas: (1) enabling data-driven decision-making and strengthening information systems; (2) strengthening access to NCD services at primary health care (PHC) facilities and in communities; and (3) strengthening supply chain efficiency.

As part of this engagement in Ghana, PATH conducted a landscape assessment between November 2019 and January 2020 to understand the NCD ecosystem as foundational work to inform future investments aligned with the national policy. The resulting report presented in the following pages reflects the three objectives:

1. To understand current policies and practices that influence service delivery.
2. To document the stakeholders and current activities.
3. To identify the gaps and challenges creating the largest barriers to access high-quality NCD-related prevention and care services.

The report validation and publication were delayed to ensure the findings and recommendations were viewed through the lens of the COVID-19 pandemic response and health system resiliency. The findings and recommendations are more relevant as we understand the added risk of the virus on people living with NCDs and the disruption in NCD services and this has been incorporated in the report.

This document provides an overview of the NCD ecosystem in Ghana, a description of primary findings, and recommendations for future action. The landscape is viewed through the lens of the health systems framework formulated by WHO that describes six building blocks, including service delivery; health workforce; information; medical products, vaccines and technologies; financing; and leadership and governance. The assessment also aligns with government prioritization of cardiovascular disease (especially hypertension), diabetes, cancers, and mental health. The assessment is timely as Ghana has set its Universal Health Coverage (UHC) roadmap for 2020–2030. Ghana defines UHC as: “All people in Ghana have timely access to high-quality health services irrespective of ability to pay at the point of use,” with the goal of UHC to increase access to high-quality essential health care and population-based services for all by 2030. In the UHC strategy, NCDs such as hypertension, diabetes, mental health, and cancers have been noted as a key component of facility-based primary services and preventive services that need to be scaled up to achieve UHC.\(^3\)
The assessment was completed using a mixed method strategy to collect quantitative and qualitative data. Qualitative data included information gathered in interviews, observation, and discussions. Quantitative data were collected using surveys. A total of 52 interviews and eight focus group discussions were conducted across four regions (Greater Accra, Volta, Ashanti, and Northern Region). A list of historic and current national policies, treatment guidelines, and protocols were reviewed to inform the development of the data collection tools. Four tools were utilized for data collection, including the WHO Rapid Facility Assessment for NCDs checklist, interview guides for individuals and decision makers, and focus group discussion guide.

**Key Findings**

The Ghana landscape assessment revealed important barriers in the country’s NCD response across all six WHO building blocks. Regarding service delivery, the assessment found inadequate NCD screening in many health facilities. Twenty percent of the facilities assessed did not have organized screening programs and more than 60% did not conduct community-based screening programs. Many staff did not have specialized training in NCD management. There was an inequitable distribution of resources across higher level facilities. Those in economically stronger regions had more specialized resources than underserved regions. Primary health care facilities lacked the resources to provide NCD care. Health centers and Community-Based Health Planning and Services (CHPS) facilities had limited functional equipment, office space, and trained staff. None of the health centers had ultrasound x-ray, electrocardiogram, oxygen, or cardiopulmonary resuscitation equipment. All CHPS facilities reported challenges managing patients with respiratory conditions, especially asthma. There was also a lack of systematic patient referral mechanisms and a lack of consistent standard and guidelines for NCD treatment and care.

Staff shortages were reported at all levels of facilities and were particularly severe in rural areas. Health care workers remain in the public sector with some part-time working in private sector due to training opportunities in the public sector. Eighty percent of interviewed health care workers had no formal training or knowledge of taking care of people living with NCDs, causing many patients to experience complications with their care. A lack of quality and complete NCD surveillance and service data was also noted.

The assessment also uncovered a lack of access to essential medicines for the management of NCDs. Medicine shortages were found throughout the medication pipeline and challenges in forecasting further impacted availability and affordability. Ghana’s National Health Insurance Scheme (NHIS) does not fully cover the cost of NCD medicines and services which is further compounded by slow payment reimbursement. The assessment also found no national commitment of resources for NCDs and a lack of visibility of NCDs among regional and district level authorities across the country.

**Recommendations**

The Ghana NCD landscape assessment revealed important barriers in the country’s NCD response. This report’s recommendations will provide an opportunity to improve access to essential NCD services in the country.

**Service delivery**

Health workers should receive training in the screening and management of NCDs. Local facilities should leverage community health workers to provide screening in convenient locations or as part of home visits. Development and implementation of enabling policies for outreach screening should also be considered.
The NCD Navigator tool can assess and inform distribution of resources to ensure NCD services are matched to need. The Christian Health Association of Ghana (CHAG) facilities should be explored as a model for best practices and lessons learned in NCD care. Facilities should utilize technology to link under-resourced facilities with experts and resources. Facilities should also be supported as they assess their NCD readiness.

To strengthen patient referral mechanisms, lower level facilities should be trained on referral triggers and mechanisms and institute referral criteria. An assessment of current national standard of care and guidelines for NCD treatment would be beneficial for addressing gaps.

Health workforce

Innovate service delivery models can be leveraged to build a robust NCD workforce. Investments should be made in the incentive structure and career pathways to retain staff at lower levels of care. All cadres of staff should be engaged and trained on NCD care.

Health information systems

All NCD-related key indicators should be expanded in the District Health Information System (DHIMS) II and facilities should be required to report on these indicators. Facilities should adopt the electronic health information management system being rolled out in teaching hospitals and polyclinics. NCD data review meetings, training, and monitoring should be implemented as part of the NCD data quality assurance program.

Access to medicines and health products

PATH, with funding from Access Accelerated, conducted an end-to-end NCD supply chain assessment in 2020. PATH presented the assessment’s recommendations to the Ministry of Health. The Ghana Health Service Supplies, Stores and Drugs Management Division adopted the recommendations and set up an NCD subgroup to the national supply chain technical working group to develop a roadmap to implement these recommendations.

Financing

In collaboration with the NCD Steering Committee, a business case should be developed and presented to the Ministry of Finance to advocate for NCDs as part of the COVID-19 recovery plans. NHIS reimbursement guidelines and processes should be reviewed. Innovative solutions to increase the reach of NCD services should be tested.

Leadership and governance

NCD leadership should review and revise the existing NCD policy and strategy documents to reflect the recommendations noted in the landscape assessment and its and its relevance to health system resiliency. Local government and district assemblies should be engaged in their role in preventing NCDs by making appropriate bylaws and leading NCD action at local levels. The government should provide support for national-level NCD coordination mechanisms such as the NCD Steering Committee as well as regional and district coordination mechanisms to provide strategic oversight of NCD activities. It should be noted that Ghana was developing a package of essential health service guidelines as part of the UHC effort. In response to the pandemic, this package was strengthened and incorporates NCDs in the basic package of care, providing the opportunity to address several of the barriers noted through the assessment.
Introduction

The World Health Organization (WHO) estimates that noncommunicable diseases (NCDs) are responsible for 41 million deaths each year, equivalent to 71 percent of all deaths globally, and that they now exceed all deaths due to communicable diseases. NCDs are chronic diseases that are not transmitted directly from one person to another, including cardiovascular diseases (e.g., heart attacks and strokes), diabetes, cancers, mental illness, and chronic respiratory diseases (e.g., obstructive pulmonary disease and asthma). They are usually the result of genetic, physiological, environmental, and behavioral factors or a combination of these.

While infectious diseases still account for the majority of deaths in sub-Saharan Africa, trends suggest that NCDs may become the most common cause of death in the region by the year 2030, and that the high economic burden of NCDs will strain economic livelihoods and result in increased poverty. The magnitude of the problem and its impact on progress toward the Sustainable Development Goals (SDG) was affirmed at special United Nations’ high-level meetings, leading to commitments and actions by world leaders. At these meetings, Ghana joined other governments and confirmed their SDG pledge to reduce, by one-third, premature mortality from NCDs through prevention and treatment and to promote mental health and well-being.

According to WHO, NCDs accounted for 43 percent of deaths in Ghana in 2016, with nearly 95,000 people dying prematurely from these diseases. Major causes of NCDs include alcohol and tobacco use, high blood pressure, obesity, and air pollution. Responses needed by the national health system include medications to prevent heart attacks and strokes and other essential medicines and basic technologies to treat all NCDs.

Recognizing the increased burden that NCDs contribute to the overall health and economic status of the country, Ghana developed a National Policy for the Prevention and Control of Chronic Non-Communicable Diseases in August 2012. The NCD policy proposes an integrated approach to implementation of NCD-related programs prioritizing health promotion, early detection, and health system strengthening.

1.1 NCD epidemiology in Ghana

NCDs are a significant burden in Ghana, as evidenced by WHO Country Profile data and other research reports. The current landscape assessment focused on the most prevalent NCDs, including mental illness, aligning with the national strategy and the Non-Communicable Disease Control Programme (NCDCP) mandate. A literature review revealed a wide range of NCD prevalence rates. A summary of the highest and lowest national prevalence rates of selected NCDs is presented in Figure 1.
Figure 1. Highest and lowest national prevalence rates of selected NCDs*.

* Information gathered from meta-analysis of data from various sources including Ghana Demographic and Health Survey and the Study on Global Ageing with population age range 15 years to 80+ years.

**Cardiovascular disease**

Besides population level studies, information on NCDs has come primarily from hospital surveys. From 1980 to early 2000, hypertension increased more than tenfold across hospitals in Ghana, and simultaneously an increase in the burden of other cardiovascular diseases, such as strokes and diabetes-related complications was noted. In 2016, cardiovascular disease accounted for 19 percent of all deaths in the country. In most regions, hypertension was the fifth most commonly reported outpatient condition; in Accra, however, hypertension was second only to malaria. Over a 51-year period, NCDs that previously had been considered rare in Ghana now account for an estimated 48 percent of the total disease burden in 2010, and feature prominently in the top 10 most reported diseases in all the regions in Ghana.

**Cancer**

A national strategy for cancer control for the years 2012 to 2016 was established in Ghana in 2011 to address the growing cancer burden (the strategy has not been updated). Cancers are responsible for 5 percent of NCD related deaths, with leading causes in females being breast, cervical, ovarian, liver, and colorectal cancers. The top cancer deaths in men are liver, prostate, non-Hodgkin lymphoma, stomach, and colorectum.

**Diabetes**

Diabetes prevalence in Ghana has been estimated at between 1.8 and 6 percent in various studies. Prevalence increases with age and is higher in urban than in rural areas. Prevalence may be underestimated due to self-reporting and a high rate of undiagnosed diabetes. Furthermore, the demographic transition occurring in Ghana, along with socioeconomic and behavioral risk factors, indicates that diabetes prevalence will be of growing concern in the country.
Mental illness

There is limited information on the epidemiology or prevalence of mental illness in Ghana. Estimates by WHO\textsuperscript{16} indicate that more than 2.4 million Ghanaians are living with some form of mental illness from schizophrenia and severe depression to mild forms of mental disorder with the treatment gap at 98 percent of the total population expected to have a mental disorder. However, some researchers suggest the burden is actually higher and note a significant lack of treatment options.

The current Mental Health Bill was signed into legislative instrument in 2018. The law decentralizes mental health care and focuses on health provision within the context of primary health care and community health care.

1.2 Health system structure, NCD strategy, policies, and activities

The Ghana national health system is organized into five levels (Figure 2), with the lowest level being Community-Based Health Planning and Services (CHPS) compounds, which are supported by community health officers. Health centers are supported by medical assistants; district hospitals are supported by medical officers and provide general medical services; regional hospitals provide some specialized services; and teaching hospitals provide both services and medical training. Each region is supported by one regional hospital and each of Ghana’s three zones has a teaching hospital. The regional and district hospitals focus on curative services, while the health centers and CHPS compounds focus on preventive and curative services.

Figure 2. National health system of Ghana.
The District is the apex service delivery point of the primary health care organization and management in Ghana. The district hospital provides support to the subdistricts in various activities such as referrals, emergencies, and trainings. Within the district, health services are organized in a three-tiered hierarchy: district level (level C) at the top; subdistrict level (level B); and the community level (level A) at the bottom. (see Figure 3).

Figure 3. District health system.

The NCDCP was established in 1992 for cardiovascular diseases, diabetes, cancers, genetic disorders, injuries, and chronic respiratory diseases. The main functions of the NCDCP include planning, advocacy, training, and coordinating NCD-related activities. The National Health Policy of the Ministry of Health (MOH), titled “Creating Wealth through Health”, was launched in 2007. The document emphasizes the growing problem of NCDs as a result of ageing and changing lifestyle and promotes individual and environmental health.

Though NCDs are a national priority and the government is committed to developing an innovative programmatic response, Ghana is still in the early stages of NCD control activity. The NCDCP has organized sensitization and public education campaigns on healthy lifestyle programs such as the Framework Convention on Tobacco Control to promote awareness about the dangers of cigarette smoking. Public awareness of the dangers of NCDs is evidenced by numerous health walk programs, screening campaigns, and emergence of several Keep Fit Clubs that are becoming a part of the Ghanaian lifestyle.

Table 1 shows major NCD-related policies and activities enacted in Ghana since 1970. Table 2 presents frameworks, strategies, and guidelines for NCD activity both globally and nationally.
Table 1. NCD activities in Ghana from 1970.

<table>
<thead>
<tr>
<th>No.</th>
<th>Activity</th>
<th>Year</th>
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<tbody>
<tr>
<td>1</td>
<td>Burkitt’s Lymphoma Centre (KBTH)</td>
<td>1970s</td>
</tr>
<tr>
<td>2</td>
<td>Non-Communicable Disease Control Programme (NCDCP)</td>
<td>1992</td>
</tr>
<tr>
<td>3</td>
<td>University of Ghana Medical School Treatment Guidelines for Diabetes</td>
<td>1995</td>
</tr>
<tr>
<td>4</td>
<td>Establishment of Ghana Diabetes Advisory Board</td>
<td>1997</td>
</tr>
<tr>
<td>5</td>
<td>Ghana Health Service and Teaching Hospitals Regulations Act</td>
<td>1996</td>
</tr>
<tr>
<td>6</td>
<td>University of Ghana Medical School develops treatment guidelines for the comprehensive treatment of Diabetes at the various referral centers across the country (1995–1998)</td>
<td>1995</td>
</tr>
<tr>
<td>7</td>
<td>A National Conference on NCDs and the adoption of the Dimona -Regenerative Health and Nutrition Programme (RHNP)</td>
<td>2001</td>
</tr>
<tr>
<td>8</td>
<td>NCDCP National Stakeholder’s Conference-Establishment of five technical working groups</td>
<td>2005</td>
</tr>
<tr>
<td>10</td>
<td>Public Health Act, Act 851</td>
<td>2012</td>
</tr>
<tr>
<td>13</td>
<td>National Alcohol policy</td>
<td>2016</td>
</tr>
<tr>
<td>14</td>
<td>National Nutrition Policy</td>
<td>2016</td>
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<tr>
<td>15</td>
<td>National Guidelines for Cancer Management (2017) (developed but not disseminated)</td>
<td>2017</td>
</tr>
<tr>
<td>16</td>
<td>National Standard Treatment Guidelines</td>
<td>2017</td>
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</table>

1.3 Major stakeholders and their roles

Throughout Ghana, there are different organizations and stakeholders involved in NCD-related activities at the national, regional, and district levels. These have been categorized as leaders, influencers, or implementers.

Leaders

The MOH and Ghana Health Service (GHS) are the main government agencies that lead and drive the national NCD agenda. Interviewees described the National NCD Steering Committee as nominally the primary coordinating body for NCD work. However, this committee was noted to be dormant as no meeting
had been held since 2017 and no coordination activities were known to have taken place. The NCD Alliance, formed from NCD patient groups throughout the country, was active and involved in coordination of activities to rally various patient groups and societies around public awareness raising, education, mobilization of patients, and advocacy.

**Influencers**

The primary influencers were multilateral organizations, bilateral organizations, and international and local non-governmental organizations (NGOs) that provide policy, advocacy, and funding influence for NCD-related projects. The SDG and Universal Health Coverage (UHC) were noted examples of WHO’s influence on NCD activities in Ghana. Health development partner organizations such as UNICEF, USAID, the Japan International Cooperation Agency, the Department for International Development, and the Korea International Cooperation Agency were identified as influencers with an implementation role.

The National Health Insurance Scheme (NHIS) was also reported to be an influencer. Their main role is to support payment for treatment at mostly public health facilities, and they determine what medicines are paid for. This was noted to influence the care-seeking behavior of patients. In addition to the NHIS, there are private health insurance companies such as Premier Mutual Health, GLICO Health, and Acacia Health; the premium they charge for registrants and members depends on their state of health. A person with a chronic condition is charged a higher premium than someone with no preexisting, current, or past health conditions.

Finally, respondents also indicated that district assemblies and traditional rulers (chiefs and queens) hold influence over NCD-related activities.

**Implementers**

A few implementing agencies were identified as follows:

- The NCD Alliance had presence in Greater Accra and Ashanti regions. The Alliance is engaged in social mobilization, education, and advocacy activities.
- Breast Care International was mentioned as an NGO active in Ashanti and Greater Accra regions, with growing presence in other regions. Breast Care International focuses on social mobilization and education on breast cancer, breast screening, treatment of people with breast cancer, and support to breast cancer survivors.
- Basic Needs was mentioned as an NGO intervening in mental health at a national level. Their role was raising awareness and advocacy efforts to increase government funding for care delivery especially at the community and primary care levels.
- Diabetes Youth Care offers screening, psychosocial support, medication, and supplies to youth from birth to 30 years of age. They also hold monthly meetings for children living with diabetes and organize educational offerings for caregivers.
- Health facilities and pharmacies were identified as implementers as they provide patient and public education, screening, monitoring, treatment, and care of NCDs.
- Within the private sector, pharmaceutical and device companies were identified as key stakeholders because they manufacture or import medicines and devices for screening and patient care. Respondents indicated that such corporate bodies could provide funding and devices for screening,
medicines, social mobilization, and educational materials on NCDs if they properly involved communities, NGOs, health facilities, and government agencies, including district assemblies.

1.4 Improving NCD programming through health systems strengthening

Ghana’s government, like those of many other low- and middle-income countries, lacks the resources to fully monitor and coordinate all NCD-related activities being undertaken by various actors in-country. Moreover, data on disease burden and the impact of screening programs are generally either unavailable or of poor quality. The health system responsiveness to NCDs is weakened by service delivery oriented to acute care and inadequate financing, infrastructure, and human resources. Ghana is still in the nascent stages of developing a cohesive national NCD program, and this provided an opportunity for the present landscape analysis to support the MOH and key stakeholders in transforming the country’s NCD response.

The GHS already has used WHO Health System Building Blocks Framework to develop strategies for comprehensive NCD care, from public education on prevention to screening, diagnosis, treatment and management.\(^\text{18}\) Ghana has also developed a National NCD Policy and draft Strategy that calls for a multi-sectoral response to reduce NCD-related morbidity and mortality.\(^\text{9}\)

Following on these measures, this landscape assessment was analyzed through the lens of the six WHO building blocks, as defined here:

- **Good service deliveries** are those which deliver effective, safe, quality personal and non-personal health interventions to those that need them, when and where needed, with minimum waste of resources.
- **A well-performing health workforce** is one that works in responsive ways, fair and efficient to achieve the best health outcomes possible, given available resources and circumstances.
- **A well-functioning health information system** is one that ensures the production, analysis, dissemination and use of reliable and timely information on health determinants, health system performance, and health status.
- **A well-functioning health system** ensures equitable access to essential medical products, vaccines and technologies of assured quality, safety, efficacy and cost-effectiveness, with scientifically sound and cost-effective use.
- **A good health system financing** raises adequate funds for health, in ways that ensure people can use needed services and are protected from financial catastrophe or impoverishment associated with having to pay for them.
- **Leadership and governance** involve ensuring the existence of policy frameworks combined with effective oversight, coalition building, regulation, attention to system design, and accountability.
This assessment is timely, as Ghana has just set its UHC roadmap for 2020–2030. Ghana defines UHC as: “All people in Ghana have timely access to high-quality health services irrespective of ability to pay at the point of use,” with the goal of UHC to increase access to quality essential health care and population-based services for all by 2030. In the UHC strategy, NCDs such as hypertension, diabetes, mental health, and cancers have been noted as a key component of facility-based primary services and preventive services that need to be scaled up to achieve UHC. This report can support the MOH and key stakeholders in transforming the country’s NCD response.
Methods

2.1 Goal and objectives

PATH, with funding from Access Accelerated (AA), conducted a landscape analysis of NCDs to map existing and emerging efforts and gaps in policy and practice in Ghana. The goal of this study was to understand the Ghana NCD ecosystem to ensure that future activities and investments are aligned with the national strategy.

The objectives of the analysis were as follows:

- Understand current policies and practices that influence service delivery.
- Document stakeholders and current activities.
- Identify gaps and challenges creating the largest barriers to access to quality prevention and care.

2.2 Landscape research approach

A mixed methods strategy was used, with collection of both qualitative and quantitative data. A review of literature provided background information as well as existing policies and guidelines on NCDs. Qualitative data included information gathered during interviews, observations, and discussions. Quantitative data were collected using rapid facility assessments. In health facilities, the research plan called for four people in leadership positions to be interviewed in each facility, including the medical director, chief nursing officer, hospital administrator, public health in-charge (usually a public health nurse); and six individuals to be interviewed at the national leadership level.

Data collection tools

A list of national policies, treatment guidelines, and protocols were reviewed to inform the development of the four data collection tools described below.

1. Rapid Facility Assessment for NCDs Checklist developed by WHO for NCD data collection in medical facilities.

   This tool was used to assess each facility according to the six building blocks of WHO global monitoring framework (service delivery, human resources, essential medicines, data information systems, financing methods, and leadership components). The checklist served to identify policies, guidelines, personnel, screening, health promotion, and essential medicines available in each facility.

2. Focus Group Discussion Guide.

   This tool was developed for focus group discussions within communities. Data were collected from the community members on their knowledge of and experience with NCDs.
3. Interview Guide for Community Members.

This tool was developed to interview individual people who had experience with NCDs within the communities visited.


This tool was developed to carry out key informant interviews with decision-makers at the national and local health facility levels.

Study sites

Four regions in Ghana were purposefully selected for data collection: Greater Accra, Volta, Ashanti, and the Northern region. The regions represent the epi-ecological zones of the country (i.e., coastal, forest, and savannah belts), which present different sociocultural and health practices. They also represent different economic situations with a mix of both rural and urban settings.

The research plan for the landscape analysis covered 46 sites that included: 4 regional and 4 district health directorates that oversee the general health promotion, provision of care, development of local level health regulations, and public health activities in the district, subdistricts, and communities, respectively; 8 private pharmacies; and 30 health facilities providing direct patient care at district, subdistrict, and community levels.

2.3 Limitations

Among the selected facilities, some individuals were unwilling to give information because they considered this activity research, based on the questionnaire and checklist, and thus required ethical clearance. Only individuals who gave verbal consent were interviewed in such facilities.

Interviews did not extend beyond the health sector and communities. Other key actors and stakeholders especially the Ministries, Departments, and Agencies views are not captured, though we recognize that factors that influence NCDs go beyond the health sector.
Results

The landscape analysis results are organized according to the six building blocks of WHO health system strengthening framework: service delivery, health workforce, information, medical products, financing, and leadership/governance. As planned, 46 sites were visited. A total of 52 interviews were conducted among health professionals at facilities and at the national health system level. Eight focus group discussions were conducted at the community level.

3.1 Health service delivery

Service delivery was evaluated by rapid facility assessments at the 30 health facilities visited and by 52 interviews of health professionals, as described in Methods.

General service readiness

By design, tertiary level facilities are better equipped and resourced than lower levels, but they generally serve only serious cases referred to them. This is followed by regional and district facilities, polyclinics, health centers, and CHPS compounds. All facilities reported challenges with infrastructure, resulting in lack of space for patient records, screening rooms, laboratory and diagnostics, patient education, private counseling, surgery and wards. Tertiary and regional hospitals had screening equipment (blood pressure monitors, glucometers, weighing scales, ECG, x-ray and other equipment for diagnostic imaging), but most of the equipment was outdated and the staff lacked the necessary training. Maintenance of the equipment was also a problem due to non-availability of parts and trained staff.

Laboratories at health centers and district hospitals indicated they do not always have the necessary reagents. Ambulances were not readily available, and community members did not depend on them to transport emergency cases to the hospital. In Ghana, the National Ambulance Service maintains a pool of ambulances from which one is called whenever an emergency occurs. There are often not enough ambulances, staff to operate them, or fuel to keep them operational.

Health facility provider and infrastructure

According to the first service availability mapping undertaken in Ghana in 2005, there were a total of 1,832 health facilities in the country of which 49 percent were government, 9.9 percent mission (includes Christian Health Association of Ghana facilities), and 36.7 percent private health facilities (Table 3).
Table 3. Distribution of health facilities by ownership, Ghana, 2005.20

<table>
<thead>
<tr>
<th>Ownership</th>
<th>Tertiary hospital</th>
<th>Regional hospital</th>
<th>Hospital</th>
<th>Polyclinic</th>
<th>Specialty Hospital</th>
<th>Health Center</th>
<th>Clinic</th>
<th>CHPS</th>
<th>Maternity clinic</th>
<th>Other</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td>2</td>
<td>8</td>
<td>61</td>
<td>8</td>
<td>3</td>
<td>416</td>
<td>162</td>
<td>172</td>
<td>35</td>
<td>30</td>
<td>897</td>
<td>49.0</td>
</tr>
<tr>
<td>Mission</td>
<td>0</td>
<td>0</td>
<td>34</td>
<td>0</td>
<td>1</td>
<td>42</td>
<td>92</td>
<td>0</td>
<td>1</td>
<td>12</td>
<td>182</td>
<td>9.9</td>
</tr>
<tr>
<td>Private</td>
<td>0</td>
<td>0</td>
<td>72</td>
<td>2</td>
<td>12</td>
<td>10</td>
<td>375</td>
<td>0</td>
<td>199</td>
<td>3</td>
<td>673</td>
<td>36.7</td>
</tr>
<tr>
<td>Quasi-government</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>24</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>34</td>
<td>1.9</td>
</tr>
<tr>
<td>Others</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>37</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>46</td>
<td>2.5</td>
</tr>
<tr>
<td>Total</td>
<td>2</td>
<td>8</td>
<td>176</td>
<td>10</td>
<td>16</td>
<td>472</td>
<td>690</td>
<td>172</td>
<td>241</td>
<td>45</td>
<td>1832</td>
<td>100</td>
</tr>
</tbody>
</table>
There is a limited focus on NCDs at all levels of care. Lower-level facilities (health centers and CHPS) are often managed by physician assistants and community health officers who are limited by regulations to prescribed roles in the detection and treatment of hypertension and diabetes. By regulation, medication options are also limited, with health center dispensaries reporting the availability of Nifedipine and sometimes Amlodipine for hypertension, and only Metformin for diabetes. Staff do not have specialized training in the management of NCDs but use the national Standard Treatment Guidelines as a guide for patient management.

Though tertiary facilities are generally better equipped to provide NCD services, there are differences among them. Greater Accra and Ashanti regional hospitals were better equipped than the regional hospital in the Northern region. This is generally expected as the Greater Accra and Ashanti regions are economically stronger than the Northern region. In addition, Christian Health Association of Ghana (CHAG) facilities visited in the Ashanti and Volta regions were better equipped and resourced than public facilities. Staffing, equipment, laboratory services, and medicines for the management of NCDs were readily available. This has had a demonstrated impact on the quality of care that the CHAG facilities can provide. For example, the Bator Catholic Hospital in the Volta region receives many referred gynecologic oncology cases from various parts of the country even though the Volta region is not generally a well-resourced region. However, because of CHAG resource availability, Bator Catholic Hospital has specialized in gynecologic oncology and instituted a training center for such cases, thereby creating a high quality of care.

Facilities were assessed for the availability of the following NCD-related equipment/diagnostic tools: blood pressure measuring devices, weight scales, glucometers, measuring tapes, urine strips, and height meters. Except for the community pharmacies and CHPS compounds, all medical facilities visited reported having these basic equipment items and diagnostic tools. Some were, however, discovered to be old, non-functional, or outdated. Glucometers were not often used due to high cost of test strips.

The lack of fully functional equipment and infrastructure is especially acute at the health center and CHPS levels, including private and CHAG facilities. Health centers and CHPS facilities were found to be poorly financed and had limited functional equipment, office space, and trained staff. None of the three health centers visited had an ultrasound machine, x-ray, electrocardiogram machine, oxygen, or cardiopulmonary resuscitation equipment.

In general, CHPS compounds do not offer treatment for NCDs. However, some CHPS facilities with maternity services reported screening for breast cancer, and this screening was done by the midwife. All CHPS facilities reported challenges managing patients with respiratory conditions, especially asthma, which researchers found to be prevalent in the communities visited. Bronchodilators and inhaled steroids are not approved for use in CHPS compounds. Therefore, patients who report with symptoms suggestive of an asthma attack could not be stabilized before being referred to a higher-level facility and as a result, facility staff noted that many patients die before they reach their next point of care.

Availability of screening and referral services

Under the current guidelines where NCD care is limited at primary health care (PHC) facilities, referral is a key component of service provision. This model relies on accurate screening, fast referrals, and good follow up.

Thirty out of 38 health facilities (79 percent), including 6 out of 8 CHPS compounds, responded that they organized NCD screening programs in their facilities. Fifteen health facilities (39 percent) reported

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1 Data was not collected from the Volta Regional Hospital due to lack of permission.
organizing screening programs outside of their medical facilities in nearby communities. Health centers, CHPS compounds, and local pharmacies reported active screening efforts in the community while tertiary and district hospitals reported limited screening for NCDs outside their facilities. However, resource gaps exist, as illustrated by the fact that although most CHPS compounds visited had the capability to detect and refer for high blood pressure, none had glucometers to detect diabetes. Lower-tier facilities are also unable to detect and refer suspected cases of cancer early enough. In addition, once clients have been screened and referred, CHPS compounds reported that many did not want to be transferred to higher facilities. They noted that clients expressed concerns that they had no funds for transport, they feared dying on the way, or that the hospital staff might be angry with them for not coming sooner or for not coming to that level of care first.

**Availability of behavior change education**

Behavior change promotion was not routinely and consistently conducted at all levels of care, with CHPS and health centers not having adequate staff and expertise to offer these services. Polyclinics and regional hospitals had NCD educational units, with staff and patients involved in individual and group-based NCD education sessions twice weekly. At the higher-level facilities, availability of behavioral change promotion services was based on leadership interest and priorities.

Five out of the 8 community pharmacies visited (63 percent) offered counseling for substance abuse, smoking cessation, diet, and nutrition. All 8 pharmacies reported offering counseling on physical activity and medicines.

**Availability of specialist services**

The assessment considered the availability of specialist services for the leading NCDs in Ghana: diabetes, cardiovascular disease, respiratory illnesses and diseases, mental health, and cancer.

**Diabetes**

Diabetes clinics were found in 13 out of 38 facilities (all tertiary, regional hospitals, polyclinics, and one CHAG hospital). Per national guidelines, specialist nursing services for the management of diabetes were not available in the health centers and CHPS compounds but were found in 6 higher-level facilities.

**Cardiovascular and respiratory care**

Specialist cardiovascular services and specialist asthma/respiratory care were absent in almost all facilities except the teaching hospitals and one regional hospital; only two asthma clinics were found.

**Mental health**

Availability of specialist mental health nursing services was reported in 15 out of 38 facilities. However, mental health services were not available in any of the subdistrict facilities visited (health centers and CHPS compounds). Specialist nursing services for the management of other NCDs were not available in the health centers and CHPS compounds but were found in 6 higher-level facilities.

**Cancer care**

Care and treatment for cancer patients is generally inadequate because of the complexity of care, lack of equipment and specialized treatment centers, lack of specially trained providers (physicians, nurses, pharmacists) except at selected tertiary hospitals, the high cost of oncology drugs, and the lack of awareness by patients of the disease, and the need to get early diagnosis and treatment.
For example, tissue samples for many oncologic conditions are sent to South Africa for analysis before a definitive diagnosis can be made. The cost of sending samples to another country, coupled with the delay in reporting the results, may affect treatment outcomes.

One of the major challenges to the effective control of cancer is late presentation leading to poor treatment outcomes. Research shows that for breast cancer, 60 to 85 percent of cases are reported at stage III or IV.\textsuperscript{21} In addition to the problem of late presentation, stakeholders interviewed in this study noted that most cancer patients never return after learning about the cost and the burden of managing cancer, as many of the costs associated with dietary changes, chemotherapy, surgery, and expensive medications are not covered by health insurance. Some only return to clinics after the cancers have progressed beyond recovery.

**Services provided**

Services provided in the facilities visited are summarized in Table 4.

<table>
<thead>
<tr>
<th>Service provided per level of facility</th>
<th>Tertiary (N=4)</th>
<th>Regional (N=4)</th>
<th>District hospitals and poly-clinics (N=8)</th>
<th>Health center (N=3)</th>
<th>CHPS (N=8)</th>
<th>Community pharmacies (N=8)</th>
<th>CHAG/private (N=3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substance abuse</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Smoking</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Smoking cessation and counseling</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Diabetes clinic</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Cardiac clinic</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Diet/nutrition services</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td>Physical activity counseling</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>0</td>
<td>4</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Mental health</td>
<td>4</td>
<td>4</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Others (cancer, pain, asthma)</td>
<td>4</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

*N: number of facilities.
Wellness programs are recommended in the 2012 national NCD policy as a resource needed in management of NCDs. Establishment of wellness programs is one of WHO’s Global NCD targets for 2015. Eleven facilities responded that they had established wellness programs or were planning to do so. Six, including all the tertiary facilities, responded that they had established wellness centers while 5, all subdistrict facilities, said they were planning to establish wellness programs. All facilities reported advising patients on lifestyle changes that would decrease the incidence of NCDs.

**Community knowledge and perspectives on service delivery for NCDs**

A number of community members from each community visited were interviewed for their perspectives on NCDs. A total of 35 community members were consulted (15 individual interviews and 8 focus groups with a total of 20 participants). Ages of those interviewed ranged from 15 to 89 years. Their responses are summarized below.

- All individuals said they knew or had heard about NCDs.
- Fifty-five percent of the individuals more than 50 years old reported having two NCDs, while 66 percent reported having at least one NCD.
- Hypertension was the most frequently reported NCD, followed by upper respiratory disease and diabetes.
- Approximately 80 percent of those interviewed knew someone with an NCD in their community or family, and 30 percent said they were taking care of someone with an NCD.
- Most individuals mentioned factors such as genetics, poor diet, lack of exercise, obesity, alcoholism, smoking, or second-hand smoke as causes of NCDs.
- Individuals were asked about the challenges associated with having an NCD (or caring for someone with one). Responses included the high cost of NCD medications, lack of NHIS reimbursement for essential NCD medications, and long distances they travel to medical facilities for specialist care.
- Individuals noted that treatment of NCDs in the communities varies. People in rural areas without large medical centers said they used herbal medicine as a first option.
- Thirty percent of those interviewed indicated they seek spiritual treatment first, and then report to the hospital when spiritual treatment fails.

Community pharmacies and chemical shops sometimes provide limited care. Some itinerant drug peddlers carry blood pressure monitors and provide hypertension care, selling hypertension medication to patients. Community respondents were not always aware that hypertension is often asymptomatic and that it is a chronic, long-term condition. Similarly, there was a lack of understanding of the causes and symptoms of diabetes. While some respondents stated that diabetes was hereditary, most people thought diabetes was caused by the consumption of excessive sugar or was of spiritual origin. Cancer awareness and management was extremely variable with most, including those diagnosed with cancer, lacking adequate information on the condition.

There is some evidence of gender differences in health seeking behaviors. Men often report symptoms late and may never seek treatment. The focus group discussions reveal that men are reluctant to accept medical management because they perceive that the medication for NCD treatment has some male-related side effects. Information about the side effects and possible alternative medications is not widely available so patients may consult with herbalists rather than seek the recommendations of a health care professional.
3.2 Health workforce

Human resource managers, administrators, heads of institutions, and national-level leaders provided information on the availability of staff for the management of NCDs in their facilities. As reported in Methods, 4 regional and 4 district health directorates as well as 8 private pharmacies and 30 health facilities providing direct patient care were visited for this assessment.

The number of facility staff at each facility visited was compared with recommended MOH staffing requirements, the National CHPS Zone Policy (2014), and the GHS Standard Hospital Modular Design Concept. Respondents at the CHPS, health centers, clinics, and private hospitals reported that they did not have the recommended number of staff in their facilities for the management of NCDs. Human resource challenges were reported at all service levels except regional and tertiary facilities. Patient-centered care is compromised due to heavy workloads.

Distribution of health workers by occupation, specialization, region, and facility level

Regional and tertiary institutions reported better conditions and by definition they have specialist doctors, pharmacists, and nurses to provide care. Adequate numbers of health workers were better at hospitals in well-resourced regions.

CHPS compounds, clinics, and health centers reported not having enough staff for all interventions, including NCDs. The CHPS compounds visited each had 2 enrolled nurses per shift instead of the recommended number of 3 per the National CHPS Zone Policy, and an average of 5 community health nurses for their outreach programs, which was reported to be inadequate based on the National CHPS Zone Policy staffing recommendations. Similarly, health centers reported shortages in clinical, laboratory, and pharmacy staff on both day and night shifts.

Human resource challenges, especially for specialized staff, were reported more frequently in the rural areas than in urban areas, due to the reluctance of medical staff to relocate to those areas. Reasons identified during interviews were the lack of incentives for staff who are posted to rural areas and the lack of other income opportunities in those areas.

Differences in staffing levels were also seen between private and public facilities. Several private clinics and hospitals reported that they have a higher operational budget to secure more staff. However, since the training for physicians, nurses, and pharmacists is mainly sponsored by the government, these cadres remain in the public sector, though they may take up part-time positions at private facilities.

Optimal use of human resources and training

Availability of multidisciplinary teams consisting of physicians, nurses, pharmacists, nutritionists, and other supporting staff plays an important role in the comprehensive management of NCDs. When asked about the availability of multidisciplinary teams, 14 out of 38 care-providing facilities (37 percent) responded that they provided care in that way. These facilities were all tertiary, regional, district, and two CHAG hospitals. Health centers and CHPS compounds reported not having multidisciplinary teams.

Furthermore, 80 percent of those interviewed who support patients diagnosed with NCDs indicated they had no formal training or knowledge in taking care of people living with NCDs (PLWNCDs). Eighteen health facilities (47 percent) reported having in-service training on NCDs within the last year highlighting the gap in NCD care training across facilities. Most health care staff had not received any training on NCDs since they graduated from school. Some health professionals receive a small amount of NCD training during frequent maternal and child health training sessions. Many NGO projects carry out training via a train-the-trainer methodology. Yet, it is acknowledged that once 1 or 2 staff members from selected
facilities are trained, these staff often do not have the opportunity to train their colleagues and additional staff within a health facility. All community health nurses included in the study mentioned they needed training on NCDs, especially as the number of people with NCDs is increasing.

### 3.3 Health information systems

All public facilities reported sending their data to the District Health Information System (DHIMS II) monthly. All health facilities, except the CHPS compounds, reported using information from DHIMS II and facility level data for decision making. CHAG facilities submit data to the DHIMS II. Private hospitals, however, do not typically transmit their data to DHIMS II. The government of Ghana has introduced an electronic health information management system (called e-health program) at the teaching hospitals and polyclinics, with the plan to fully expand to other facilities, especially at the district and subdistrict level.

Five facilities across the country were found to have fully computerized health information systems including online prescriptions. However, facilities still record information in books first, and then type the information, and transmit. Facility staff noted that there are often not enough staff to assign one specifically to data input, thereby causing delays in the utilization of this system.

Nineteen out of 38 facilities (50 percent) reported using digital information technology in the management of clients in their facilities. None of the health centers, CHPS compounds, or private facilities visited during this assessment utilized digital technology for patient care services; however, some indicated they had plans to acquire modern equipment and digitize patient information. Five out of the 8 community pharmacies visited reported using digital health information systems.

All facilities visited indicated that they do not have enough computers, printers, or scanners for effective use of digital health technology in NCD management. Computers, printers, and scanners were found in administrative offices and some consulting rooms only, with none at the lab or nursing triage areas. Printers and scanners, if available, were old or non-functional. None of the facilities reported using data from patients’ digital health gadgets like mobile phone apps.

### 3.4 Access to essential medicines

Information on essential medicines for NCDs was sourced from national-level leadership, the National Health Insurance Authority (NHIA), health facilities, and community members. A Rapid Facility Assessment was conducted in the 30 health facilities (some have pharmacies, some have dispensaries) and private pharmacies to assess the availability of basic essential medicines. The research team also interviewed cadres of staff for information on policy, reimbursement, availability, and challenges.

Availability of essential medicines varies with facility level (Table 5). Per the national standards of care, all medications except long-acting insulin and tamoxifen should be available in all health facilities except CHPS zones. In addition, the NHIS only reimburses facilities for medicines on the Essential Medicines List specified for the type of facility. Metformin, inhaled salbutamol/albuterol, amlodipine, nifedipine, and cancer medicines are not reimbursable (at the health center level). CHPS compounds do not stock essential NCD medicines. Tamoxifen, used for breast cancer treatment, was available in 2 out of the 3 tertiary facilities visited and 4 out of 8 of the pharmacies visited. Long-acting insulin was available in 2 of the 4 teaching hospitals, and 1 out of the 4 regional hospitals. However, 5 out of the 8 community pharmacies had long-acting insulin in stock. Long-acting insulin was not available in any of the pharmacies located in the rural areas because of low demand. Hydrochlorothiazide was not available in any of the public facilities, whereas bendroflumethiazide was readily available in all facility and
community-based pharmacies. MOH Ghana has developed a Health Commodity Supply Chain Master Plan (2015–2022), which includes the recommendation to establish a Supply Chain Management Agency. However, the Supply Chain Management Agency has not yet been formed, and most of the interventions in the master plan are being carried out by the Supplies, Stores, and Drug Management Division of GHS and procurement and supply chain division at the MOH.

Use of traditional medicines by some patients, coupled with lack of enforcement of advertising regulations have a major impact on NCD management. Some patients combine orthodox and herbal therapies. For fear of being chastised, they do not tell the health care provider in the hospital about the herbal therapy. Therefore, when health complications occur, it is often difficult to understand what happened, which puts the patient at higher risk.

Respondents at facilities reported challenges with delays in reimbursement from NHIA of essential medicines (6–12 months), lower amount of money reimbursed for selected NCD medicines compared with selling price, challenges in forecasting, and stockouts. Community members also reported challenges of availability and noted the high cost of NCD medications at community pharmacies.

Table 5. Availability of essential medicines in health facilities.

<table>
<thead>
<tr>
<th>Medicine (and the disease it manages)</th>
<th>Teaching hospital N=4</th>
<th>Regional hospitals N=4</th>
<th>District hospitals N=4</th>
<th>Poly Clinic N=4</th>
<th>Health center N=3</th>
<th>CHPS N=8</th>
<th>Community pharmacies N=8</th>
<th>CHAG/private N=3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nifedipine (hypertension)</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Metformin (diabetes)</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Long-acting insulin (diabetes)</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Soluble insulin (diabetes)</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Hydrochlorothiazide (hypertension)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Amlodipine (hypertension)</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Bendroflumethiazide (hypertension)</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Tamoxifen (breast cancer)</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Ventolin (asthma)</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>3</td>
</tr>
</tbody>
</table>

*N: number of facilities.
3.5 Health system financing

Government funding

The government provides equipment, medicines, infrastructure, training, and health staff, for all government health facilities. There are no government funds targeted strictly for NCDs. The NCD Program Unit of the GHS depends largely on the government to resource its activities. Most of the facilities indicated they fund their NCD management from internally generated funds, as there was little support from outside sources. Accordingly, the funding for NCDs is dependent on health facility administration prioritization of NCDs in order to channel resources to provide specific training and equipment for NCDs.

Although the NHIS was instituted as a broad social strategy to alleviate the financial burden associated with diseases, it does not fully cover the cost of all treatment for NCDs. For example, although some basic diabetes and hypertension costs are covered, cancer is not, nor are some essential hypertension and diabetes drugs. It was observed that some services are reimbursable only when provided at district or regional levels, but not at the health center level even if expertise is available.

External and private funding

The Institute for Health Metrics and Evaluation estimates that NCDs have received 1.3 percent of the total development assistance available for health. Consistent with the total development assistance directed toward NCDs, the funding in Ghana for NCDs from development partners remains low.

NGOs play a role in providing funds for NCD work. For example, revision of the national NCD policy and strategy was being undertaken with funds from the World Bank. NGOs also assisted facilities with training, equipment, and infrastructure. The lack of dedicated or prioritized funds creates challenges for routine community-based screening and educational programs, as well as internal educational/training events and resource document availability for facility staff.

CHAG and private facilities do not depend on government funding, but use private resources for equipment, training, and other tools.

3.6 Leadership and governance

The leadership of Ghana’s health sector is shared by two agencies, the MOH and the GHS. The MOH has oversight of Ghana’s health sector and is responsible for policy formulation, standards of care, and resource mobilization. The MOH also ensures appropriate guidelines and standards for training are in place. Within the MOH there is an established NCD secretariat, which is currently supported by the World Bank.

The GHS is responsible for providing public sector health care services. Primary-level preventive and secondary-level management/curative care are organized and delivered through a hierarchical network of health facilities (Figure 2).
The role of the GHS in the NCD program includes:

- Implementation of national NCD policies approved by the MOH, nationwide detection, diagnosis, and treatment.
- Capturing data on the incidence, complications, and deaths, and reporting the data into DHIMS.
- Providing regular in-service training for health workers on diagnosis and treatment of NCDs, where possible.
- Planning and implementing awareness-raising interventions.
- Developing clinical guidelines and training materials.

The NCD Control program is tasked with ensuring that policies and strategies are implemented to scale and key risk factors, outcomes, socioeconomic, and other health determinants are monitored, and appropriate health systems responses developed to reduce premature deaths and disabilities. The national NCD program is situated at the Public Health Division at the GHS, but there is no dedicated system for NCD response similar to that for the communicable diseases control program. Funds are available under an ongoing World Bank project to support development of NCD policy and strategy. This, however, has been significantly delayed due to absence of execution capacity (i.e., logistics, staffing, and funding) to disseminate strategy and fully implement the NCD program.

**Availability and awareness of NCD-related policies, strategies and guidelines**

National respondents were asked specifically about their knowledge of the National Policy for the Prevention and Control of Non-Communicable Diseases in Ghana and the Strategy for the Management, Prevention and Control of Chronic NCDs in Ghana (see Table 1). Of the 52 respondents, 10 (19.2 percent) knew that the documents existed and stated that they were accessible (6 of these 10 reported having a copy of the NCD policy within their facility). The remaining 42 respondents (80.8 percent) said they were not aware of these documents.

While Ghana has an NCD strategy document and a draft national NCD policy, limited governance, financial and human resources has hindered effective and timely implementation of policies and programs.
Recommendations

Strengthening the health system to improve care for PLWNCDs means improving elements of the six building blocks identified by WHO and managing their interactions in ways that achieve more equitable and sustained improvements in health services and health outcomes. This requires technical and political knowledge and action. Below we briefly summarize the findings of the landscape assessment that were presented above and recommend interventions to address barriers that hinder access to quality prevention and care for PLWNDCs.

4.1 Health service delivery

Health service delivery faces several challenges in the provision of NCD care.

Inadequate NCD screening

- Twenty percent of health facilities do not have organized screening programs in their facilities and more than 60 percent do not conduct community-based screening programs.
- Facilities below the tertiary level do not have wellness/screening clinics.
- CHPS compounds do not screen for diabetes and do not have glucometers.
- Staff do not have specialized training in NCD management.

Recommendations:

- Provide health workers (including cadres of workers currently not engaged, such as midwives) with in-service training in the screening and management of NCDs.
- Conduct assessment of national NCD treatment guidelines, standards of care, and regulations impacting staff and facilities to provide screening and NCD care.
- Leverage community health workers to provide screening in convenient locations and as part of home visits.

Unequal distribution of specialized resources in the higher-level facilities

Facilities located in economically stronger regions, such as Greater Accra and the Ashanti region, had more specialized resources than underserved regions. To support consistent NCD care, more resources need to be channeled to less endowed regions.

Recommendations:

- Use the NCD Navigator to assess and inform distribution of resources to ensure NCD services are matched to need.
- Explore CHAG facilities as a model for best practices and lessons learned in NCD care.
- Use technology options to link under-resourced facilities with experts and resources.
Primary healthcare facilities, such as health centers and CHPS compounds, lack the resources to provide NCD care

Health centers and CHPS facilities have limited functional equipment, office space, and trained staff.

- None of the health centers had ultrasound x-ray, electrocardiogram, oxygen, or cardiopulmonary resuscitation equipment.
- Bronchodilators and inhaled steroids are not approved for use in CHPS compounds. All CHPS facilities reported challenges managing patients with respiratory conditions, especially asthma.

Recommendations:

- CHPS needs to be strengthened and used more efficiently for NCD interventions by equipping them with blood pressure apparatus, blood glucose monitors and test strips, and other basic equipment to help them detect hypertension and diabetes early and make early referrals to avoid complications.
- CHPS compounds can be marketed as wellness centers where community members can maintain good health through screening and counseling, and where NCD patients can continue care. Strengthening lower levels of care would reduce congestion at the tertiary and regional facilities.
- Support facilities to assess their NCD readiness, such as availability of space and functioning equipment, and to develop plans to provide resources (i.e., equipment, logistics, space, and trained personnel). Fund lower-level facilities to provide routine services in-line with treatment guidelines. Recognize facilities that achieve predetermined criteria as set by GHS.

Lack of systematic patient referral mechanisms

Weak referral systems lead to weak linkage between referring and referral facilities and loss of those needing NCD diagnosis, treatment, and management of care.

Recommendations:

- Train lower-level facilities on referral triggers and mechanisms.
- Institute criteria for referral and back-referral to ensure appropriate patient linkage.
- Support GHS to select digital solutions to ensure linkage to services and reduce loss to follow up.
- Provide PLWNCDs with treatment adherence support by extending care into the community utilizing community health workers for referral and adherence support.

Lack of standards and guidelines for treatment and care of NCDs at various levels impacts consistent NCD care that is in-line with updated guidelines

Recommendations:

- Conduct assessment of current national standards of care and guidelines for the treatment of NCDs with special attention to roles and responsibilities of various cadres of staff and levels of facilities to address gaps in NCD care and allow for lower-level facilities to provide high-quality NCD care.
4.2 Health workforce

Connected to service delivery is the health workforce building block that faces several challenges in the provision of quality NCD care.

**Shortage of health workforce for NCD care, especially at the PHC level**

- Staff shortages were reported at all levels of facilities, especially at the PHC level. Shortages included clinical, laboratory, and pharmacy staff and were particularly severe in the rural areas.
- Health care workers remain in the public sector with some part-time working in private sector due to training opportunities in the public sector.

Recommendations:

- Leverage innovative service delivery models including team-based care and task shifting for NCD care and public-private partnerships.
- Review incentive structure and career pathways to retain staff at lower levels of care.

**Lack of training of PHC workers to manage NCDs**

Recommendations:

Health workers should have training to screen patients and community members, monitor known NCD patients, provide the needed counseling support, and refer people who need to be referred to higher levels quickly.

- Engage and train all cadres of staff in NCD care including nurses, community health nurses, and community health workers.
- Train health workers and educate patients on managing comorbidities associated with NCDs.
- Explore options, such as awarding credits (e.g., Continuous Professional Development points) for trainings that are tagged to promotions to allow health workers to see that these trainings are professionally acknowledged and should be taken seriously.

4.3 Health information system

A strong health information system is integral for high-quality NCD data and a data use culture. Unfortunately, within NCDs, there are challenges in obtaining high-quality data that can inform planning and resource allocation.

**Lack of quality and complete NCD surveillance data in DHIMS II, and lack of data use culture**

- Public facilities send data to the DHIMS II monthly, but private facilities typically do not transmit their data to DHIMS II.
- Facilities record information on paper before typing the data and transmitting. Staff shortages for data input cause delays.
• NCD data quality is an issue (in DHMIS as well as service delivery data) impacting a data-driven NCD response.

Recommendations:
In order to support planning and inform resource allocation decisions, it will be important to instill a data-use culture for NCDs in both the public and private sectors to enable collection and use of high-quality data.

• Expand key NCD-related indicators in the DHIMS II.
• Mandate that all facilities (public and private) report on these indicators.
• Encourage adoption of electronic health information management system being rolled out to teaching hospitals and polyclinics (with plans to expand to district- and subdistrict-level facilities).
• Collaborate with the GHS to assess and institute a data quality assurance program for NCDs, including a quality assessment of service delivery data.
• Institute NCD data-review meetings, training, and monitoring as part of the data quality assurance program for NCDs.

4.4 Access to medicines and health products

The lack of access to NCD medicines and products poses a significant barrier for the management of NCDs

• Facilities at the district and subdistrict levels reported occasional shortage of medications, which was attributed to shortages at the regional medical stores and delayed reimbursement by the NHIA. In addition, some patients reported high cost of NCD medications at the community pharmacies. Challenges in forecasting and stockouts further impact availability and affordability.
• The recommended Supply Chain Management Agency has not yet been formed and most of the intervention in the master plan are carried out by the GHS Supplies, Stores, and Drug Management Division, and MOH procurement unit.

Recommendations:
• Conduct end-to-end supply chain assessment followed by activation of roadmap to address prioritized barriers as identified by the assessment.
• Conduct review of treatment protocols and prescription options at all levels of care.
• Present a clear set of recommendations supported by advocacy to the MOH and the NHIA.

4.5 Financing

A challenge in implementing the recommendations provided is the lack of adequate financing of NCDs.

**NHIS does not fully cover the cost of all NCD services and medicines impacting availability of medicines**

This finding is further compounded by slow reimbursement with 6- to 12-month delays in payment.
Recommendation:

- Review NHIS reimbursement guidelines and processes for changes necessary to support NCD care. Since the NHIA does not reimburse for screening and preventive care unless it is associated with treatment for a particular medical condition, it is recommended that a review of MOH treatment protocols and prescription guidelines at all care levels is done to identify changes necessary to support NCD care.

**Lack of national commitment of resources for NCD**

- No specific government funds are earmarked for NCDs.
- Most facilities fund NCD management (i.e., staff training, purchase of equipment, infrastructure) from internally generated funds. NCD is not a funded program like malaria, HIV/AIDS, or TB.
- Funding for NCD training and equipment is determined by the health facility administrator.

Recommendations:

- In collaboration with the NCD Steering Committee, develop and present business case to Ministry of Finance; advocate for NCDs as part of COVID-19 recovery plans, and build back better initiatives.
- Test innovative solutions to increase the reach of NCD services (e.g., differentiated service delivery, community-based programming, public-private partnerships, social enterprises, digital solutions). This includes disseminating the NCD policy and strategy content with key stakeholders, the general public, and media to increase awareness and advocacy.

**4.6 Leadership and governance**

Key to successful implementation of these recommendations and the achievement of NCD strategic goals is leadership and governance.

**Lack of awareness, coordination, and strategic oversight of NCD policies**

- Lack of awareness of NCDs across regional and district level government authorities. For example, even though the national NCD policy and strategy document is available online by search, it is not available on the websites of the MOH and GHS; nor are summarized versions of these complex documents available. This makes it difficult for organizations and agencies in Ghana to know and implement the content of the strategy.

- The main coordination body, the National NCD Steering Committee, has been inactive since 2017. While the NCD Program Office established within the GHS provides some direction and leadership at the national level, this office also lacks the funding and staffing needed to function effectively.

Recommendations:

- Increase access to, and dissemination of, the national NCD policy and strategy document to encourage more stakeholders to provide the needed support for NCD interventions. This can be done by establishing an easy to access and visible dissemination platform for NCD resources and NCD policy and strategy documents.
• Inform and engage local government, district assemblies, and town planning authorities on their role in preventing NCDs by making appropriate bylaws and leading NCD action at the district and community levels.

• Support national-level NCD coordination mechanism, such as the NCD Steering Committee, as well as regional and district coordination mechanisms to provide strategic oversight of NCD activities.

• Ghana began developing a package of essential health service guidelines as part of the UHC effort. In response to the pandemic, this package was strengthened and incorporate NCDs in the basic package of care, providing the opportunity to address several barriers noted through the assessment. This package of essential health services should be supported, disseminated, and adopted to ensure health system resiliency.

4.7 Health system resiliency

In addition to the building blocks, the COVID-19 pandemic has highlighted the need for health system resiliency and integration of NCDs into essential care. PATH is representing the needs of NCD care in the MOH-led development of essential services guidelines for sustainability of routine services beyond the pandemic. The pandemic highlighted opportunities that were noted as gaps in the landscape:

• The adoption of the package of essential health service guidelines that clearly and adequately incorporates NCDs.

• The use of virtual platforms in building health worker capacity. The strain on health systems during the pandemic and increasing use of technology provides an opportunity to consider addressing gaps noted in the landscape report, such as the use of technology to connect experts and use telemedicine to support rural areas, and under-resourced and lower-level facilities.

• The link between NCDs and increased risk from COVID-19 has emphasized the importance of an integrated approach to care as well as training and capacity building on NCDs.

• The use of community engagement strategies, such as queen mothers and chiefs to increase awareness of NCDs and COVID-19 highlight their potential role in the long term as advocates.
Conclusion

The Ghana NCD landscape assessment highlights important gaps in NCD care in Ghana in all of WHO key health system building blocks and also identifies interventions to address these gaps.

The assessment comes at a critical point as Ghana lays out its UHC roadmap and identifies the need for services for NCDs such as hypertension, diabetes, mental health, and cancers to be scaled up to achieve UHC. This assessment can help shape the NCD strategy and prioritize interventions to achieve the goals of the UHC roadmap.

The COVID-19 crisis has further exposed health system failures in countries including Ghana and the increased vulnerability of PLWNCDs. The pandemic has highlighted how increasing access to treatment and care for PLWNCDs is a practical and indeed fundamental way to strengthen health system resiliency.

PATH’s currently funded work through Access Accelerated already addresses some of the key gaps identified through the landscape assessment including activities targeting access to medicines and products (supply chain assessment completed); lack of coordination and strategic oversight of NCD activities (NCD Navigator being introduced and support being provided to the NCD Steering Committee and GHS), and awareness raising for PLWNCDs. However, as the assessment notes, there are other gaps that need to be prioritized in order to address NCD care in Ghana.
## Appendices

### Appendix 1. Data collection sites

<table>
<thead>
<tr>
<th>Region</th>
<th>Districts</th>
<th>Facilities</th>
<th>Communities</th>
</tr>
</thead>
</table>
| Northern | Savelugu            | 1. Savelugu Municipal Health Directorate  
                     2. Savelugu Municipal Hospital  
                     3. Chamalt Pharmacy                     | Savelugu    |
|          | Buipe               | 4. Buipe Health Directorate  
                     5. Buipe Polyclinic  
                     6. Buipe CHPS compound  
                     7. PK Gombilla Pharmacy                     | Buipe       |
|          | Tamale              | 8. Regional Health Directorate  
                     9. Tamale Teaching Hospital  
                     10. Obarsi Pharmacy                      | Tamale      |
| Ashanti  | Asante Akyem North  | 11. District Health Directorate  
                     12. Kumawu Polyclinic  
                     13. Juansah Health Center  
                     14. Kumawu CHPS  
                     15. Sapkuma Pharmacy                     | Jacobu Juansah |
|          | Kumasi Metro        | 16. District Health Directorate  
                     17. Kumasi South Hospital  
                     18. Komfo Anokye Teaching Hospital  
                     19. Lansah Chemist                      | Kumasi      |
|          | Obuasi Municipal    | 20. Obuasi Gov. Hospital  
                     21. St. Jude Hospital (private)  
                     22. Estel Pharmacy                       |             |
|          | Amansie Central     | 23. Jacobu CHPS (Marbens)  
                     24. St. Peter’s Hospital (CHAG)  
                     25. Archidop Pharmacy                     | Jacobu      |
| Greater  | Accra Metro         | 26. KBTH  
                     27. Ridge Hospital  
                     28. Teshie Clinic                         | Teshie      |
| Accra    | Shai Osu Doku       | 29. District Health Directorate  
                     30. Gov. Hospital  
                     31. Afienya CHPS  
                     32. Espana Pharmacy                      | Dodowa      |
<table>
<thead>
<tr>
<th>Region</th>
<th>Districts</th>
<th>Facilities</th>
<th>Communities</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Ningo Prampram</td>
<td>33. Health Directorate</td>
<td>Prampram</td>
</tr>
<tr>
<td></td>
<td></td>
<td>34. Prampram Polyclinic</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>35. New Ningo CHPS</td>
<td></td>
</tr>
<tr>
<td>Volta region</td>
<td>Hohoe Municipal</td>
<td>36. Hohoe District Directorate</td>
<td>Hohoe</td>
</tr>
<tr>
<td></td>
<td></td>
<td>37. Hohoe Municipal Hospital</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>38. Adabraka Health Centre</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>39. Wegbe CHPS Compound</td>
<td></td>
</tr>
<tr>
<td></td>
<td>North Tongu</td>
<td>40. District Health Directorate</td>
<td>Battor</td>
</tr>
<tr>
<td></td>
<td></td>
<td>41. Catholic Hospital</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>42. PPAG CHPS Compound</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ho Municipal</td>
<td>43. Regional Health Directorate</td>
<td>Ho</td>
</tr>
<tr>
<td></td>
<td></td>
<td>44. Ho Teaching Hospital</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>45. Ho Municipal Hospital</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>46. Zongo CHPS Compound</td>
<td></td>
</tr>
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</table>
## Appendix 2. Stakeholders and their roles in addressing NCDs

<table>
<thead>
<tr>
<th>Organization</th>
<th>Role</th>
<th>Specific role</th>
<th>Work level</th>
<th>Presence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government of Ghana</td>
<td>Leader</td>
<td>Policy and strategy direction; funding</td>
<td>National</td>
<td></td>
</tr>
<tr>
<td>Ministry of Health</td>
<td>Leader</td>
<td>Policy and strategy direction; training of health workers; health staff posting; monitoring; research and data</td>
<td>National</td>
<td></td>
</tr>
<tr>
<td>Ghana Health Service</td>
<td>Leader</td>
<td>Policy and strategy implementation; health staffing; health staff training; health facilities; drugs and logistics; screening, treatment, and management of illnesses</td>
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<td></td>
</tr>
<tr>
<td>WHO</td>
<td>Influencer</td>
<td>Policy direction; sustainable development goals; project (including research) funding; monitoring and evaluation</td>
<td>National</td>
<td></td>
</tr>
<tr>
<td>UNICEF</td>
<td>Influencer</td>
<td>Advocacy; policy direction; project funding; monitoring; logistics</td>
<td>National</td>
<td></td>
</tr>
<tr>
<td>USAID</td>
<td>Influencer</td>
<td>Project funding; logistics; advocacy</td>
<td>National</td>
<td></td>
</tr>
<tr>
<td>Japan International Cooperation Agency</td>
<td>Influencer</td>
<td>Advocacy; logistics</td>
<td>National</td>
<td></td>
</tr>
<tr>
<td>Korea International Cooperation Agency</td>
<td>Influencer and implementer</td>
<td>Project funding and implementation; screening; public education; social mobilization; advocacy;</td>
<td>Regional</td>
<td>Volta</td>
</tr>
<tr>
<td>Ghana Coalition of NGOs in Health</td>
<td>Influencer and implementer</td>
<td>National and regional discussion of health needs; project implementation through regional NGO groups;</td>
<td>National and regional</td>
<td>All regions in Ghana</td>
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<tr>
<td>NCD Alliance</td>
<td>Influencer and implementer</td>
<td>Advocacy; social mobilization; public education; mobilization of NCD patient groups</td>
<td>Regional and community</td>
<td>Greater Accra; Ashanti (expanding its reach to other regions)</td>
</tr>
<tr>
<td>Organization</td>
<td>Role</td>
<td>Specific role</td>
<td>Work level</td>
<td>Presence</td>
</tr>
<tr>
<td>---------------------------</td>
<td>------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>---------------------------------</td>
<td>-----------------------------------</td>
</tr>
<tr>
<td>Breast Care International</td>
<td>Implementer</td>
<td>Social mobilization; public education; screening; treatment; psychosocial support to breast cancer patients and survivors</td>
<td>Regional and community, with influence expanding to national level</td>
<td>Ashanti and Greater Accra</td>
</tr>
<tr>
<td>Basic Needs</td>
<td>Implementer</td>
<td>Treatment of mental illness and epilepsy; rehabilitation of cured mental patients and their families; policy advocacy</td>
<td>Regional and community</td>
<td>Northern</td>
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<tr>
<td>Diabetes Youth Care</td>
<td>Implementer</td>
<td>Public education on diabetes; social mobilization; screening; mobilization of young diabetics; providing medicines to needy young diabetics</td>
<td>Regional</td>
<td>Volta, Ashanti, and Greater Accra regions</td>
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<tr>
<td>Cerviva</td>
<td>Implementer</td>
<td>Public education on cervical cancer</td>
<td>Regional</td>
<td>Greater Accra with growing presence in other regions</td>
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Appendix 3. Summary of responses to key areas in the interview guide

<table>
<thead>
<tr>
<th>Area</th>
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<td>52</td>
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<td>Possess the NCD Policy Document</td>
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<td><strong>NCDs Screening</strong></td>
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<td>Organised programmes within Hospital</td>
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<tr>
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<tr>
<td>Limited Activity = 11</td>
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<tr>
<td>Very active = 6</td>
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<td>Very active = 6</td>
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<td>Organised programmes Outside Hospital</td>
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<tr>
<td>Very Active = 8</td>
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<tr>
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<td>Very Active = 20</td>
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<td>Presence of Multi-Disciplinary Teams</td>
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<tr>
<td>Specialist Physician NCDs Services</td>
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<td>Specialist Nursing Services (other conditions)</td>
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<td>Tertiary/Regional/District Facilities</td>
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<tr>
<td>Discussion of establishment of wellness centres</td>
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<td>Health Centres/CHPS Compounds/Pharm</td>
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<td>NCDs In Service Training in the last year</td>
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<td>Health Centres/CHPS Compounds/Pharm</td>
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<td>23</td>
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<td>NCDs &quot;chipped&quot; in Training</td>
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<td>Tertiary/Regional/District Facilities</td>
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<td>Health Centres/CHPS Compounds/Pharm</td>
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<tr>
<td>Utilization of Health Management Information Services</td>
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References


**Additional sources reviewed**


