

## **Abstract**

Ghana has signed on to the United Nations Sustainable Development Goal to achieve universal health coverage (UHC), ensuring that all individuals receive the healthcare they require without financial hardship. Achieving that goal is a difficult task in any setting. The challenges are further exacerbated by a changing disease landscape, as the burden of non-communicable diseases (NCDs) is increasing and creating a dual burden along with infectious diseases. This study explores the existing health system for delivering hypertension care and the challenges of delivering UHC for hypertension in Ghana. Document analysis of national health reports, policies, and legislations along with a review of research articles was conducted to explore the challenges of delivering UHC for NCDs in Ghana, and hypertension in particular. The main themes and indicators related to the challenges of delivering UHC for hypertension were mapped and analysed. The main challenges to delivering UHC for hypertension can be grouped into population and patient on one hand, and health system factors on the other. Population and patient factors include (i) unhealthy lifestyles overburdening the health system, (ii) poor health-seeking behaviour and (iii) poor adherence to medication, which has led to uncontrolled cases and poor clinical outcomes even among treated patients with hypertension. Health system factors include (i) inadequate health system capacity for early diagnosis due to an increasing number of patients, (ii) inequitable distribution of healthcare facilities affecting access, (iii) financial sustainability of the National Health Insurance Scheme and delays in reimbursement of claims to facilities that affect the health system's ability to provide timely management of hypertension, and (iv) healthcare facilities and practitioners' use of non-standardized and uncalibrated blood pressure measuring equipment. Ghana therefore will need to make important decisions to overcome operational and financial challenges on its path to UHC.

## **Introduction**

Hypertension prevalence has significantly increased globally in the past twenty-five years, including in Ghana, where the burden is hampering progress in improving population health (Forouzanfar et al., 2017, Regional Committee for Africa, 2011). Non-communicable disease (NCD) mortality, including hypertension mortality, is increasing, and Ghana now faces a dual burden as the major causes of deaths over the recent decade include a combination of communicable diseases and NCDs (de-Graft Aikins et al., 2012). In 2017, hypertension ranked the third most common cause of admission in regional and district hospitals in Ghana, and it has ranked among the top ten causes of outpatient morbidity. Data from the Ghana District Health Information Management System (DHIMS) reported that hypertensive heart diseases were the leading cause of mortality in 2017, accounting for 2,024 out of 13,198 (15.34%) deaths (Ghana Health Service, 2018). The increasing number of individuals with hypertension burden the Ghanaian healthcare system, leading to capacity issues as well as subjecting the system and households to financial pressure (Ministry of Health, 2012a).

Ghana has signed on to the United Nations Sustainable Development Goals to achieve universal health coverage (UHC) (United Nations, 2015) with the aim to ensure that all individuals receive the healthcare they require without financial hardship. 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’ (Ministry of Health, 2020). The Ghanaian government’s National Policy for Prevention and Control of Chronic NCDs commits to ensure such access for hypertension management (Ministry of Health, 2012a). The policy outlines strategies on primary prevention, early detection, clinical care, health system strengthening, research and development and surveillance of NCDs and their risk factors, and it seeks to promote secondary prevention among patients with diabetes, cardiovascular diseases (CVDs) and cancers (Ministry of Health, 2012a).

The Ministry of Health (MoH) aims to increase access to high-quality essential health care for NCDs including hypertension with emphasis on primary and specialized health care service delivery and reduce population and patient barriers to health care (Ministry of Health, 2016). These health care services are provided through the MoH hospitals, clinics, health centres and community-based health

planning and services (CHPS) and private hospital and clinics. Population and patient barriers to care are mitigated through preventive and public health care initiatives of the MoH (Ministry of Health, 2016). As the country moves towards UHC in the context of hypertension, the healthcare system must be responsive to ensure individuals with hypertension are aware of their health state, encourage them to seek treatment early, provide them access to quality antihypertensive medicines, and reduce their financial burden from accessing care. A responsive healthcare system is therefore important for timely access to health care for hypertension prevention, detection, clinical care, and management of related risk factors without any financial barrier (Mirzoev and Kane, 2017).

Improving access to health care irrespective of ability to pay at the point of use is critical and a national priority. With this aim, Ghana introduced a social health insurance scheme, the first such national scheme in sub-Saharan Africa, in 2003 to replace its out-of-pocket system known as the ‘cash and carry’. The National Health Insurance Scheme (NHIS) was introduced to reduce financial barrier to care (Agyepong and Adjei, 2008). Although the scheme, which is managed by the National Health Insurance Agency (NHIA), has shown progress, it also faces significant challenges. The NHIS provides a benefits package that covers about 95% of diseases in the country and seeks to improve universal access to healthcare services. The benefit package includes diagnosis and treatment for individuals with hypertension. All residents of Ghana can enrol in the NHIS, and all persons under the age of 18 and over the age of 70, and beneficiaries of social protection programme, are exempted from paying a premium (Akazili et al., 2012). However, though NHIS seeks to ensure universal access to health care, its membership was estimated to cover 35% (10.3 million) of the population in 2017 (Nsiah-Boateng and Aikins, 2018). The road to increasing coverage while maintaining sustainability is a difficult balancing act.

Achieving access to quality health care with financial protection is a difficult task in any setting and particularly in low-and middle-income settings such as Ghana, whose healthcare system is insufficiently strong to deliver services to the entire population in a manner that does not financially overburden NHIS (Ministry of Health, 2016). It is therefore important to better understand existing health system, population and patient barriers for hypertension management and factors influencing the country’s drive towards UHC and thus improving timely access to health care with financial

protection for hypertension. Prior studies have reported on hypertension prevalence and level of awareness (Bosu, 2010, Addo et al., 2012, Addo et al., 2006) and stakeholders perspectives on health systems challenges to hypertension (Laar et al., 2019). Our paper seeks to bridge the knowledge gap on understanding the existing health system for delivering hypertension prevention and care, and the challenges the current systems pose for delivering UHC for hypertension in Ghana.

## **Methods**

We conducted a review with sources including Ghanaian national health reports, the demographic health survey, and policy and legislation documents as well as research articles. We identified research articles in electronic database searches, including PubMed and Google Scholar. The search terms were “hypertension services Ghana”, “hypertension epidemiology Ghana”, “cardiovascular disease”, and “universal health coverage Ghana”. The search years were from January 2000 to March 2018. The literature review protocol is stated in Table 1.

Table 1 here

## ***Data extraction, analysis, and validation***

The relevant evidence collected from these sources was reviewed and organised into four main themes: health systems for hypertension, financing hypertension health care system, monitoring and data collection systems and challenges for achieving UHC for hypertension (Table 2). Data on systems for screening and early detection, clinical care, primary prevention, financing of hypertension and admissions were documented and analysed. Further analysis involved mapping and categorizing documented challenges for achieving universal health access to hypertension care management within the Ghanaian health sector. To validate findings from the review, the research team had informal discussions with policy makers and health professionals in March 2019. These included a representative from the Policy Planning Monitoring and Evaluation of the MoH, a representative from the NHIA, three representatives from a private hospital and five representatives from a Ghana Health Service (GHS) hospital in Accra.

Table 2 here

## **Results**

Summary of documents reviewed and key findings on the existing health care systems for hypertension and challenges to achieving UHC for hypertension are shown in Table 3 and set out next according to the themes of the study.

Table 3 here

### ***Existing systems for screening and early detection***

Ghana's early detection policy focuses on encouraging individuals with NCD symptoms and those potentially at risk (e.g., the elderly and overweight) to report to healthcare facilities early for blood pressure and body mass index screening. The main policy tool for early detection is public education (Ministry of Health, 2012b). The MoH through its Regenerative Health and Nutrition Programme unit campaigns on media platforms and creates awareness for regular blood pressure check-ups to detect early high blood pressure cases. Individuals' blood pressure is checked at different health facilities and individuals with hypertension are managed or referred to a hospital or clinic. In areas with functional community-based health planning and services (CHPS), community health workers (CHWs) go into the communities to provide preventive and promotive services, including checking blood pressure of individuals. According to the GHS, in 2016 there were 4,400 functional CHPS across the country and these contributed to 2,528,036 out of 29,741,608 (8.5%) of overall out-patient service attendance in public health facilities (Ghana Health Service, 2017).

Traditionally, public and private hospitals, clinics and health centres conduct blood pressure check-ups. Some pharmacies have started to provide this service, but information on what proportion of pharmacies provide regular blood pressure check-ups is not available. The GHS has set up *ad-hoc* community-based screening programmes to detect high blood pressure cases that are missed at the health facilities and by CHWs in the community.

### ***Existing systems for clinical care***

Clinical care for hypertension is provided in health care facilities. In the general adult population, treatment for hypertension is initiated at a blood pressure of 140/90 mmHg or higher for individuals below 60 years of age, and 150/90 mmHg or higher for those above 60 years. For

individuals with diabetes mellitus or non-diabetics with chronic kidney disease, treatment for hypertension is initiated at a blood pressure of 140/90 mmHg, irrespective of age. Once a diagnosis of hypertension is made, the individual is evaluated to exclude secondary causes and to identify other existing cardiovascular risk factors such as diabetes, dyslipidaemia and hyperuricaemia (Ministry of Health, 2017c). High blood pressure is managed with anti-hypertensive medicines; specifically, thiazide diuretics, calcium channel blockers, angiotensin-converting enzyme inhibitors, angiotensin receptor blockers and beta-blockers. The preferred first treatment for uncomplicated hypertension is thiazide diuretics or calcium channel blockers, either as monotherapy or in some cases as a combination therapy (Ministry of Health, 2017c). Individuals diagnosed with high blood pressure are made to return to the health facilities for follow-up and review to check progress on treatment and blood pressure. There are national guidelines for the management of hypertension through a primary care approach and at all levels within the health system (Ministry of Health, 2017c, Ministry of Health, 2012a)

### ***Existing systems for primary prevention***

Primary prevention measures for hypertension, include appropriate diet, physical activities, and control on the use of tobacco and alcohol products. The MoH, through its Regenerative Health and Nutrition Programme, promotes regular medical check-up and intake of fruits, vegetables and, high fibre diets, and moderate physical activity. In addition, the programme encourages reduction in the intake of energy-dense foods, salt, trans-fatty acids, sugar and alcohol, and the avoidance of tobacco smoking and periodic medical check-ups (Ministry of Health, 2012a, Ministry of Health, 2007). The MoH also educates the public to consume at least five servings of a variety of fruits and vegetables, consume whole grain and high-fibre food and reduce intake of red meat and foods high in saturated fatty acids (Ministry of Health, 2012a).

Alcohol production, distribution, sale, advertisement, and consumption is guided by the national alcohol policy while tobacco use is guided by the Public Health Act 2012 (Act 851). The alcohol policy regulates advertisement of alcoholic beverages and bans radio and television advertisement of alcoholic beverages between the hours of 5:00 a.m. and 8:00 p.m. Advertisements

are required to contain health warnings about the negative consequences of alcohol consumption (Government of Ghana, 2012, Ministry of Health, 2017b). The Public Act 2012 specifies tobacco control measures, which include prohibition of smoking in public places and public education against tobacco use (Government of Ghana, 2012).

### ***Financing hypertension healthcare systems***

The government funds management of hypertension through the NHIS. The NHIS benefits package covers hypertension diagnosis and management, including reviews, laboratory investigations and medicines. NHIS subscribers can access service from both private and public accredited health care facilities. Health care facilities submit claims to NHIS on service provision (i.e., diagnosis and investigations) and treatment based on the NHIS medicines list for reimbursement. Increasingly, facilities face challenges with reimbursement from the NHIS, which pays facilities up to a year after submission of claims (Aryeetey et al., 2016). Individuals pay out-of-pocket at the healthcare facilities as non-NHIS members or if the medicines prescribed are not on the NHIS medicines list. Health facilities use their internally generated funds from NHIS reimbursement and out-of-pocket payments to support NCD screening and public health education (Ministry of Health, 2016).

### ***Monitoring and data collection systems***

The Centre for Health Information Management of the GHS manages routine collection of health care data in the DHIMS. Data on NCD admissions, including hypertension, is captured within the public health sector and, until recently, in some private health care facilities using web-based software which feeds into the DHIMS. The data includes demographics of the individuals, diagnosis, comorbidities, and mortalities, and these are entered on a monthly basis. Additionally, the 2014 Ghana Demographic Health Survey (GDHS) provided national estimates of hypertension prevalence among adults and this data can be monitored in the next survey (Ghana Statistical Service (GSS), 2015).

## ***Challenges to achieving Universal Health Coverage for hypertension***

### *Increasing prevalence of hypertension due to population and patient factors*

Several challenges currently prevent achieving universal access to systems and services for management and prevention of hypertension. We categorise these as population and patient and health systems challenges. Population and patient factors such as tobacco use, excessive consumption of alcohol and unhealthy diets (e.g. high salt intake) are high risk factors and prevalence increasing in Ghana, overburdening the health system (Ghana Statistical Service (GSS), 2015). The lifestyle of the Ghanaian population has evolved in recent decades as the country urbanized and transitioned from a low-income economy to a middle-income one.

These lifestyle behaviours include tobacco smoking and the increasing use of salty products. However, the prevalence of smoking, which is an acquired behaviour that can be prevented, is relatively low in Ghana. National data from the 2014 GDHS survey in which 12,831 households were interviewed, indicated only a small number of male (253) and female (5) smoked tobacco (Ghana Statistical Service (GSS), 2015). On the other hand, the Ghanaian population is increasing its use of salt to preserve food or make it tastier. According to the 2014 GDHS, 70% (6,578 out of 9,363) of females had used bouillon cubes—a significant source of salt—a day before they were interviewed. Its use is higher in the Northern region (92%; 723 out of 786) and lower in the Greater Accra region (62%; 1,177 out of 1,898) (Ghana Statistical Service (GSS), 2015). Given that high salt intake increases the prevalence of hypertension, intensive educational campaigns by the MoH will go a long way to caber these lifestyle practices.

The population health-seeking behaviour is poor. According to the 2014 GDHS, 85% (3,278 out of 3,856 men measured) and 63% (5,894 out of 9,356 women measured) of hypertensive men and women were unaware of their status. Level of awareness and treatment status are important indicators for understanding the gaps that policies and interventions can help fill. Additionally, patient adherence to antihypertensive medication is a challenge (Atinga et al., 2018). According to Atinga et al, non-adherence to antihypertensives medication is mainly due to the patients' ill perception of the medication efficacy. Additionally, factors such as reliance on herbal medicines and spiritual healing and interactive effects of polypharmacy contribute to non-adherence (Atinga et al., 2018).



### *Health systems challenges*

The health systems factors include inadequate resource capacity to diagnose early due to an increasing number of patients; inequitable distribution of health care facilities and human resource that provide greater access for certain portions of the population than others; and poor quality of medicines including substandard and falsified medicines, which negatively affect management of hypertension and may cause disease progression, disabilities, and death (Ministry of Health, 2016, Ministry of Health, 2012b, Ghana Health Service, 2017).

Over the years, NHIS expenditure has increased above its income causing delays in reimbursement payment (Aryeetey et al., 2016). Financial sustainability of the NHIS and delays in reimbursement of claims to facilities can affect facilities' ability to provide timely management of hypertension (Sodzi-Tettey et al., 2012). Some facilities, especially those which are faith-based, periodically do withdraw services to NHIS clients and patients are forced to pay out-of-pocket for services and medicine (Aryeetey et al., 2016).

Treatment and management of hypertension are guided by Ghana's National Standard Treatment Guidelines (Ministry of Health, 2017c) and the Essential Medicines List (Ministry of Health, 2017a); however, it is not clear to what extent these guidelines are followed and whether they can be enforced. Anecdotally, in our conversations with health care professionals in Ghana, they indicated they were not aware of the newest guidelines (i.e., the 7<sup>th</sup> edition) and to what extent the Standard Treatment Guidelines is adhered to. They also noted that healthcare facilities and practitioners' use of non-standardized and uncalibrated blood pressure measuring equipment may lead to misdiagnosis and inappropriate treatment. Data on adherence to guidelines is scanty and undocumented, but a few efforts are currently underway to collect and publish such data by the Pharmacy Directorate of the MoH.

### **Discussion**

This document review highlighted existing health care systems for hypertension screening, detection, prevention, management, and treatment as well as the health systems and population and

patient factors influencing timely access to care with financial protection for individuals with hypertension. These findings have policy and practice implications.

First, due to the shifting lifestyle and behaviour and increasing burden of hypertension with its related challenges of late diagnosis and awareness, the government needs to invest additional resources to change people's behaviour and keep up with treatment, management, and early screening efforts. Hypertension incidence in Ghana is increasing and is a major cause of death. Shifting lifestyle behaviours, an ageing population and an overburdened healthcare system are the major contributing factors to Ghana's increasing hypertension burden. Outcomes of unhealthy lifestyles overburden the health system by increasing demand for health care workers, screening equipment, medicines, and other supplies as well as additional funds for the NHIS. Therefore, reducing the incidence and prevalence of hypertension is a national priority, and the Government has historically implemented policies to reduce morbidity and mortality related to NCDs (see Table 4). The current NCD policy sets the framework for interventions and strategies to reduce hypertension prevalence, create awareness and promote use of appropriate medicines (Ministry of Health, 2012a), and the MoH regenerative health policy promotes a healthy lifestyle (Ministry of Health, 2007).

Table 4 here

Second, the NHIS is under financial strain (Alhassan et al., 2016), which is increasing with the burden of NCDs and as the NHIA manages between increasing coverage of the population and increasing treatments and services it reimburses. The NHIA needs to be financially sustainable as the NCD burden increases and the MoH makes decisions on increasing the NHIS coverage of the population and/or reimbursing for additional treatments and services. New and existing initiatives such as early screening need to be feasible, sustainable, and economically efficient as well as adhere to the principles of UHC—that all individuals receive the healthcare they require without financial hardship.

Data on hypertension prevalence, risk factors, and health-seeking behaviour improves our ability to project and evaluate policies and interventions. The GDHS provides a national overview of the hypertension prevalence, risk factors, awareness and control (Ghana Statistical Service (GSS) et al., 2015). This is a big step towards providing data to inform developing hypertension strategy and

policy, strengthening the hypertension health systems, and implementing interventions. Previous studies collected data limited to a few areas in the country, and these studies are not necessarily comparable since they were done at different time points and using different protocols (Bosu, 2010, Addo et al., 2012, Addo et al., 2008). The GDHS (2014) presents a comprehensive information from across the country on the prevalence and risk factors, and this evidence can support the design of strategies and interventions. The GDHS data, as well as data from the GHS DHIMS, will be particularly useful for system modelling work and health technology assessment that aims to alleviate the hypertension burden by projecting outcomes of initiatives.

However, there are also limitations for accessing data within the Ghanaian health system. The GHS DHIMS data largely focuses on public health facilities and until recently only some private facilities, which may not necessarily be an accurate representation of the hypertension situation in the country. GDHS hypertension data started with the 2014 survey, and therefore, only data from small-scale studies can be used to evaluate the effects of existing intervention. Further, additional data on age groups, health-seeking behaviour (e.g., the stage patients present), adherence to guidelines and current prescription pattern are not covered by the GDHS. These data are needed to evaluate the success of implemented interventions and to project outcomes of potential policies and interventions. We do not suggest delaying new initiatives but starting to collect this data before the initiatives take place will provide a baseline for evaluation.

Third, adhering to UHC principles requires a focus on poor and vulnerable communities to ensure new and existing initiatives reach populations that are difficult to reach and are often unaware of their hypertensive condition. Health systems barriers such as inequitable distribution of healthcare facilities and human resources persist (Ministry of Health, 2016) and the government needs to overcome these barriers to improve early detection, diagnosis and appropriate management and control of hypertension, especially in underserved communities. Early diagnosis, controlling and managing blood pressure initiatives are critical for hypertension control and averting CVDs (Campbell and Lemogoum, 2015), and the inequitable distribution of human resources and healthcare facilities can lead to hypertensive individuals' lack of awareness of their condition. The government needs to mandate community pharmacies to screen hypertension, encourage the communities to seek

care early and provide required human resources and medicines. In deciding which options to implement, health systems modelling and assessment as tools can be used to support these decisions. Government investments in healthcare need to be evidence-based to ensure the success of UHC.

### **Study limitation**

In this document review of health systems, population, and patient barriers to delivery UHC for hypertension, we gathered existing available information - both published and grey literature - on health systems and challenges to accessing health care among individuals with hypertension. However, due to the lack of a national database on NCDs or hypertension, in particular, the search may not be exhaustive. To minimise this risk, we informally engaged policy makers and health professionals to solicit for additional literature, especially grey literature.

### **Conclusion**

Ghana will need to make important decisions to overcome operational and financial challenges on its path to UHC. In particular, health systems need to be strengthened to alleviate the inequity of access and identify patients with hypertension, who are often unaware of their condition, earlier. This needs to be done in a manner that will ensure a sustainable path towards UHC. Producing evidence-based UHC policy will require collaboration between research institutions in Ghana, the MoH, the GHS, and other bodies. Together, they can develop the methodology for data collection, system modelling and assessment to project and evaluate policy and intervention outcomes, ensure the relevance and feasibility of implementing the proposed initiatives.

### **Abbreviations**

CHPS: Community-based Health Planning and Services

CWHs: Community Health Workers

CVD: Cardiovascular Disease

DHIMS: District Health Information Management System

GDHS: Ghana Demographic Health Survey

GHS: Ghana Health Service

MoH: Ministry of Health

NCDs: Non-Communicable Diseases

NHIA: National Health Insurance Authority

NHIS: National Health Insurance Scheme

UHC: Universal Health Coverage

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