Tropical Journal of Nephrology Vol.18 Nos 1 & 2, June & Dec., 2023 31 - 37

Non-communicable Diseases: An Emerging Epidemic in Nigeria

Ayodeji Oso

Department of Medicine, Vanderbilt Wilson County Hospital, 1411 W Baddour Pkwy, Lebanon, TN 37087.

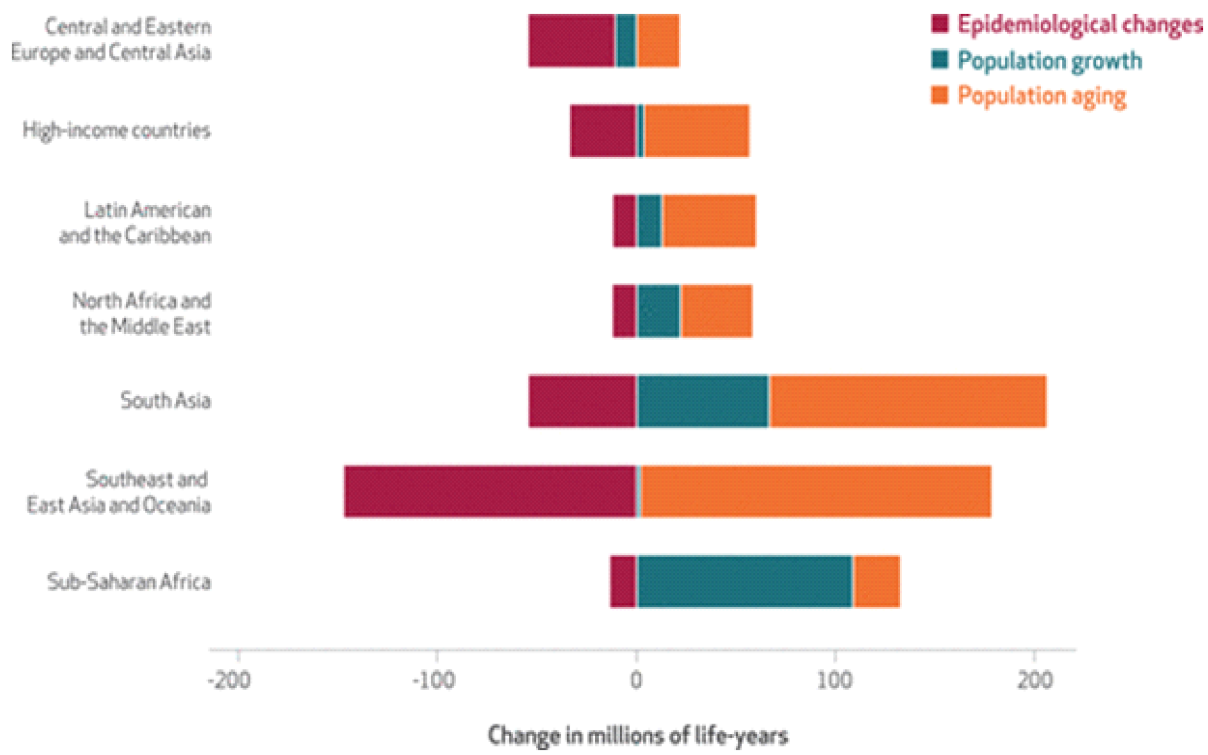
INTRODUCTION

Non-communicable diseases (NCDs) include cardiovascular diseases, mental illnesses, diabetes mellitus, chronic respiratory diseases, chronic kidney disease, and cancers. Globally, NCDs are responsible for 41 million deaths each year, which is a staggering 74% of all deaths. Furthermore, 17 million people die from NCDs before they reach the age of 70, and 86% of these premature deaths occur in low- and middle-income countries. As for NCD deaths, cardiovascular diseases (CVDs) are responsible for most (~18 million), followed by cancer (9 million), chronic respiratory diseases (~ 4 million), and diabetes mellitus including diabetic nephropathy (2 million). Put together, these four groups of diseases account for over 80% of all premature NCD deaths [1]. NCDs do pose a threat to progress towards the 2030 Agenda for Sustainable Development, which includes a target of reducing the probability of death from any of the four main NCDs between ages 30 and 70 years by one-third by 2030. In many low- and lower-middle-income countries, most health services and medications are still purchased out of pocket or by donors [2]. Healthcare costs for NCDs quickly deplete household resources with attendant serious consequences. The exorbitant costs of NCDs, including treatment, which is often lengthy and expensive, combined with a loss of income, force millions of people into poverty annually and stymie national development [3,21]. What's more, adults who have grown up amid widespread poverty and deprivation are more likely to suffer functional declines from NCDs at younger ages [4].

In Nigeria, NCDs have taken a bigger share of diseases due to a myriad of reasons including urbanization, lifestyle, and socioeconomic issues. Ghana, Indonesia, Laos, and Nigeria are examples of countries that are expected to have large increases in NCD health burden as a percentage of the total disease burden, but they spend much less than would be expected, even after including aid from external donors [5]. In Nigeria, about 30% of all deaths are due to NCDs. The risk of premature death from cardiovascular diseases, cancers, respiratory diseases, and diabetes among Nigerians aged 30 to 69-years is quite substantial at 22% [6]. They accounted for 567 deaths/100,000 (age-standardized) in 2019, overtaking the predominant previous causes: communicable, maternal, neonatal, and nutritional. Specifically, CVDs as a group now account for approximately 10% of deaths and 3.8% of disability-adjusted life-years (DALYs) [7]. The DALYs lost to NCDs in general increased tremendously by approximately 21.3% from 24,987 in 2010 to 30,306 in 2019 versus 6.5% DALYs lost to infectious diseases over the same period [8]. The projections for DALYs lost in Sub-Saharan African countries in the coming decades are not comforting (**Figure 1**). This scenario presents an opportunity for intervention at many levels, not the least being the physicians and other healthcare providers who interact with these patients regularly. Physicians remain among the most trusted professionals in the formal healthcare delivery system. Even so, ancillary staff including the nurses and pharmacists could also help reduce cardiovascular risks if given proper training and resources.

Corresponding author: **Ayodeji Oso,** Department of Medicine, Vanderbilt Wilson County Hospital, 1411 W Baddour Pkwy, Lebanon, TN 37087, Email: Ayooso2000@gmail.com

Figure 1: Changes from 2015 to 2040 in millions of disability-adjusted life-years (DALYs) lost due to noncommunicable diseases, by geographic region or country income category and driver



SOURCE *Authors' calculations. NOTE "Epidemiological changes" refers to changes in age-standardized mortality and morbidity rates from noncommunicable diseases.(Reprinted from: Bollyky T.J et al. Lower-Income Countries That Face The Most Rapid Shift In Noncommunicable Disease Burden Are Also The Least Prepared. Health Aff (Millwood). 2017 Nov;36(11):1866-1875. doi: 10.1377/hlthaff.2017.0708. PMID: 29137514; PMCID: PMC7705176.)*

This emerging trend is similar to what we now see in many low- and middle-income countries where the disease burden has wreaked havoc at both personal and national levels with attendant loss of productivity as previously discussed above. It is noteworthy to know that demographic and epidemiological changes are producing rapid changes in the disease profile of many low-income nations. NCDs are rapidly rising in low-income countries because of the increased prevalence of key modifiable behavioral risk factors, such as unhealthy diets and use of tobacco products, and reductions in hitherto highly prevalent infectious diseases that are disproportionately lethal to children and adolescents. These risk factors as well as a rapidly growing and aging population are increasing the speed of the change from communicable, maternal, neonatal, and nutritional diseases to noncommunicable diseases [9]. I will brieflydiscuss the four major NCDs below and touch on screening modalities based on globally acceptable best practices.

Cardiovascular diseases

The major cardiovascular diseases contributing the most to deaths include ischaemic heart disease, stroke, and hypertensive heart disease. These also affect the quality of life of affected individuals measured in disability-adjusted life-years (DALYs). The socioeconomic burden could be tremendous as most affected individuals pay out of pocket for their care and may have reduced productivity after their illness. The major risk factors for CVDs include physical inactivity, hypertension, overweight/obesity, tobacco use, diabetes mellitus, and hyperlipidemia. Hypertension presents a unique opportunity for intervention because of the ease and relatively low expense of diagnosis. Yet, its prevalence in Nigeria

is 30.6% with only 29.0% of people being aware of their hypertension, 12.0% receiving treatment, and 2.8% at-goal blood pressure in 2020 [10].

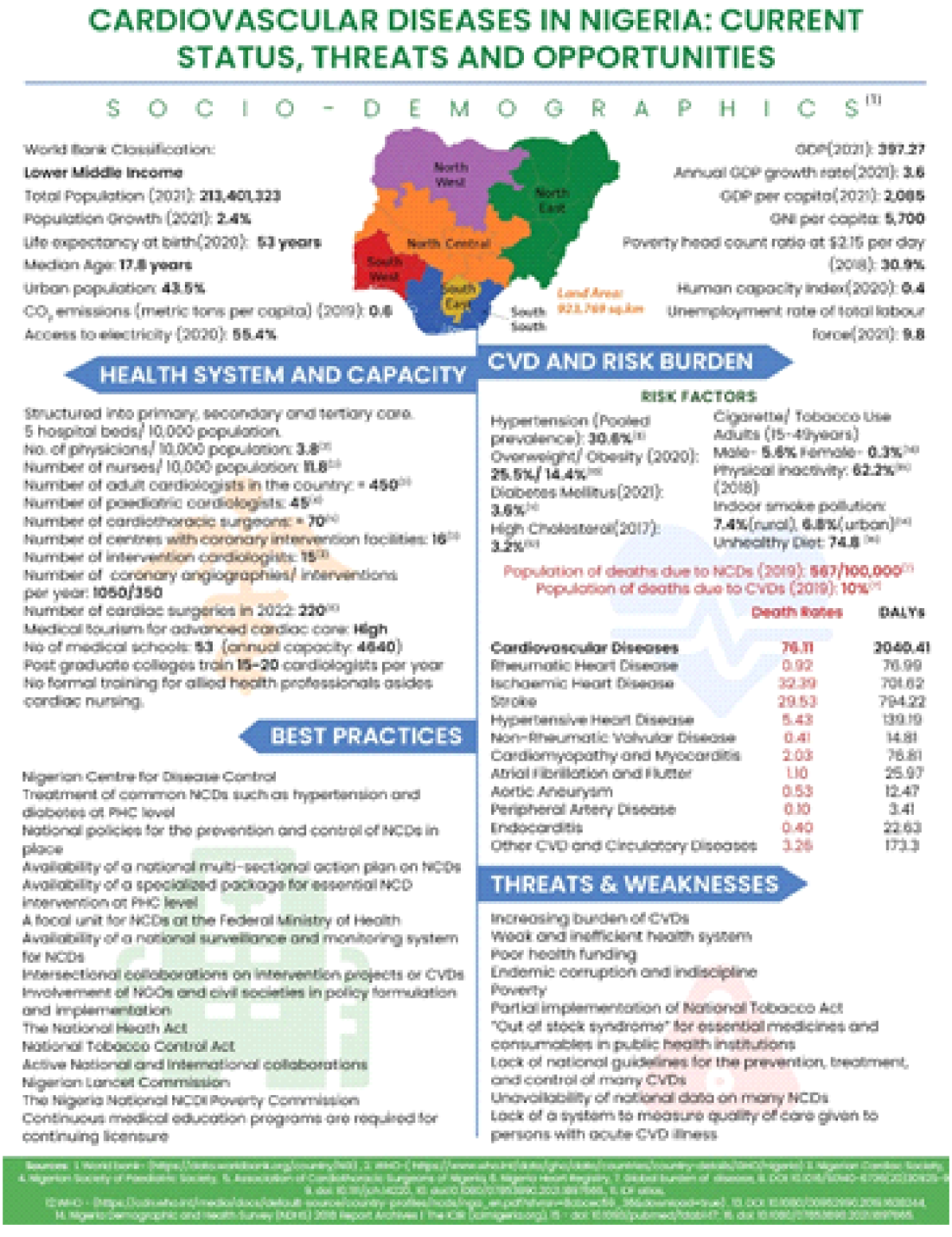


Figure 2: Cardiovascular diseases in Nigeria: current status, threats, and opportunities. CVD indicates cardiovascular disease; DALY, disability-adjusted life-years; GDP, gross domestic product; GNI, gross national income; NCD, non communicable disease; NGO, nongovernmental organization; and PHC, primary health care.
(Reprinted from: Ogah S.O et al. Circulation. 2023; 148:1441–1444.)

Prevention and screening are important tools in identifying and treating this highly prevalent disease. Early diagnosis and treatment are essential in preventing the harmful consequences of untreated hypertension such as heart failure, acute coronary syndromes, and stroke. My approach to preventative CVD care for my patients includes a detailed history, including relevant family and social history; a careful physical examination including weight and height (for BMI estimation), blood pressure measurements in both arms, cardiac and bilateral carotid artery auscultation; an ECG in middle-aged and older patients; blood chemistry with a fasting lipid profile; and urinalysis. This approach could identify CVD risk factors such as overweight/ obesity, hypertension, diabetes mellitus and diabetic nephropathy, atherosclerosis, potentially stroke-causing arrhythmias (e.g., atrial fibrillation), and hyperlipidemia. Modification of these risk factors is essential in ameliorating their harmful effects. As for patients in Nigeria, appropriate screening should be tailored to the population, their risk profile, and available resources.

Cancer

Cancer has become a major source of morbidity and mortality globally. In Nigeria, 100,000 new cases of cancer occur every year, with a high case-fatality ratio [11]. As the most populous country on the continent with a population of over 220 million in 2023, Nigeria is about 20% of the population of Africa and slightly more than half the population of West Africa. It contributed 15% to the estimated 681,000 new cases of cancer that occurred in Africa in 2008. A significant proportion of the increase in the incidence of cancer in Nigeria is due to increasing life expectancy, reduced risk of death from infectious diseases, increasing prevalence of smoking, physical inactivity, obesity as well as changing dietary and lifestyle patterns [12]. The most common types of cancer in Nigeria are breast and cervical cancers in women, and prostate cancer in men. Sadly, about 50% of women diagnosed with breast cancer die from it. As with most malignancies, screening and early diagnosis are key to reducing deaths from these malignancies. It is also becoming increasingly evident that cervical cancer could be prevented through vaccination against certain human papillomavirus serotypes. Routine mammograms and Papanicolaou smear (Pap smear) are proven screening tools that have been used routinely and shown to be effective in detecting breast and cervical cancers, respectively, in women in many countries. The use of Prostate Specific Antigen (PSA) is a controversial test that is used for prostate cancer screening. It may have a role if used in conjunction with a digital rectal exam (DRE).

Diabetes mellitus

Nigeria has the largest population of people with diabetes mellitus in sub-Saharan Africa [13]. Diabetes has an estimated prevalence of 5.8%, and the risk factors for this disease include a family history of diabetes, urbanization, adoption of the Western lifestyle, obesity, sedentary lifestyle, smoking, and advancing age [14]. Despite the increasing prevalence of the disease in Nigeria, awareness is poor and complications arising from untreated or poorly controlled diabetes can be detrimental. At risk adults should be screened with one or a combination of established tests including fasting glucose, random glucose, or Haemoglobin A1C. Complications are macrovascular e.g., stroke and acute coronary syndromes, and microvascular e.g., nephropathy and retinopathy. In addition to treating diabetes, screening for microvascular complications is an important part of comprehensive diabetes care. Best practices include screening for diabetic neuropathy (e.g., monofilament testing), nephropathy via yearly microalbuminuria, and retinopathy by referring patients for yearly dilated eye exams with an eye specialist. Furthermore, the role of a certified nutritionist in the clinic setting cannot be overemphasized. Appropriate nutrition as well as control of overweight and obesity are important components of care.

Chronic Respiratory Illnesses

Nigeria has one of the highest prevalent rates of asthma in Africa. An estimated 13 million Nigerians suffer from clinical asthma with an age adjusted death rate of about 10 per 100,000 population [15]. Chronic Obstructive Pulmonary Disease (COPD) is less studied, and statistics are scanty. Its prevalence was reported to be approximately 9% in one study [16]. The occurrence of asthma symptoms has been linked to exercise, respiratory infections, exposure to environmental factors such as allergens e,g. dust mites and cockroach allergens, tobacco smoke, breathing in some chemicals, and indoor and outdoor air

pollution.Affected individuals should be taught to avoid known triggers as well as air pollution. Environmental health and control of air pollution are beyond the purview of this article.

Potential Solutions

The WHO reported that the probability of dying prematurely from NCDs in Nigeria was 20% while other sources estimated a rate of about 30% with cardiovascular risk factors contributing the highest at nearly 35%. This increasing trend is associated with higher exposures to risk factors due to increasing life expectancy with a concomitant decrease in infrastructure for health, increased alcohol, and tobacco consumption as well as a change from nutritious traditional diets to Western types and associated reduced physical activity levels [17]. Controlling CVD risk factors such hypertension, diabetes, dyslipidemia, obesity, and increasing physical inactivity is crucial, considering the contributionof CVDs to the overall prevalence of NCDs in Nigeria.

More than ever before, adequate investment is needed in lower-cost ways to elevate primary care as the main platform for responding to NCDs in the health systems of low-income nations like Nigeria [18]. The World Health Organization and the World Economic Forum have recommended packages of cost-effective "best buy" clinical services that can be provided at the primary care level [19]. These proven interventions include educating patients about the risks of unhealthy diets and physical inactivity, and low-cost primary and secondary prevention measures for CVDs such as heart attacks and strokes. Sadly, primary care in most low- and lower-middle-income countries is focused on episodic care and is poorly situated to provide access to affordable prevention, diagnosis, and treatment services that many NCDs diseases require.

At the governmental level, poor healthcare funding and a dearth of support are obstacles to providing adequate care for an increasingly impoverished population. Advocacy by physicians, other health professionals, and interest groups is needed to attract appropriate funding to the healthcare sector. It is alarming that despite the increasing prevalence of CVDs and other NCDs, less than 10% of the already low budgetary allocation to health is set aside for non-communicable diseases (**Figure 3**). This will have to change if the desired outcomes of reduction of morbidity and mortality due to NCDs are to be achieved. At the community level, public service announcements provide an avenue for educating the population about CVD risk factors and the importance of their prevention, control, and treatment.

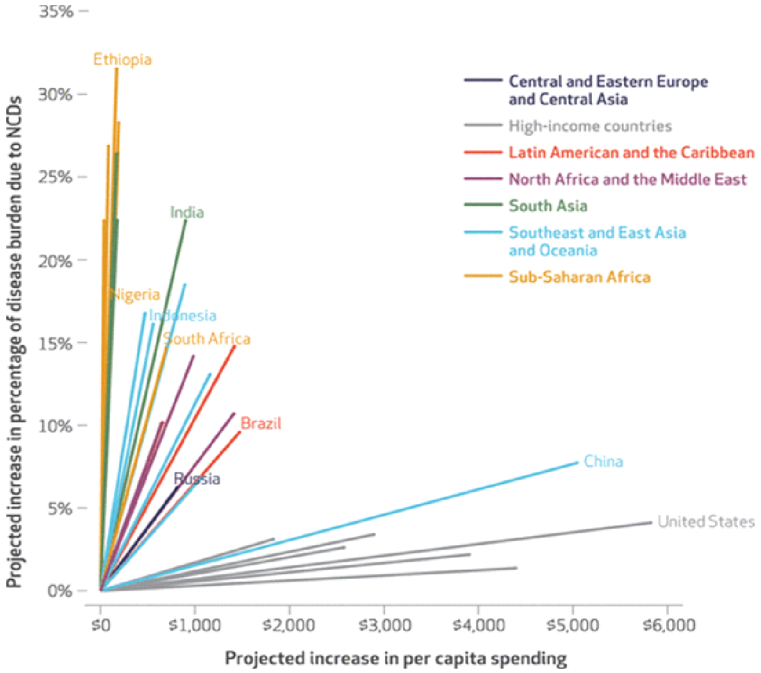


Figure 3: Projected increases in total health spending per capita and in percentage of health burden due to noncommunicable diseases (NCDs) from 2015 to 2040, by geographic region or country income category

Projected increases in total health spending per capita and in percentage of health burden due to noncommunicable diseases (NCDs) from 2015 to 2040, by geographic region or country income category. (**Reprinted from**: Bollyky T.J *et al*. Lower-Income Countries That Face The Most Rapid Shift In Noncommunicable Disease Burden Are Also The Least Prepared. Health Aff (Millwood). 2017 Nov; 36 (11):1866-1875. doi: 10.1377/ hlthaff.2017.0708. PMID: 29137514; PMCID: PMC7705176.)

CONCLUSION

In conclusion, the burden of NCDs including cardiovascular diseases continues to rise due to factors including lifestyle and socioeconomic changes as well as rural-urban migration with its attendant stress, increasing overweight/ obesity, and dietary indiscretion i.e. Western-style fast foods. As physicians, we can play major roles both in the clinic and beyond in reducing the risks posed by these factors. Poor healthcare funding; endemic poverty; lack of adequate national guidelines for the prevention, control, and treatment of many NCDs; and lack of a system to measure the quality of care given to persons with acute NCD illnesses are some of the impediments to reducing the prevalence and mortality associated with them. CVDs contribute the most to the NCD burdenand deserve special attention.In addition to controlling hypertension and other cardiovascular risk factors, suffice it to say that making effective and inexpensive medications available for the treatment of identified conditions is of the essence. It was shown in a study of hypertension control in patients attending a primary care clinic that easy access to inexpensive medications led to improved control [20]. Finally, advocating for our patients at the governmental level for an appropriate allocation of funding for the health sector would cater to the healthcare needs of most Nigerians holistically.

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