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ACTION NEEDED TO TACKLE FASTEST GROWING GLOBAL HEALTH THREAT:

NON-COMMUNICABLE DISEASES (NCDS) IN LOW- AND MIDDLE-INCOME COUNTRIES (LMICS)

Summary

The increasing global crisis in non-communicable diseases (NCDs) is a barrier to development goals including poverty reduction, health equity, economic stability, and human security (The Lancet, Volume 377, Issue 9775, 1438 – 1447). According to WHO, NCDs including cancer, cardiovascular diseases, diabetes, and respiratory diseases are the leading cause of death globally.

NCDs kill an estimated 41 million people each year, equivalent to 71% of all deaths globally. Of the fatalities caused by NCDs, 17.9 million are attributable to cardiovascular diseases (CVDs), 9.3 million to cancer, 4.1 million to respiratory diseases, 1.5 million to diabetes, and the remaining 8.2 million to other NCDs.

Each year, more than 15 million people die from NCDs between the ages of 30 and 69 years globally; 85% of these “premature” deaths, and 77% of all NCD deaths are in low- and middle-income countries (LMICs). These countries face a double burden, battling both infectious diseases and the rapidly rising tide of NCDs. Limited resources, weak healthcare systems, and social risk factors like low levels of awareness, poverty, unhealthy diets, and smoking exacerbate the problem.

The consequences of NCDs in LMICs include a devastating human toll, premature deaths, disability, and reduced quality of life for millions. Besides, NCDs lead to economic strain because of loss of productivity, increased healthcare costs, and poverty traps for families – and,

ultimately, social disruption with tremendous impact on families, communities, and the overall development of nations.

Priorities, resources and clinical trials in global health are failing to keep up with the significant and growing prevalence of NCDs in LMICs.

Addressing this requires investing in preventive activities including promotion of healthy lifestyles, encouraging physical activity, healthy diets, and tobacco control. This must sit alongside the strengthening of primary healthcare and integration of NCD services to improve access to screening, early detection, suitable, effective and affordable treatment and addressing the social determinants of health including efforts to reduce poverty, improve access to clean water and sanitation.

In this endeavour, it is critical to prioritise such interventions and develop affordable and accessible treatment and ensure access to essential medicines and technologies, train front-line healthcare workers and build capacity in NCD diagnosis and management. Health systems must be strengthened including improvements in data collection, reporting and using data to inform health management decisions.

Such strategies will enable integration of NCD intervention in primary health care (PHC) services, the use of generic drugs, task shifting to create access to NCD care in primary care facilities provided by non-specialist health workers, increased cooperation and resource mobilisation, knowledge sharing and technology transfer in NCD care, and advocacy for policy changes at local, national and international levels.

In conclusion, this presents a huge opportunity to improve health and reduce mortality. Immediate and sustained action will save lives, improve health outcomes, and foster sustainable and equitable development. With the right strategies and interventions, significant progress can be made against NCDs in LMICs, not only improving health outcomes, but also reducing poverty and contributing to ongoing endeavours to bring about sustainable economic growth in the regions.

Successful intervention models that have been implemented by several LMICs provide a set of workable strategies that have been proven to work in low resource settings.

Background

Non-communicable diseases (NCDs) disproportionately affect people in low- and middle-income countries (LMICs), where more than three-fourths of global NCD deaths occur. The rising burden of NCDs in Sub-Saharan Africa (SSA) is threatening the lives and livelihoods of millions of people and placing an unprecedented pressure on the already overstretched, few, under-staffed, under-funded health care services across the region now grappling with the huge burden of communicable diseases.

Pressures on the health care services are characterised by limited healthcare infrastructure and inadequate healthcare facilities, equipment, and resources; a shortage of health workforce, including doctors and nurses; financial barriers where health budgets are stretched thin; low awareness amongst patients, often leading to late diagnosis; cultural/traditional beliefs and stigma around NCDs that hinder care-seeking or adhering to treatment; limited data availability on NCDs, which is necessary for effective planning of interventions; limited access to treatment and availability and affordability of essential medicines; weak health policy and regulatory environments that could impede the effective implementation of NCDs interventions; and other socioeconomic factors including poverty and low education levels that affect health literacy and health-seeking behaviour.

The need to address NCDs in the SSA region through investing in the prevention, early detection and treatment of NCDs is not only a moral imperative aiming to avert preventable deaths and suffering of millions of people, but also an economic opportunity with a huge potential impact. With targeted and strategic interventions that aim to strengthen existing health systems to allow the integration of NCDs into ongoing health care services, it is possible to cost-effectively combat these diseases in these low-resource settings.

This report aims to highlight the current situation of NCDs, the status of NCD care services, the rationale for intervention, and compelling reasons to intervene and invest in NCD care in SSA and present interventions and strategies that are considered to potentially be effective in LMICs.

The Situation of NCDs in LMICs and Sub-Saharan Africa (SSA)

Burden of NCD Cases and Deaths

Sub-Saharan Africa (SSA) is undergoing an epidemiological transition with a rise in NCDs, including cancer, cardiovascular diseases, diabetes, and respiratory diseases.

While the focus of public health policies in Africa remains to be predominantly engrossed on communicable diseases, disability and premature deaths from NCDs, and their share of the disease burden, is escalating rapidly.

The number of disability-adjusted life years (DALYs) lost to NCDs is on the rise in SSA, while that for the composite of communicable, maternal, neonatal, and nutritional disorders (CMNND) is plummeting. In 2019, NCDs were responsible for Africa's DALY loss of 167 million, compared to 164 million for infectious diseases.[1]

The burden of NCDs in SSA alone grew by 67% between 1990 and 2017 reflecting a significant rise in the proportion of total DALYs attributable to NCDs from 18% to 30%. It is also noted that the burden of NCDs among African Union Member States is higher than the global average.

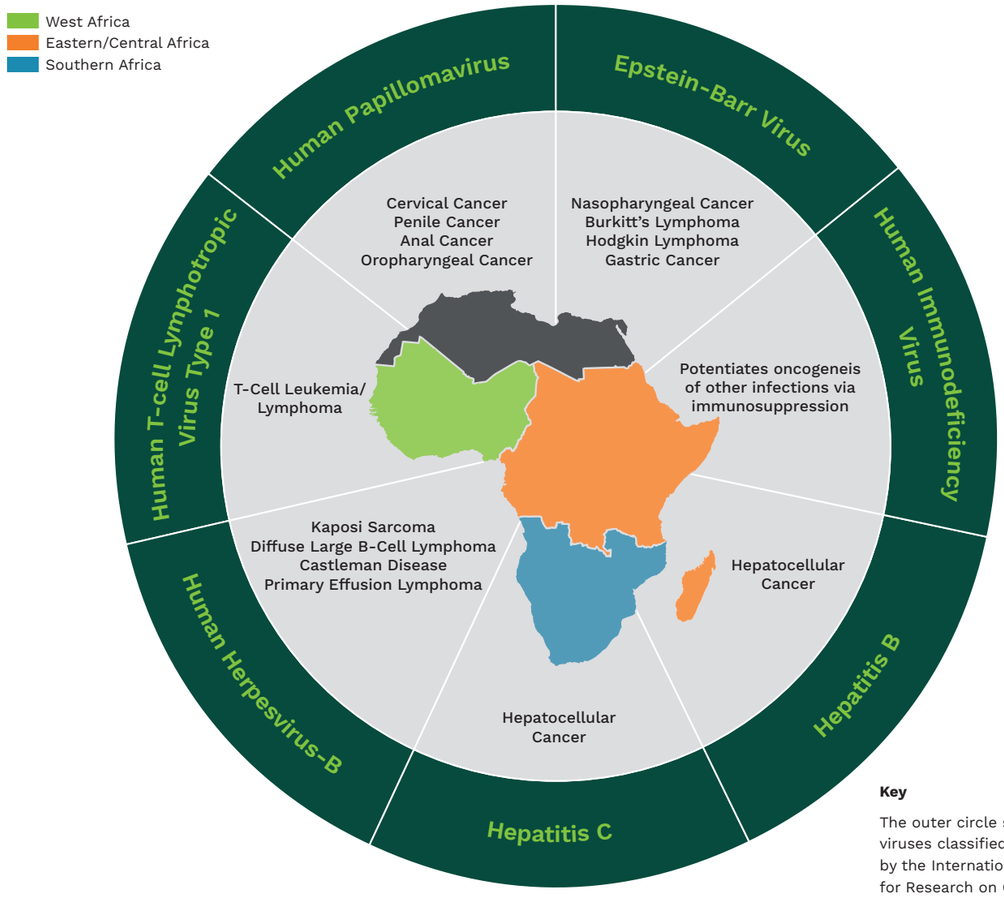

Fig. 1: Graphical Abstract - Oncogenic Viruses in Sub-Saharan Africa.

Source: Diakite M. et al.

Key

The outer circle shows the six viruses classified as oncogenic by the International Agency for Research on Cancer plus Human Immunodeficiency Virus, which potentiates oncogenesis. Examples of malignancies attributable to each virus are shown in the inner circle.

The significant burden of injuries affecting the population of the region, exacerbates this situation.[2] This has resulted in what experts are referring to the triple burden of communicable diseases, NCDs and injuries primarily resulting from road traffic accidents and conflicts.

The burden of cancer cases that are related to viral infection is increasing in SSA. In 2018, approximately 2 million new cancer cases worldwide were attributable to infection. Prevention or treatment of these infections could reduce cancer cases by 23% in less developed regions and about 7% in developed regions. These include infection with Human Papilloma Virus (HPV) resulting in cervical cancer; Hepatitis B and C viral infection complicating into liver cancer (hepatocellular carcinoma); HIV infection leading to Kaposi's sarcoma (See Fig. 1). This is particularly relevant in the context of the higher underlying prevalence of viral infections in SSA populations compared to other regions.[3]

According to the WHO, NCDs are responsible for more than a third of deaths in the region.[4] These diseases are projected to become impediments to sustainable development unless addressed in a timely manner.

NCDs kill an estimated 41 million people each year, equivalent to 71% of all deaths globally. Of the fatalities caused by NCDs, 17.9 million are attributable to cardiovascular diseases (CVDs), 9.3 million to cancer, 4.1 million to respiratory diseases, 1.5 million to diabetes, and the remaining 8.2 million to other NCDs.[5,6]

Each year, more than 15 million people die from NCDs between the ages of 30 and 69 years globally; 85% of these "premature deaths" and 77% of "all NCD deaths" are occurring in LMICs.[7] In SSA, NCDs have emerged to be the main causes of mortality, responsible for 37% of deaths in 2019, rising from 24% in 2000, mainly due to weaknesses in the implementation of critical control measures including prevention, diagnosis and care.[8]

The surge in the burden of NCDs in SSA over the past two decades is driven by increasing incidence of cardiovascular risk factors such as unhealthy diets, reduced physical activity, obesity, tobacco smoking, excessive alcohol consumption, air pollution and water contamination with chemicals.

With this trend and without major interventions in SSA, mortality from NCDs is set to overtake mortality from communicable, maternal, neonatal, and nutritional (CMNN) diseases combined by 2030 (WHO Afro, 2014).

NCDs cause a large and growing burden of death and disability in SSA with the regional hypertension prevalence of 48%, diabetes of 5.1%, and obesity of 20%. Moreover, the number of people living with diabetes, for example, is expected to reach 47 million by 2045 up from 19 million in 2019.[9]

Economic Burden of NCDs

The economic impact of NCDs is considered very significant. These conditions lead to annual economic loss of billions (USD) (Global Burden of Disease, IHME, 2019). NCDs not only hugely increase healthcare costs, but also cause reduced workforce and productivity – affecting the overall economic growth.

Despite the high burden of NCDs in LMICs, funding allocated to address these diseases is significantly lower compared to high-income countries. 77% of all global NCD deaths occur in LMICs, while NCDs in LMICs receive only 1-2% of the global health funding (WHO, NCD Alliance, and the World Bank). This disparity in funding is a major concern, as it hinders the efforts to prevent and control NCDs in LMICs.

Factors contributing to this funding gap include limited resources, competing health priorities, and lack of awareness about the growing burden of NCDs in LMICs. As a result, many LMICs struggle to implement effective strategies for NCD prevention and control, such as health promotion campaigns, screening programs, and access to affordable treatment.

The funding gap for NCDs in LMICs has serious consequences, including increased mortality rates, reduced quality of life for those living with NCDs, and significant economic losses due to lost productivity and healthcare costs. Addressing this gap is crucial to achieving global targets for NCD prevention and control, such as SDG 3.4 which aims reducing premature deaths from NCDs by one-third by 2030.

The socio-economic impacts of NCDs are also increasing. Often misleadingly construed as diseases of the affluent, evidence has shown higher prevalence and death rates from NCDs, injuries and mental illnesses among persons classified as low socio-economic status (AU CDC NCD Strategy 2022-26).

In looking into investment in NCDs, it is important to assess both their current and projected economic burden. This requires assessing the direct and indirect costs of NCDs using a cost of illness approach. The cost of illness approach, used by WHO and the World Bank, reveals the extent to which NCDs are affecting the country's economic growth, by calculating the cost of illness as a share of gross domestic product (GDP) which was lost due to NCDs in the previous year, or in the most recent year with available data. The cost of illness approach is underpinned by economic theory and provides methods to calculate the cost of NCDs at the national level. Direct and indirect costs are calculated independently of each other, and then added to calculate the total cost of NCDs to an economy.

Direct costs are those in the health system. These are commonly represented by government and private sector health spending on medical staff salaries, equipment and procedures such as diagnosis and distribution of treatment.

Indirect costs typically make up most of the overall economic burden of NCDs. They include value of lost productive capacities from people who are absent from work (absenteeism), or reduced productivity (presenteeism), due to NCD-related illness, and ultimately, mortality. This includes people who leave work to serve as caretakers (part- or full-time) for family and/or friends burdened with NCDs. Indirect costs also include costs such as spending on transportation to access health services and various costs to employers in the event of illness and death (UN Interagency Taskforce on NCDs [UNDP and WHO], 2019).

Causes of NCDs

Assessments have underlined the fact that increased prevalence of hypertension, diabetes mellitus and other metabolic syndromes and their risk factors account for a significant percentage of the increase in the burden of NCDs, an important basis for potentially feasible interventions to address the burden of NCDs. Besides, contemporaneous increase in longevity, lifestyle changes that led to physical inactivity, unhealthy diets, tobacco consumption, alcohol and substance misuse are still on the rise in Africa. In addition to the above, emerging environmental hazards such as water contamination.[10]

Physical inactivity: According to WHO, physical inactivity is a key risk factor for NCDs, and the fourth leading cause of early death globally. On the flip side, physical activity reduces the risk of heart diseases by 30%, diabetes by 27%, breast and colon cancers by 21% to 25%. At the World Health Assembly in May 2013, Member States endorsed the need to implement actions to reach the target of a 10% reduction in physical inactivity by 2025.

Unhealthy diets (and obesity): Another major risk factor for a range of NCDs, including cardiovascular diseases, cancer, diabetes and other conditions.

Smoking tobacco: Tobacco consumption is one of the major risk factors for NCDs. One in six deaths by NCDs are related to tobacco. Most of the deaths and years lost to disability attributable to tobacco are due to NCDs. There is no safe tobacco product, nor is there a safe level of consumption. Tobacco smoke contains up to 5,000 chemicals, of which 70 are known to be carcinogenic (Cancer Research UK).

Globally, smoking prevalence has declined from 22.7% in 2007 to 17.5% in 2019 through the implementation of tobacco control policies (The eighth *WHO report on the global tobacco epidemic*). Since 1990, the overall decrease in the percentage of smokers was 27.5% for males and 37.7% for females.[11]

Tobacco kills more than any other preventable cause of death in the world. Every year, around 8.7 million people die from tobacco use while up to $1.4 trillion are lost to healthcare spending and reduced worker productivity. Most of these deaths (7.4 million) are directly attributed to tobacco smoking, while the remaining 1.3 million relate to non-smokers exposed to passive smokers. To put these figures in context, of the 1.13 billion smokers worldwide, half of them will die from tobacco use.[12]

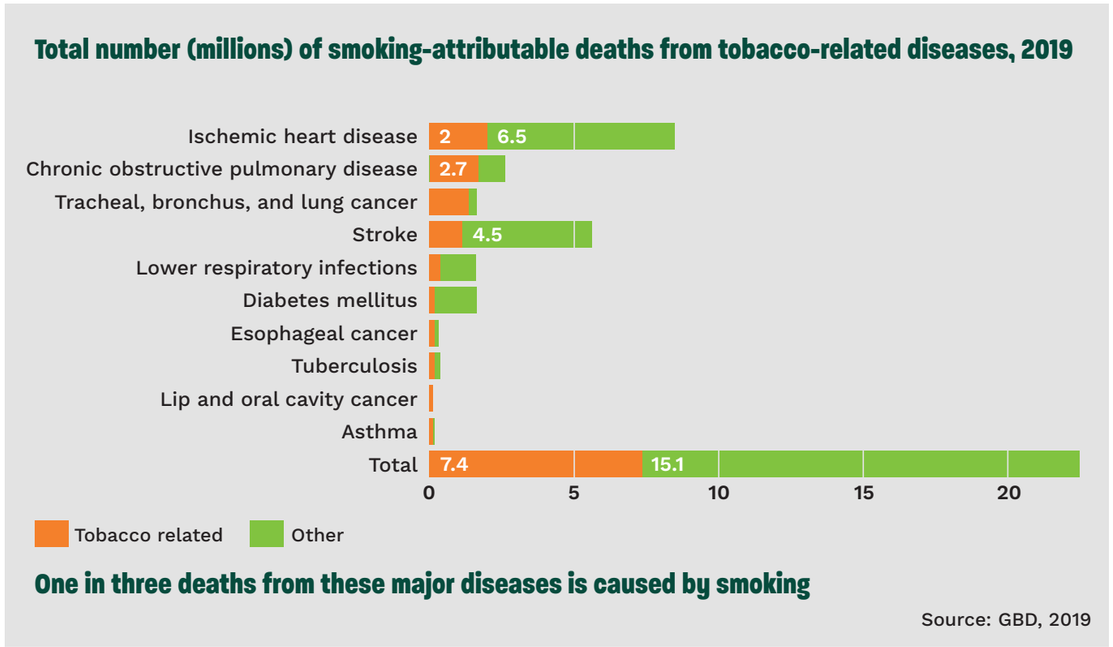

Fig. 2: Deaths from Tobacco-related Diseases.

Alcohol consumption: There is a strong link between alcohol and NCDs, particularly cancer, cardiovascular disease, liver disease, pancreatitis and diabetes.[13]

Air pollution: 99% of the world's population live in places where the WHO air quality guidelines levels were not met. Air pollution was responsible for 1.1 million deaths across Africa in 2019. Household air pollution accounted for 697,000 deaths and ambient (outdoor) air pollution for 394,000. Ambient air pollution-related deaths increased from 361,000 in 2015 to 383,000 in 2019, with the greatest increases in the most highly developed countries. All deaths from ambient air pollution were caused by NCDs. WHO estimates that in 2019, 68% of outdoor air pollution-related premature deaths were due to ischemic heart disease and stroke, 14% were due to chronic obstructive pulmonary disease, 14% were due to acute lower respiratory infections, and 4% of deaths were due to lung cancers (WHO 2019). The loss in economic output in 2019 due to air pollution-related morbidity and mortality was $3.02 billion in Ethiopia (1.16% of GDP), $1.63 billion in Ghana (0.95% of GDP), and $349 million in Rwanda (1.19% of GDP). Pollution was estimated to be responsible for 1.96 billion lost IQ points in African children in 2019.[14]

Moreover, Africa has a unique double burden of obesity and undernutrition in significant proportion. It is crucial to understand that most of the drivers of these risk factors lie outside of the health sector.

Status of NCD Care Services in Sub-Saharan Africa (SSA)

Despite the overwhelming increase in NCD incidence and prevalence in SSA, which is expected to overtake that of communicable diseases,[15] the public health policy and program priorities of many of the countries in the region continues to be communicable diseases. Accordingly, NCD care in these settings remain neglected, understaffed and underfunded, where in fact they need to be scaled up to meet the growing needs for services to prevent, diagnose and treat NCDs.

The current landscape of NCD prevention and care services in SSA can be summarised as: low levels of awareness about NCDs and a lack of organized and continuous awareness-raising efforts; primary care facilities with minimal budgets, supplies and staff to incorporate the management of NCDs; limited

numbers of health facilities providing NCD care, mostly located in town centres far from rural communities, that provide limited diagnostic and treatment services to common NCDs, such as diabetes and hypertension; very few and thus overburdened central referral facilities with insufficient specialists, limited cancer diagnostic and treatment services in both public and private settings, and; minimally available cancer treatment medications, largely imported by individuals and sold at extortionate and inaccessible prices.

> **"Cancer prevention and treatment services are quite neglected from the federal Ministry of Health level to health facility levels. Available chemotherapy units, availability of chemo drugs and supplies, are not anywhere close to the increasing number of patients diagnosed and sent for treatment."**

While the situation differs from country to country, Kenya's provisions are comparatively better with several public and private facilities providing a relatively high-quality cancer diagnosis and treatment services, however the cost of these treatments is unaffordable to most Kenyans.

The situation in Ethiopia and other SSA countries is lamentable. In Ethiopia, much of the available cancer diagnosis and treatment services are in private hospitals while the country's central referral and teachings hospitals provide some services. A consultant oncologist teaching and practicing in a central referral hospital stated, "cancer prevention and treatment services are quite neglected from the federal Ministry of Health level to health facility levels. Available chemotherapy units, availability of chemo drugs and supplies, are not anywhere close to the increasing number of patients diagnosed and sent for treatment". For instance, radiation treatment is available only in four locations (Addis Ababa, Harar, Hawassa and Jimma) throughout the country. The one in Addis Ababa is in Tikur Anbessa Hospital, a specialised teaching hospital. The service in this radiation unit is extremely busy serving patients from Addis and the nearby cities, recently with a waiting time of about one year. There is a huge potential for cancer to spread while the patient is waiting so long to access this crucial treatment.

As regards access and availability of cancer treatment (chemotherapy) drugs in Ethiopia, a large proportion of available drugs are imported by individuals from unreliable sources and mechanisms. It is difficult to exclude the possibility that some of these are counterfeit or ineffective given many are sensitive to temperature changes. And they are sold at an exorbitant price that is not affordable by most individuals and families. Patients and families on chemotherapy at private facilities prefer to buy the medicines from private pharmacies as prices are slightly lower there. The situation is similar in most of the SSA countries, in some it is worse. This underlines the fact that majority of the public in SSA are not only disproportionately suffering from NCDs, but also have relatively little access to NCD diagnostic and treatment services – unveiling a grim inequality.

Moreover, LMICs are left out clinical trials reducing the representativeness of trials and limiting access to new treatments in these countries. Only 43% of all clinical trials (297/685) analysed in the 2024 Index are conducted in any LMICs, despite being home to nearly 80% of the global population.

There is a huge disparity in clinical trials which in turn has significant implications for patients living in LMICs. Clinical trials offer patients access to potentially lifesaving investigational medicines, but more importantly people in LMICs miss the opportunity to have final products that have been previously tried and tested to be suitable and effective in treating them.

Pharmaceutical companies typically prioritise access planning in countries where clinical trials were conducted, which is leading to delays and reduced access in countries without trials. The resulting lack of research data from populations in LMICs limits the understanding of how diverse patient populations respond to new therapies (Access to Medicine Foundation, 2024).

Despite these challenges, there is a strong possibility to integrate basic NCD prevention, diagnosis and treatment services along with effective referral system to ongoing health programs. However, this integration requires critical interventions including training and support to community health workers, building the capacity of health facilities with diagnostic and treatment equipment and supplies along with training of health care workers for task-shifting.

The Huge Opportunity for Impact

Economic Rationale for Investment

Given the disproportionate and growing burden of NCDs posing significant health and economic challenges, particularly in SSA[16], assessing and investing in this provides an enormous opportunity to Improve health.

According to the World Health Organization, by investing $1 to $3 per person per year, illness and death from NCDs can be reduced dramatically, and every US dollar invested in the proven interventions for NCDs will produce a return of at least $7 by 2030 (WHO, 2018).

Investing in NCD care yields high returns by improving productivity, reducing healthcare costs, and enhancing quality of life. The *World Economic Forum* estimates that NCDs could cost global economies $47 trillion over the next two decades if not addressed. In SSA, reducing the burden of these diseases could lead to an economic gain of up to $15 billion annually through improved workforce productivity and reduced spending on acute care.[17]

Health spending in Africa reached $136.7 billion in 2021, an increase of 6.1% of GDP from 2020, accounting for an average of 5% of African countries' GDP. Only South Africa and Cape Verde met the Abuja Declaration Target of 15% domestic government spending on health in 2021.[18]

There is also a poverty-reduction rationale – as health costs associated with NCDs can push people living near the poverty line further into difficulty. There is limited information on the cost of NCD treatment to patients/households, and in most of the SSA countries, their full financial burden is not known. However, given their chronic nature and costs incurred for long-term care, it is observed that it results in catastrophic health expenditure pushing families into depletion of money and assets, leading to poverty and entrenching inequality in society.

A review of 41 cost-of-illness studies, of which almost half focused on diabetes and/or was conducted in Southeast Asia, showed the average total costs per year to a patient/household in LMICs of COPD, CVD, cancers and diabetes were $7386.71, $6055.99, $3303.81, $1017.05, respectively.[19]

However, these figures may not represent the costs in most SSA countries where the availability of services, diagnostics, and medications is much more limited and costs of these services and supplies is observed to be much higher, where NCD treatment leads to even higher financial burden on patients and their families.

Proposed Interventions

Despite resource limitations, some countries and regions in LMICs have successfully implemented cost-effective prevention and intervention strategies addressing NCDs. Please find select approaches and case studies below.

Integration of NCD Care Service into Existing Health Services

Rwanda has made significant advances in managing NCDs through the integration of NCD services into the existing healthcare system. The country has expanded access to essential medicines and technologies while training healthcare workers to manage chronic diseases effectively. The **Rwanda** Ministry of Health was able to scale a nurse-led outpatient NCD program to all first-level hospitals with good fidelity, feasibility and penetration as to expand access to care for severe NCDs.[20]

Nepal is another example targeting NCDs by integrating them into primary healthcare. Policies and strategic plans have been centred around increasing the availability of essential medications and raising community awareness about risk factors like tobacco use and unhealthy diets.[21] Under this strategy, important NCD interventions will be streamlined with similar ongoing activities such as community health education and awareness, and immunization of children and women (integrating HPV vaccines).

Prevention and Early Detection

Community-based interventions will provide an entry to NCD services. Risk and awareness communication programs using community health workers to deploy culturally appropriate strategies to communities, covering issues including diet, physical activity, alcohol and smoking, stigma, etc., will significantly contribute to the prevention and uptake of basic NCD care services.

A focus on prevention of NCDs has worked in some SSA countries. **Tanzania** has implemented a national NCD strategy that focuses on prevention through public awareness campaigns, improving access to NCD services in primary health care, and strengthening the healthcare system to provide better diagnosis and management of NCDs. NCD weeks were declared in Tanzania that have been crucial in advocating for NCD prevention and control. This in turn created awareness on NCDs, encouraged healthy lifestyles and regular screening for NCDs.[22]

Another example is **Cambodia**, which employed a strategy that focused on tobacco control as part of its NCD strategy, implementing policies and awareness campaigns to reduce smoking prevalence combined with integration of NCD care services with primary care.[23]

Task-Shifting and Health Workforce Strengthening

Training community health workers and frontline health workers to deliver NCD (and specifically cancer) care has proven effective. For instance, task-shifting strategies in **Rwanda** have expanded access to peripheral health facilities without overburdening healthcare systems. **Bangladesh**, Rwanda and other LMICs have used the task-shifting as part of their NCD strategy.[20,24]

Use of Generic Medications

The scale-up of generic drugs for hypertension, diabetes, and cancer treatment has improved health outcomes at relatively lower costs. Partnerships with pharmaceutical companies can facilitate bulk purchasing of these medications as well as exploring arrangements to work with local community self-help associations/community drug funds, and community health insurance schemes, to enable communities and families to benefit from potential subsidization of costs or instalment payments.

A major producer of generic drugs, India, has developed a market for affordable treatments for NCDs like diabetes and cardiovascular diseases, as well as cancer therapies. The country's robust generic industry plays a crucial role in providing access to essential medicines. Besides meeting its huge domestic needs, India is also exporting generic drugs to LMICs in SSA and Southeast Asia.

Generic medications offer cost-effective alternatives to treatment. Their low prices compared to branded drugs make them more accessible for patients, especially in LMICs. Thus, by offering a more affordable option, generics help improve access to essential medications and lead to better adherence to treatment for patients who might otherwise forego treatment due to high costs. The availability of generics contributes to the effort of reducing health disparities by allowing a broader segment of the population to receive necessary treatment.

Generic drugs undergo rigorous regulatory processes to ensure they meet the same standards of quality, safety, and efficacy as their brand name counterparts. Moreover, increased use of generics can stimulate pharmaceutical companies to invest in new drug development for NCDs.

Several countries have employed the affordable generic medications strategy and demonstrated impact by improving healthcare outcomes, making treatments more affordable and accessible for patients with NCDs and cancer. Some examples include Egypt, South Africa, Brazil, Thailand, and Argentina.

Innovations and the Use of Technologies

The use of innovative approaches such as community outreach and telemedicine has helped to decentralise healthcare services to the hard-to-reach communities.

Community outreach has successfully increased access to NCD screening and treatment for communities. Such schemes will enable to expand services to remote communities including screening of community members for common NCDs (hypertension and diabetes) through simple blood pressure measurements and blood sugar tests undertaken in remote set ups outside of health facilities, by frontline health workers, with referral linkages established with the nearest public health facilities for further assessment, treatment and follow up.

Mobile health technologies can be used to facilitate dissemination of NCD prevention messages, as well as telemedicine services using platforms such as WhatsApp for remote consultation, bringing about greater efficiency while lowering the burden at health facilities and cost/time of patient travels.

Partnerships with Global and Multi-lateral Funders and Foundations

International organizations like the Global Fund, GAVI, WHO, UNDP, World Bank, US Government (USAID, PEPFAR), European Union, and others such as the American Cancer Society, Lance Armstrong Foundation, Bill and Melinda Gates Foundation, and Asian and Africa Development Banks, have been pivotal in funding NCD prevention and control initiatives in low-resource settings. Engagement with these entities exploring potential partnerships can help to secure necessary resources for developing comprehensive NCD and cancer care programs.

Partnership and Collaborations with Pharmaceutical Companies

Pharmaceutical companies support programs aimed at preventing and treating NCDs. Many of them fund project implementations while others support research. Among these companies and their initiatives, the following are some of them that need to be explored:

Pharmaceutical Company	Focus of Support on NCDs
Novartis	Involved in addressing NCDs through their 'Novartis Access' model, which provides affordable treatments for cardiovascular diseases, diabetes, and breast cancer in LMICs.
Pfizer	Supports programs on cancer screening, raising awareness and improving access to treatment in underserved communities.
GlaxoSmithKline (GSK)	Engages in NCDs in partnerships with governments and NGOs to increase access to medicines. GSK also supports vaccine development and awareness programs for cancers associated with infections.
Roche	Supports programs that aim to increase access to cancer diagnostics and treatments, as well as cancer research and development.
AstraZeneca	Supports initiatives 'Healthy Lung and Young Health Program', focusing on preventing and managing cancers and other chronic diseases through community-based programs.
Merck & Co. (MSD)	Engages in programs related to vaccine development for diseases like cervical cancer and supports initiatives aimed at increasing access to comprehensive cancer care.
Sanofi	Operates various programs dedicated to tackling diabetes and cardiovascular diseases and has a strong oncology presence with new cancer treatments and patient support initiatives.

Table 1: Pharmaceutical Companies and their Support on NCD programs.

The Lack of NCD Research & Development (R&D) / Clinical Trials in LMICs and the Opportunity it Presents

Although LMICs bear the greatest burden of diseases in the world, substantial R&D activity to address this inequity is lacking. In effect, LMICs are under-represented in research due to lack of commercial viability and research capacity.[25,26] Yet, it is in LMICs where research-led solutions could bring the greatest impact to high rates of premature mortality.

This lack of R&D and clinical trials for NCDs in LMICs presents significant opportunities to leverage resources for NCD prevention and care in these settings. However, these opportunities need to be approached strategically to maximise benefits and mitigate potential risks.

These opportunities include improvements in healthcare infrastructure, including diagnostic capabilities, treatment facilities, and training of healthcare professionals that are done as part of the NCD R&D benefiting communities beyond the trial. Moreover, for LMICs bearing a disproportionate burden of NCDs, participation in R&D can lead to earlier access to innovative treatments and preventative strategies tailored to their specific needs and contexts. Besides, research conducted in LMIC settings provides valuable data on the disease burden, prevalence, risk factors and treatment peculiarities in diverse populations, which can inform global strategies for NCD prevention and treatment.

Such involvement in NCD research will also build local expertise and strengthen research capacity within LMICs, leading to future research independence and self-sufficiency. However, there are needs to address ethical concerns, building strong regulatory frameworks and agreements for equitable benefit sharing including access to new treatments and technologies for participating communities, as well as agreements for data ownership and control.

Policy Advocacy and Campaign

The need for policy changes/formulation for the prioritization and resource allocation of NCDs should be a crucial component of this program. The advocacy targets will be governments in LMICs, donors and other stakeholders who have the authority and control in changing and formulating health, trade and tax, and policies of nations in favour of preventing and treating NCDs.

The trade and tax policy issues will be guided by existing policy and legal frameworks in the respective countries or international ones, such as the WHO Framework Convention for Tobacco Control (FCTC) established in 2005. It involves a comprehensive ban on tobacco advertising, sponsorship and promotion; strong health warnings on tobacco packaging that cover at least 30% (and ideally 50%) of the principal; protection from passive/second-hand smoke in all indoor workplaces and public places and in public transportation; a tax rate on tobacco products at 75% or more of the price; and measures to reduce the smuggling of tobacco products.

Almost all the above listed strategies and intervention require changes in policies or programs.

Context appropriate and effective policies should be put in place in response to risk factors including tobacco use, unhealthy diets, and lack of physical activity.

Conclusion and Way Forward

The case for investing and intervening on NCD care in LMICs including SSA is compelling. With the right strategies and interventions, significant progress can be made against NCDs in LMICs. These investments not only improve health outcomes and reduce poverty, but also contribute to ongoing endeavours to bring about sustainable economic growth in the regions.

Successful intervention models that have been implemented by several LMICs provide a set of workable strategies that have been proven to work in these low resource settings.

Leading and joining efforts that aim to address such a pressing and rapidly growing public health challenge in LMICs is at the very centre of HPA's mission. HPA would like to intervene on NCDs across its program countries using interventions and approaches enumerated in section 4 of this document. The number and mix of interventions that HPA will be focusing on will be determined depending on the intervention priorities and their appropriateness in the specific contexts of the target area to be covered. Partnership with donors and likeminded organizations, as well as a focus on innovations and policy advocacy, will be anchored consistently across our programs given their potential for better efficiency and lasting impact.

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