Epidemics and the Health of African Nations

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The thread that runs through this section is how health systems deal with chronic conditions like non-communicable diseases (NCDs) and HIV/AIDS, and it highlights the centrality of the network of health care workers involved in delivering care. NCDs, which have previously been thought to affect high-income countries predominantly, have become more prominent in sub-Saharan Africa. Pamela Juma, Gerald Yonga, and Kenneth Juma write on the burden of NCDs in sub-Saharan Africa, citing cardiovascular diseases, diabetes, cancer, and chronic respiratory illnesses as being responsible for the greatest of burdens. The increase in unhealthy diets, higher rates of physical inactivity, increased consumption of alcohol, and addiction to tobacco all contribute to the NCD epidemic. Again, the concept of syndemics helps with understanding how socio-economic issues such as poverty and inequality, as well as environmental factors, have contributed to
the increase in the prevalence of NCDs. Juma and co-authors write of the neglect of NCDs in health systems amidst the prioritisation of infectious diseases. This neglect has implications for the quality of care for chronic patients in the health system and the overall preparedness of the health system to address the NCD epidemic. The chapter also explores policy interventions that have been implemented to target major risk factors for NCDs.

Due to the widespread availability of antiretroviral treatments, HIV has shifted from being an epidemic to a chronic illness with similar care implications as other chronic conditions. Beth Vale’s chapter, which draws on the care experiences of HIV-positive adolescents living in the Eastern Cape, South Africa, argues that there is an urgent need to explore practices and prospects for NCD care in African contexts. There is not enough research on how care can be best administered to chronic patients in overly burdened and under-resourced health systems in Africa. Vale thus argues that lessons can be drawn from the experiences of HIV patients who must go to great lengths to receive care.

The section ends with the chapter by Miriam Di Paola and Beth Vale. They present an analysis of the role of nurses and community health workers (CHWs) as frontline health workers in epidemics preparedness. The chapter argues for the recognition of the importance of health workers in both emergency epidemic responses and in attending to chronic patients. There are more nurses and CHWs than doctors in Africa’s health workforce and thus often patients’ first and primary point of health system contact is with nurses or CHWs. Di Paola and Vale argue that Africa’s epidemic preparedness relies on retaining frontline health workers and empowering them to perform at their best. The authors provide systematic factors that are a barrier to health workers providing high-quality patient care, including the ‘new public management’, which prioritises cost-cutting and administrative tasks at the expense of the caregiver-patient relationship. This third section explores the burden that health systems in Africa carry – and the far-reaching implications this burden has – for providing care to chronic patients amidst the prevalence or threat of epidemics.
Non-Communicable Disease Epidemics

Approaches to Prevention and Control in Sub-Saharan Africa

PAMELA A. JUMA, KENNETH JUMA, AND GERALD YONGA

INTRODUCTION

Non-communicable diseases (NCDs) and their risk factors are on the increase globally. It is estimated that NCDs accounted for 72 per cent of mortality globally in 2016, with 80 per cent of these NCD deaths occurring in low- and middle-income countries (LMICs) (WHO, 2013; Forouzanfar et al., 2015). Four out of a large range of NCDs – cardiovascular diseases, diabetes, cancers, and chronic respiratory illnesses – have been identified as being responsible for the greatest share of the burden (WHO, 2013). These four diseases (or disease groups) also share a set of four risk factors, namely tobacco use, unhealthy diet, harmful alcohol consumption, and physical inactivity.
Africa has experienced the highest rate of increase of NCD-related mortality compared to the rest of the world (a 27 per cent increase between 2006 and 2015). Consistent with this trend, the WHO projects that in the decade from 2008 to 2018, the largest increase in deaths from cardiovascular disease (CVD), cancer, respiratory disease, and diabetes will occur in developing countries (WHO, 2004). In addition to the four major NCDs, Africa has a high prevalence of other conditions, such as sickle cell disease, for example, injuries and trauma, as well as mental illness.

Furthermore, the rise in NCD mortality is greatest in sub-Saharan Africa (SSA), where, by 2020, it is estimated that NCDs will account for 27 per cent of mortality, up from 23 per cent in 2000 (WHO, 2016). The impact of NCDs in African countries that are still struggling with communicable diseases is significant (infectious diseases such as malaria, HIV, and tuberculosis remain a significant burden). Addressing NCDs in these countries requires effective multisectoral policies, targeting both the main NCD risk factors and health system interventions, particularly at primary care levels, to facilitate early detection and treatment of individuals at risk and patients with chronic conditions.

A body of evidence attributes the rising burden of NCDs to factors such as globalisation, rapid and often unplanned urbanisation, which changes lifestyles (Khanal et al., 2015), and to the ageing of populations. Other factors, including international trade and urban poverty, have also contributed to shifts towards lifestyles that encompass higher consumption of unhealthy diets, higher rates of physical inactivity, the increased use of tobacco, and the consumption of alcohol – all of which contribute to the NCD epidemic.

The combined health and economic impact of NCDs in African countries is enormous. The linkages between NCDs and socio-economic development, environmental sustainability, and poverty alleviation can all be recognised (Beaglehole et al., 2011). Apart from the extreme health disabilities exerted by NCDs on patients, a range of economic losses can be seen as a result, from reduced productivity to the diversion of resources to the management of these conditions (Dalal et al., 2011; Nyirenda, 2016). Costs that families and individuals incur when it comes to seeking NCD treatment will be considerable
as these conditions require long-term attention, and for the most part these costs are borne directly by patients through out-of-pocket (OOP) payments. Affected people seek health care services from health systems that are already over-strained, with the complications of unmanaged NCDs placing an even greater burden on the health system.

African health care systems, where the focus is predominantly on curative clinical services, are not well prepared when it comes to dealing with NCDs. On top of this the quality of care is also not guaranteed, given the multiple challenges these systems generally have to contend with: inadequate financing, poor infrastructure, inadequately trained and poorly motivated health care providers, and the unavailability and poor affordability of NCD medicines, including those on the WHO List of Essential Medicines (Robinson & Hort, 2012).

Health promotion has been advocated as an important vehicle to reorientate investment in health so that health systems are not only more effective but also sustainable (Demaio et al., 2014). In the context of NCDs, cases of health promotion targeted at behavioural risk factors are the most cost-effective interventions for prevention and control; they constitute a significant number of the WHO ‘best buys’. Such cases of health promotion can be achieved at community level through well-coordinated multisectoral action. There is, however, a more urgent need if the rising NCD epidemic is to be curtailed and reduced. This is the need to strengthen systems at the primary health care level. Most of the reorientation efforts in primary health care have focused only on communicable diseases (such as HIV, TB, and malaria) and maternal and child health. Little attention is given to non-communicable diseases.

It is in this context that this chapter analyses the approaches to NCD prevention and control in selected sub-Saharan African countries. The authors draw insights from relevant literature, including WHO documents and additional literature from select African countries on mechanisms applied to address NCD prevention. We further synthesise qualitative data and reports from two major studies conducted by the authors to analyse NCD interventions in selected African countries. One study was implemented from 2014 to 2016 and focused on five African countries (Kenya, South Africa, Malawi, Cameroon, and Nigeria) (Juma
et al., 2016). Another review focused on NCD actions in East African countries, including Kenya, Uganda, Tanzania, and Rwanda (Juma, 2018). Both studies examined the extent to which the countries were implementing the global NCD commitments. The studies highlighted the extent of implementation of NCD-prevention approaches in these low-resourced settings, and also identified important lessons learned in the process. Some of these lessons emphasised the need to enhance multisectoral coordination, the need for better strategies to reinforce the policies and enhance implementation, and the need for strategies to enhance monitoring and evaluation of NCD prevention and control actions. The chapter concludes by highlighting possible challenges to the implementation of policy interventions for NCD prevention in Africa.

TRENDS OF NCDS IN AFRICA

From 2000 to 2016, NCD-related deaths increased from 23 per cent (2.2 million) to 34 per cent (3.0 million) of total deaths in Africa (WHO, 2016). During the same period, the total NCD burden expressed in disability-adjusted life years (DALYs) increased by 35 per cent (Forouzanfar et al., 2015). While deaths were reported from across all NCD groups, CVDs (including rheumatic heart diseases (RHDs), ischemic heart diseases (IHDs), hypertensive heart disorders, and stroke) were the greatest contributors. CVD deaths in Africa experienced the greatest increase between 2000 and 2016 (8.9 to 13 per cent). Cancers (mainly breast, cervical, and prostate cancers) were the second most prevalent cause of death from NCDs (at 6 per cent) in 2016; this was up from 3.8 per cent in 2000. Tragically, survival from cancer in sub-Saharan Africa is lower than in the rest of the world. For many cancers, the risk in sub-Saharan Africa of getting cancer and dying from cancer are nearly the same (Sankaranarayanan & Swaminathan, 2011). Chronic respiratory diseases and diabetes are each responsible for about 2 per cent of total deaths in sub-Saharan Africa (see Table 1).
Table 1: Trends in NCD burden in the WHO Africa Region (2000–2016)

<table>
<thead>
<tr>
<th>Year</th>
<th>% of total deaths (2000–2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-communicable diseases</td>
<td>22.8</td>
</tr>
<tr>
<td>Cardiovascular diseases (RHD, IHD, hypertensive heart disorders, stroke, and others)</td>
<td>8.9</td>
</tr>
<tr>
<td>Malignant neoplasms (breast, prostate, cervical, liver, colon and rectum, and esophagus cancers and, others)</td>
<td>3.8</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>1.0</td>
</tr>
<tr>
<td>Mental and substance use disorders</td>
<td>0.2</td>
</tr>
<tr>
<td>Respiratory diseases (COPD, asthma, and other respiratory diseases)</td>
<td>1.5</td>
</tr>
</tbody>
</table>


Abbreviations: RHD: Rheumatic heart disease, IHD: ischemic heart disease, COPD: Chronic obstructive pulmonary disease

Notably, key NCD risk factors have also been shown to be rising in Africa. Among the top ten risk factors for death, as reported in the global burden of studies (see WHO, 2018), are high blood pressure, poor diet, air pollution, high body mass index, tobacco smoking, alcohol and drug use, high fasting plasma glucose, high total cholesterol, and low physical activity. These are the same risks responsible for NCDs (Forouzanfar et al., 2015). Various African countries that have conducted NCD STEP surveys for risk factors have reported high, and rising, prevalence of these leading risk factors, especially for overweight and obesity, high blood pressure, physical inactivity, and smoking (Msyamboza et al., 2011; Kavishe et al., 2015; MoH-Kenya, 2015).

Most importantly, the significant rise in NCDs’ morbidity and mortality in Africa threatens the important milestones attained in health and development over the last three decades. Projections by the WHO (in 2008 for the period 2008–2030) show that in the approximate decade to 2030, NCD-associated DALYs will surpass those contributed by infectious diseases, perinatal and maternal conditions combined (see Figure 1).
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Figure 1: Projected burden of disease in SSA, 2008 and 2030

Source: World Health Organization, 2004
NCDs: Cardiovascular diseases, cancer, diabetes, chronic respiratory diseases

GLOBAL NCD POLICY CONTEXT

The United Nations’ Political Declaration on the Prevention and Control of NCDs (resolution A/RES/66/2), followed by the 66th World Health Assembly endorsement of the WHO Global Action Plan for the Prevention and Control of NCDs 2013–2020, marked the beginning of active global level action to address NCDs (see WHO, 2017). The WHO Global NCD Action Plan has six priority areas: (1) raising NCD priority through international cooperation and advocacy; (2) strengthening national capacity, multisectoral action, and partnerships for NCDs; (3) reducing NCD risk factors and social determinants; (4) strengthening and reorientation of health systems; (5) promoting national capacity for research and development; (6) monitoring and evaluating progress on
NCDs (WHO, 2013). The Action Plan emphasises the need for member countries to embrace multisectoral action in policy development and implementation. Governments across the sub-Saharan African region have endorsed the WHO Global Action Plan for the Prevention and Control of NCDs. They have also committed themselves to setting national NCD targets that are in line with global targets, and to embedding multisectoral action in developing and implementing their national NCD action plans.

Policy interventions to target the major risk factors stand tall among the approaches to NCD prevention. Other interventions aim at strengthening health promotion and service delivery at the level of health systems interventions (Robinson & Hort, 2012). Deaths from cardiovascular disease, cancer, chronic respiratory disease and diabetes accounted for 63 per cent of global mortality in 2008, of which 80 per cent was in LMICs. The NCD burden is projected to increase: by 2030, NCDs will be the greatest killer in all LMICs. Thus, governments of these countries cannot afford to overlook policies in relation to NCDs. Several cost-effective measures exist to prevent and control NCDs. These include both population-wide interventions such as tobacco control and targeted treatment for individuals at high risk. Experience from high-income countries that have been able to control NCDs shows that responses must be comprehensive and multisectoral, integrating health promotion, prevention and treatment strategies, and involving the community as well as the health sector. Such a multifaceted approach requires well-functioning health systems. In the majority of LMICs, however, health systems are fragile and will need to be adapted to address NCDs appropriately, while also continuing to tackle communicable diseases. We propose that the reform of health systems can occur in a four-phased approach in four areas: building political commitment and addressing health systems constraints, developing public policies in health promotion and disease prevention, creating new service delivery models and ensuring equity in access and payments. Several policy issues will also need to be addressed, including financing of NCD programmes and the broadening of concepts of health and responsibilities for health. Adapting health systems to respond to NCDs will require a change in mindset and practices in programming for health, as well as substantial financial resources. There is scope for development partners and global health initiatives to support LMICs in
addressing NCDs. (Robinson and Hort, 2012). WHO identifies a set of evidence-based interventions that are highly cost effective, feasible, and appropriate to implement within the constraints of the local LMIC health systems. The interventions are known as ‘best buy’ interventions (WHO, 2013). These interventions exist to reduce the burden of chronic NCDs at the population level by targeting the shared risk factors. The ‘best buy’ initiatives include raising tax on tobacco and alcohol products, reducing access to and enforcing bans on tobacco and alcohol advertising, reducing salt consumption, eliminating trans-fats in the food supply chain (WHO, 2013), promoting physical activity, and projects to detect and treat NCDs at an early stage. Projections have shown that in 23 LMICs, 5.5 million deaths could be averted over ten years from a 30 per cent relative reduction in tobacco use alone by 2025. This level of reduction will reduce the burden of cardiovascular disease within one year from onset, and will dramatically cut health expenditures (Beaglehole et al., 2011; Maher et al., 2012). Similarly, lowering population salt consumption by only 15 per cent would avert 8.5 million deaths in those countries by lowering the impact of hypertension on cardiovascular disease. Promoting healthy diets and encouraging physical activity would impact obesity and diabetes. Providing multi-drug combinations to those at risk for cardiovascular events or those people who have experienced a cardiovascular event would reduce deaths over ten years by 18 million and cost no more than USD 1.08 per person per year (Beaglehole et al., 2011).

Further global policy efforts are geared towards achieving the global development goals. Unlike the Millennium Development Goals (MDGs), which covered 2000–2015 and paid less attention to NCDs, the Sustainable Development Goals (SDGs), which cover 2015–2030, have several NCD-related targets. Linked to these targets, WHO has developed a global monitoring framework to enable the global tracking of progress in preventing and controlling major NCDs and their key risk factors (WHO, 2013). The framework is expected to drive progress in prevention and control of NCDs and provide the foundation for advocacy, raising awareness, reinforcing political commitment, and promoting global action to tackle these deadly diseases. The framework is intended to shape a new development agenda which advances the three dimensions of sustainable development: economic development, environmental sustainability, and
social inclusion. The framework comprises nine global NCD targets and 25 indicators for countries to adopt. Other than the WHO global action plan, other policy interventions targeting the major risk factors have been available to help guide countries in developing their own prevention strategies (as elaborated in, for example, Msyamboza et al., 2011; Kavishe et al., 2015; MoH Kenya, 2015).

**IMPLEMENTATION OF NCD PREVENTION AND CONTROL INTERVENTIONS IN THE SELECTED COUNTRIES**

Most of the current NCD prevention and control interventions focus on addressing the major risk factors and strengthening health systems to enhance service delivery for those who live with NCDs. This section assesses the extent to which the selected sub-Saharan African countries are implementing interventions to address tobacco control, control of harmful alcohol consumption, unhealthy diets, and physical inactivity. Other interventions, like health system strengthening, as well as improvement in governance and multisectoral action for NCDs, are also highlighted.

**Tobacco control interventions**

Tobacco use is associated closely with several types of cancers, as well as with the risk for cardiovascular disease and diabetes (Bump & Reich, 2013) claiming over 5 million lives annually, and this toll is rising. Even though effective tobacco control policies are well researched and widely disseminated, they remain largely unimplemented in most low- and middle-income countries (LMICs). Tobacco policy development and implementation in most countries has been influenced by the WHO Framework Convention on Tobacco Control (FCTC) developed in 2003 (WHO, 2003). The objective of the framework was to protect present and future generations from the devastating health, social, environmental, and economic consequences of tobacco consumption and exposure to tobacco smoke. Recommended tobacco control interventions include tax increases, smoke-free indoor workplaces and public places, bans on tobacco advertising, promotion and sponsorship, as well as health information and warnings (WHO, 2013). These measures are aimed at
reducing tobacco consumption and hence the occurrence of NCDs.

Many African countries have ratified and developed tobacco legislation that is compliant with the FCTC. Kenya, Nigeria, South Africa, and Uganda all have tobacco legislation which addresses most of the WHO’s ‘best buy’ interventions for tobacco control (Juma et al., 2017; Juma, 2018). Rwanda and Cameroon do not have comprehensive tobacco policies but tobacco control elements have been addressed through ministerial orders and circulars published by the government. Due mainly to economic reasons, neither Tanzania nor Malawi currently have developed comprehensive tobacco control policies which address the ‘best buy’ interventions. Malawi generates a high percentage of its revenue from tobacco exports and so the government’s concern has been that controlling tobacco production and usage will reduce the general revenue. Some countries do have tobacco laws in place, but have not adequately implemented the recommended actions. For instance, WHO recommended tobacco excise tax to be 75 per cent of the retail price of the tobacco. By 2015, South Africa had the highest percentage (52 per cent), Kenya was at 35 per cent, Cameroon at 34.6, and Nigeria at 20.63 per cent (Juma et al., 2017; Juma, 2018). Table 2 shows the implementation of other elements.

Table 2: Tobacco control across eight African countries, 2014–2017

<table>
<thead>
<tr>
<th>Interventions 2014–2017</th>
<th>Cameroon</th>
<th>Kenya</th>
<th>Malawi</th>
<th>Nigeria</th>
<th>Rwanda</th>
<th>South Africa</th>
<th>Tanzania</th>
<th>Uganda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco legislation</td>
<td>✓</td>
<td>✓</td>
<td>X</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Pack labelling and pictorial health warnings</td>
<td>Partial</td>
<td>✓</td>
<td>Partial</td>
<td>X</td>
<td>✓</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
</tr>
<tr>
<td>Tobacco taxation policy</td>
<td>✓</td>
<td>Partial</td>
<td>Partial</td>
<td>X</td>
<td>Partial</td>
<td>✓</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Smoke-free public policy</td>
<td>Partial</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
<td>X</td>
<td>✓</td>
</tr>
</tbody>
</table>
Case Study: Tobacco control in Kenya
(see Juma et al., 2017)

Kenya developed a comprehensive tobacco policy in 2007. The Tobacco Control Act restricts smoking in public places, prohibits tobacco advertisement, promotion and sponsorship, requires health warnings and messages on tobacco products, and recommends raising tobacco excise taxes to 70 per cent of retail prices. Some of the interventions have been implemented, although others still require re-enforcement. There have been tax regimen changes since the 2007 act came into effect. Recently, the Finance Act raised the excise duty on tobacco products at a rate of KSH 1,200 per 1,000 (or 35 per cent of the retail selling price), although it is still lower than the WHO tax recommendation of 70 per cent. Bans on tobacco advertising and sponsorship of tobacco products have largely been implemented, but there are still some gaps. Outdoor advertising on billboards and buildings, for example, still occurs in several parts of the country. Health information and warnings on tobacco packaging have been implemented. These texts now cover 30–50 per cent of the front and back display of tobacco product packages. Although there are periodic television advertisements on the harmful effects of tobacco and the need to avoid its use, these are not very frequent and are not aired across many TV and radio stations. The government has also undertaken the training of enforcement officers, and media and civil society organisations are encouraged to support the
implementation efforts. Increasing awareness due to the training has led to the removal in major cities of billboards with tobacco brand advertisements. The tobacco industry has tried to interfere with the implementation of some elements of the act through court cases. The areas of concern have been mainly around taxation methods (differential taxation), the size of warning labelling on packets, and consumptions of non-cigarette products such as shisha and others. Kenya’s tobacco policies have contributed to demand reduction, supply reduction, awareness creation, prohibition of illicit trade, taxation charges for tobacco products, creation of smoke-free environments, and a total ban on smoking in public areas. The main challenges to be addressed include industry interference, financing for implementation at decentralised levels, and coordination of stakeholders for implementation at decentralised levels.

**Alcohol control**

High alcohol consumption is linked to cancer, cardiovascular disease, and liver disease. Recommended WHO ‘best buy’ interventions to reduce alcohol consumption include tax increases, bans on alcohol advertising, and restricted access to retailed alcohol (WHO, 2013). The WHO global strategy to reduce harmful alcohol consumption was initiated in 2008 and endorsed in May 2010 at the World Health Assembly (WHO, 2010). All member states were urged to take appropriate action in their respective jurisdictions towards reducing the harmful use of alcohol. In September 2010 African health ministers endorsed the Regional Strategy to reduce harmful use of alcohol in the African region, which takes into account the specificities of the region, such as the need to address illegal and informal alcohol production, as well as laying emphasis on integrated approaches to prevention and treatment.

Unlike tobacco, where the majority of countries have developed legislation, many countries in sub-Saharan Africa remain slow in developing alcohol control policies and programms. By 2017, only Kenya, South Africa, and Malawi had developed comprehensive alcohol control policies which addressed the WHO ‘best buy’ interventions for alcohol (Juma et al., 2017); others, like Tanzania, Nigeria, and Uganda, had only developed draft policies that were yet to be completed (Table 3). These
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countries had put in place certain measures, including a minimum age (18) for the purchase and consumption of alcohol, retailers requiring a licence to sell alcohol, and a drink drive law (which was not well enforced). Some countries – Cameroon, for example – had no comprehensive alcohol policy document, but instead had different regulations; included in these were restrictions on alcohol access, increased tax on alcohol, and restrictions on alcohol advertising (Table 3).

Table 3: Alcohol control across eight African countries

<table>
<thead>
<tr>
<th>Elements</th>
<th>Cameroon</th>
<th>Kenya</th>
<th>Malawi</th>
<th>Nigeria</th>
<th>South Africa</th>
<th>Rwanda</th>
<th>Tanzania</th>
<th>Uganda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensive alcohol control legislation</td>
<td>X</td>
<td>√</td>
<td>√</td>
<td>X</td>
<td>Partial</td>
<td>√</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Special tax on alcohol</td>
<td>√</td>
<td>√</td>
<td>Partial</td>
<td>X</td>
<td>√</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Taxation for domestic brew</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
<tr>
<td>Restriction on alcohol advertising</td>
<td>X</td>
<td>Partial</td>
<td>X</td>
<td>X</td>
<td>√</td>
<td>X</td>
<td>-</td>
<td>X</td>
</tr>
<tr>
<td>Restrictions on times at which alcohol can be purchased</td>
<td>Partial</td>
<td>√</td>
<td>√</td>
<td>X</td>
<td>√</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Licensing system for retailers</td>
<td>Partial</td>
<td>√</td>
<td>√</td>
<td>X</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>National drink driving law</td>
<td>X</td>
<td>√</td>
<td>X</td>
<td>X</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
<tr>
<td>Established minimum age for purchase and consumption</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Juma, 2018; Juma et al., 2017
Case Study: Alcohol Control in Kenya
(see Juma et al., 2017)

Kenya has the Alcoholic Drinks Control Act (ADCA) 2010, amended in 2014. The Act addresses the WHO ‘best buy’ interventions for the control of harmful alcohol consumption such as taxation, bans on alcohol advertising, and restricted access. Although the specific figures for taxation were not provided, the annual increase in taxes on beer and spirits in the past few years has been slow. There is a decline in the producers and importers of alcohol sponsoring events like sports tournaments and music concerts. Alcohol advertising in media is restricted; adverts can only be aired from 8.30 pm on TV and from 2 pm on radio to reduce exposure to young people. Restriction has been made on the sale of alcohol to children under the age of 18 years. Restricted access is also being achieved through the regulation of bar opening hours. The legislation restricts the sale of alcohol in bars to between 5 pm and 11 pm. Alcohol is also sold in separate sections of shops and supermarkets where children are not allowed to enter. Alcohol from supermarkets or retail outlets is only sold within certain daytime hours. Issuing of licences to alcohol sellers is ongoing. With the implementation of devolution the alcohol licensing role was transferred to the county governments, which are now responsible for issuing licences to alcohol dealers, including manufacturers, wholesalers, and retailers. Drink driving policy exists but is only being implemented in big cities like Nairobi. Further implementation involves campaigns and education aimed at the public, warning them about the effects of drugs and alcohol. Some NGOs have been organising public education activities, including campaigns targeting the youth, in partnership with the ministries of Health and Education. A significant proportion of the Kenyan population consumes local brews, which do not lend themselves to regulation or taxation. The regulation of these drinks is vested in other trade and criminal laws but they are not adequately enforced. Even though the alcohol policy is in place,
the implementation of various aspects remains inadequate and requires better coordination and enforcement at all levels.

**Nutrition and diet**

With regard to nutrition and diet, initial global advocacies led to the development of food and nutrition security policies. The push for food and nutrition policies was also largely influenced by the need to achieve the MDGs. The WHO Global Strategy on Diet, Physical Activity and Health was developed in 2004 (WHO, 2004). In the document, recommendations for individuals included: achieve energy balance and a healthy weight; limit energy intake from total fats; shift fat consumption away from saturated fats to unsaturated fats and towards the elimination of trans-fatty acids; increase consumption of fruit, vegetables, legumes, whole grains, and nuts; limit the intake of free sugars; limit salt consumption from all sources and ensure that salt is iodised. WHO ‘best buy’ interventions for nutrition and diet include addressing salt reduction and replacement of trans-fat with polyunsaturated fat, and public awareness on what constitutes a healthy diet (WHO, 2013).

From 2007 to 2016 many African countries, among them Kenya, Rwanda, Cameroon, Malawi, and South Africa, developed food and nutrition security policies (Juma, et al 2017; Juma, 2018). These policies tended to be broad and their focus was on food production rather than on nutrition. Countries like Kenya, Tanzania, Uganda, and Malawi have health sector nutrition action plans but for the most part these address undernutrition, especially among children under five years of age. There have been attempts to put strategies in place to increase fruit and vegetable consumption as dietary action for NCD prevention, but primarily these strategies are intended to address prevailing micronutrient deficiencies such as vitamin A deficiency. Fruit and vegetable interventions have been taken up in LMICs, but also primarily to address prevailing micronutrient deficiencies.
Table 4: Unhealthy diet across eight African countries

<table>
<thead>
<tr>
<th>Elements</th>
<th>Cameroon</th>
<th>Kenya</th>
<th>Malawi</th>
<th>Nigeria</th>
<th>Rwanda</th>
<th>Tanzania</th>
<th>South Africa</th>
<th>Uganda</th>
</tr>
</thead>
<tbody>
<tr>
<td>National food and nutrition security policy</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>X</td>
<td>√</td>
<td>√</td>
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<td></td>
<td></td>
<td></td>
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<tr>
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<td>X</td>
<td>X</td>
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<tr>
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<td>X</td>
<td>X</td>
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<td>X</td>
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<td></td>
<td>X</td>
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<td>X</td>
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<tr>
<td>Policy to replace trans-fat with polyunsaturated fat</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>Partial</td>
<td>X</td>
<td>√</td>
<td>√</td>
<td>Once a month</td>
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</table>
Non-Communicable Disease Epidemics

Nutrition policies addressing over-nutrition, salt, sugar, and fat reduction in the context of NCDs have not been developed in these countries. Some countries have developed nutrition guidelines for prevention and management of dietary related non-communicable diseases. South Africa is the only country in sub-Saharan Africa where there is legislation for salt reduction in processed foods; this was passed in 2013. The salt reduction policy targets industries involved in the packaging of processed foods.

**Case study: Salt reduction interventions in South Africa (see Juma et al., 2017)**

South Africa passed salt reduction legislation in 2013 as a measure to prevent NCDs caused by unhealthy diets, particularly those attributed to high salt intake like hypertension, heart attacks, and vascular dementia. The overall objective of the policy is to reduce sodium levels in 13 processed categories of foodstuffs identified in the policy. This reduction comes in two phases, with the first phase being implemented in 2016 and the second phase in 2019. For example, it is stipulated in the act that salt levels in bread should be reduced to 400 mg Na by 30 June 2016 and to 380 mg Na by 30 June 2019; this is important because the indicators and measurables are very clear, which makes for effective monitoring and evaluation. The policy stipulates the maximum amount of sodium that each type of foodstuff may contain per 100 grams. The listed maximum grams of salt are a reduction from what has previously been used in the specified foodstuffs. Baseline data before the implementation of the policy was generated to monitor and evaluate the reductions over time and establish the impact of the salt reduction legislation. To understand the impact of salt intake and how its reduction in the diet would require behaviour change the Department of Health (DoH) convened a multisectoral stakeholder group reflective of the social, economic, health, and political contexts. The group comprised producer groups, consumer groups, retailers and trade association, and scientists. Furthermore, drawing from best practices in preventing and controlling NCDs related to unhealthy
diets, the South African government drafted a policy on taxation of sweetened sugary drinks; it began taxing sweetened sugary drinks in April 2017. The main gap in this intervention is that while food manufacturing industries are targeted, interventions targeting awareness creation among the population are less robust.

**Physical activity**

Physical inactivity is among the major causes of mortality globally and a risk factor for NCDs such as cancer, diabetes, and cardiovascular diseases (WHO, 2013). WHO recommends at least 30 minutes of regular, moderate-intensity physical activity on most days throughout a person’s life. In addition it is recommended that countries should enhance public education and awareness about physical activities and put in place measures to enable the public to engage in physical activities, such as providing conducive built environments (WHO, 2004).

Most of the African countries under review have not developed physical activity policies. Most have sports policies that promote sports for competition but do not address physical activity in relation to NCD prevention. In some countries, like Kenya, Tanzania, South Africa, and Uganda, physical activity is reinforced in schools through the inclusion of physical education in the school curriculum. South Africa also has a strategy to promote physical activity among the elderly to include awareness creation.

**Table 5: Physical activity across eight African countries**

<table>
<thead>
<tr>
<th>Elements</th>
<th>Cameroon</th>
<th>Kenya</th>
<th>Malawi</th>
<th>Nigeria</th>
<th>Rwanda</th>
<th>Tanzania</th>
<th>South Africa</th>
<th>Uganda</th>
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<td>X</td>
<td>√</td>
<td>√</td>
<td>Partial</td>
<td>X</td>
</tr>
</tbody>
</table>
### Non-Communicable Disease Epidemics

<table>
<thead>
<tr>
<th>Elements</th>
<th>Cameroon</th>
<th>Kenya</th>
<th>Malawi</th>
<th>Nigeria</th>
<th>Rwanda</th>
<th>Tanzania</th>
<th>South Africa</th>
<th>Uganda</th>
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</thead>
<tbody>
<tr>
<td>Provision for physical education in schools</td>
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<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
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<tr>
<td>Promotion of public awareness about physical activity (via mass media)</td>
<td>√</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>√</td>
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<tr>
<td>Workplace physical activity policy</td>
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<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

Sources: Juma, 2018; Juma et al., 2017

A few other government policies like the NCD strategic plans in these countries mention the need for physical activity but do not provide comprehensive guidance on how to ensure that the public engages in physical activity. Cameroon has no comprehensive physical activity policy but has enhanced public awareness for physical exercises in open space in the cities. Tanzania is also conducting health promotion activities; these includes public sensitisation on physical activity through the media. Even though Rwanda has no written comprehensive physical activity policies, the country is a good example in the region: certain days are set aside for physical activity and the population is encouraged to participate.

**Case study: Physical activity and health promotion in Rwanda (see Juma, 2018)**

Since 2013, the government of Rwanda, with different partners, has been implementing various activities to increase awareness of physical activity and other interventions to prevent NCDs. To encourage physical activities, by order of the prime minister
all public servants engage in sports every Friday afternoon and gym fees are paid for them. Rwanda has a car-free day every first Sunday of the month, when Kigali citizens are involved in walking and other sports activities; at these events people are screened for NCDs for free. With support from organisations such as the Rwanda Diabetic Association, the Rwanda Pharmaceutical Association, and the Young Professionals Chronic Disease Network, about 20 educational campaigns are carried out per year to create awareness and where free NCD screening is conducted. The campaigns include education on the prevention, treatment, and management of diabetes, awareness on cancers, including children’s cancers, as well as the importance of physical activities. Campaigns have also been carried out at higher levels, where ministry staff are screened for NCDs and referred for treatment. Media houses have also been educated on the NCD situation and the risk factors in Rwanda so that they may spread the information and reach out to the masses in the community. Awareness activities are being scaled up to the rural districts. Students’ associations work with the Rwanda NCD Alliance to raise awareness during organised walks, and also through social media (Twitter and Facebook). Other awareness programmes include the education on NCDs of children in school. These activities are implemented in partnership between the government institutions, the private sector, various youth groups, religious groups, businesses, the Rwanda NCD Alliance, and other civil society organisations. While the uptake of these activities has been high, there was no report at the time of this review on whether the activities have reduced NCD incidence.

**Health systems strengthening**

Health systems interventions include identifying and addressing modifiable risk factors, early detection through screening, treatment and follow-up of patients with NCDs, as well as referrals from primary care facilities to higher level facilities. Early detection and management is intended to prevent complications, reduce the need for hospitalisation and costly high-technology interventions, as well as
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prevent premature deaths. Implementing these interventions requires the presence of evidence-based national guidelines/standards for the management of major NCDs, the training of health personnel on NCD prevention and management, and also the availability of affordable essential medicines and technologies for NCD management and control. Disease prevention and health promotion at primary health care level has been emphasised as a critical approach in addressing NCDs. There are recommended NCD drugs that should be available at primary care levels. It is recommended that cardiovascular disease drugs are at least ‘generally available’ in primary care facilities in the public health sector, and at least 50 per cent of primary health care facilities should offer cardiovascular risk stratification for the management of patients at high risk for heart attack and stroke (Robinson & Hort, 2012; Demaio et al., 2014).

Uganda, Tanzania, and Zanzibar have all developed various care guidelines, including guidelines for the management of diabetes. Kenya has its National Clinical Guidelines for Management of Diabetes Mellitus 2010, National Guidelines for Prevention and Management of Cervical, Breast and Prostate Cancers 2012, National Guidelines for Cancer Management 2013, and guidelines for tobacco cessation. Tanzania, Uganda, Kenya, and Malawi have started training health workers on NCD management. These countries also run NCD clinics in tertiary and district hospitals. Many countries are implementing disease-specific programmes for diabetes, cancer, sickle cell, and cardiovascular diseases from primary to tertiary care levels. Some are establishing specialised care centres, such as heart centres and cancer centres.

Case study: Improving health systems for NCD care in Tanzania (see Juma, 2018)

Tanzania has implemented several initiatives to strengthen its health systems for NCD prevention and management. Guidelines for the management of cancer, cardiovascular disease, and sickle cell disease have been developed and palliative care guidelines are also in place. The development of guidelines for renal care is ongoing. The available guidelines have interventions for all levels of care from primary to tertiary levels. Training
of health care workers on NCD management has been done widely with support from the Tanzania Diabetes Association. In 2003 the government, with support from partners, trained staff and strengthened the diabetes clinic at the National Referral Hospital Muhimbilo National Hospital (MNH), and three other zonal referral hospitals. In 2005 the country embarked on training health workers and establishing diabetes services at all regional hospitals – 21 in total – and at 25 district hospitals in Dar es Salaam. The government also reviewed and developed a training curriculum for diabetes and other NCDs for different levels of health care. The health sector is implementing disease-specific programmes for diabetes, cancer, sickle cell, and CVD from primary to tertiary care levels. Cervical cancer screening is ongoing, with support from partners like PATH and Jhpiego, among other NGOs. Cancer outreach services are also ongoing.

**GOVERNANCE OF NCD PREVENTION AND CONTROL**

The governance of NCD prevention and control requires the recognition of NCDs as a health priority in the national development and the health sector strategic plans, as well as the establishment of structures to enhance multisectoral action – WHO refers to this as a ‘whole of government’ approach (WHO 2013; Beaglehole et al., 2013; Horton, 2013).

All the countries reviewed addressed NCDs in their most recent health sector strategic plans as one of their national priority areas. By 2017, Kenya, Tanzania, Malawi, Nigeria, and South Africa had developed and launched their NCD action plans. Other countries have draft NCD plans which are yet to be launched. All the countries have established NCD units/departments within their ministries of health (Juma, 2018). The units coordinate NCD policy development, resource generation, and monitoring and evaluation, with support from NGOs. The presence of the coordinating units has led to improvement of NCD coordination at health sector levels. However, staffing and financial support for the units are a problem in most of the countries.

Multisectoral action in NCD prevention is still inadequate. South
Africa, Zanzibar, and Uganda have established multisectoral committees for NCD prevention and control. However, there is no tangible evidence on how other sectors contribute to NCD interventions in these countries. Civil society engagement in NCD prevention is increasing. There are funded NGOs that are implementing some NCD prevention and care interventions. National NCD alliances exist in most of the countries and they work closely with the ministries of health. However, the engagement is not well structured or coordinated.

**Case study: Improvement of NCD governance and coordination in Uganda**

In Uganda both the National Development Plan II (Vision 2040) and the Health Sector Development Plan 2015/16–2019/20 emphasise the need to reduce premature deaths due to NCDs as well as the need for enhanced multisectoral action in addressing NCDs. The plan has NCD objectives that include the promotion of healthy lifestyles that contribute to the prevention of NCDs, improving management of NCDs at all levels of care, and establishing a functional surveillance, monitoring, and research system to support the prevention and control of NCDs. While the plan does not mention specific NCD targets or indicators of progress, several NCD prevention and control strategies are outlined, under three key objectives. In addition, the Uganda Health Sector Investment Plan mentions efforts to address NCDs through three priority thematic areas – NCD prevention, capacity building, and management interventions – which are key to the achievement of its health outcome targets. Uganda’s NCD strategy has been under development since 2013 and although by 2017 it had not yet been launched it was at an advanced stage, awaiting sharing with stakeholders for final input. The draft addresses both prevention and management of NCDs. Despite the efforts to implement the NCD interventions, financing for NCDs is still low in the country. To enhance multisectoral action Uganda had constituted a National NCD Coordination Committee with several relevant line ministries, civil society, and
academia representatives. Civil society is well represented on the National NCD Coordination Committee and the MoH NCD Technical Working Group Uganda NCD Alliance representative.

MONITORING AND EVALUATION, AND RESEARCH

From the WHO review report 2016 and the available data, most of the countries have set up some mechanism to undertake periodic surveillance of NCDs and their risk factors. STEPS surveys have been conducted in many of the countries (this excludes Nigeria, which did not complete its STEPs survey). On international reporting, the countries covered in this chapter have been reporting on NCD prevalence, mortality, and morbidity to the WHO progress monitoring framework. They have also reported on risk factor exposure and country capacity. In some countries, for example Kenya, specific diseases such as diabetes and cancers are under surveillance through the integrated disease surveillance and response programme by the MoH Division of Disease Surveillance and Response.

Generally, the countries have not established strong national information systems with surveillance mechanisms monitoring all the key risk factors, morbidity and mortality, and health system capacity for NCDs. Nor have governments set up NCD research priorities or set aside funding for NCD research. Some NCD research is going on in some countries, however, through academic and research institutions.

CHALLENGES TO THE IMPLEMENTATION OF THE NCD PREVENTION-AND-CONTROL INTERVENTIONS

Various challenges affect NCD interventions, resulting in limited geographical coverage and, in some instances, failure to implement planned interventions or enforce existing laws and regulations. The first challenge is inadequate resource capacity. There is no or very low government allocation of funds for the implementation of NCD intervention. Low NCD financial allocations result in real paralysis and the inability of even committed actors to advance a cause in NCD prevention and control. Consequently, many African countries tend to
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rely on NGOs to support implementation.

The funding challenge is compounded by the fact that implementing institutions, NGOs, and other entities often do not seem to be pooling their resources. Thus different, sometimes duplicate, activities may take place without synergy and complementarity and this leads to disjointed or inadequate implementation of prescribed interventions. Innovative and sustainable resource generation is needed to ensure the effective implementation of NCD interventions. Although governments are seeking external resources to strengthen their health care systems, it is imperative for domestic resource allocations to health to be increased. Universal health coverage (UHC) has been recognised as a major health goal and strategy for LMIC, a programme that requires adequate and sustainable health care financing (Beaglehole & Bonita, 2016; WHO, 2016). However, allocation of resources to health care in most African countries remains very low, despite most of them being signatories to the Abuja Declaration where they pledged to allocate at least 15 per cent of government expenditure to health. Most countries allocate less than half of this. There are a few exceptions: Rwanda, for example, allocates 16 per cent.

There is also great potential for more efficient financial flows through the health care system, especially from the household direct (out-of-pocket) expenditures, which could instead be channelled into an insurance system to provide wider coverage to individuals. This could also be a vehicle for health promotion. The allocation to health promotion and health care of part of the revenues collected from taxes on tobacco, alcohol, and unhealthy foods and drinks is another possible source of funding for NCD control.

Second, implementation is hampered by weaknesses in the health care systems that are supposed to take leadership in NCD prevention and control. One of these weaknesses concerns health care providers (there are not enough of them) and human resource allocation (too few in number and not adequately trained), for both intervention coordination and care provision at health facility levels. Those who require medical care often do not get quality care because the country’s public health facilities lack not only various specialist and high-level diagnostic equipment, but are consistently out of the drugs and supplies
essential for NCD management. Primary health care facilities still lack the capacity to provide effective NCD preventive and care services. In some countries traditional healers who claim they treat all NCDs are mushrooming. Many patients tend to default from medication as they seek the cheaper services of traditional healers, who are not well regulated. In most of the countries, community members cannot afford most of the NCD services, which are considered expensive; hence they turn to traditional healers. It has been suggested that for LMIC health systems to address NCDs in addition to the prevalence of other health problems, integration of NCDs into health promotion and primary health care is the way to go. This requires training of health care providers, task sharing, and integration of care pathways and guidelines. There have been a variety of pilot studies with different degrees of integration, and suitable, feasible, and scalable models need to be developed for increased efficiency of the limited health resources available.

Third, while a multisectoral approach has been advocated to enhance the implementation of NCD prevention interventions (Horton, 2013), such approaches are hindered by poor governance and the absence of functional and effective coordination structures. The role of partnerships and collaborations across the sectors is crucial in realising the goals of NCD control. The private sector has to be involved in a suitable regulated and coordinated framework. African governments need to take the lead in being the primary investors in health and create a regulatory and coordination framework that enables other stakeholders to participate and contribute to the realisation of the health goals articulated in their individual national policies and action plans.

Lastly, while most of the proven interventions are in place, implementation might further be challenged by the prevailing contextual factors in the countries. Apart from epidemiological and economic contexts, which are well understood for most countries, socio-cultural factors, which are most often not well understood or well addressed, might affect both the prevalence of NCDs and the uptake of interventions. For a long time NCDs were viewed as an affliction of the affluent; in some places they are even viewed as a status
symbol. Prevailing attitudes towards risk factors such as diet, alcohol consumption and levels of physical activity contribute to the higher incidences of NCDs and to the slow progress in uptake of preventive interventions. For example, uptake of physical activity interventions might be hindered by the fact that some communities view being overweight as a desirable condition, even though this is a risk factor for several NCDs. In several African contexts, people living in rural areas typically live an active lifestyle which involves walking and physical labour. When they move to urban areas and start earning higher incomes, they are less likely to engage in physical activity such as walking as it does not correspond to their new status. Limited examination of socio-cultural factors may also result in the low use of potentially powerful channels to reach community members with existing interventions. For instance, in some countries traditional healers have a lot of influence in rural communities and could become powerful allies in NCD prevention. However, to date they have not been effectively engaged; this is a wasted opportunity to achieve meaningful impact. An improved understanding of such contextual factors would lead to more effective implementation and uptake of interventions that target adoption of the behavioural changes required for NCD prevention.

CONCLUSION

This chapter has explored the situation of NCD prevention and control in the African context and reviewed interventions that are being implemented in a selection of African countries. Most of the reviewed countries in sub-Saharan Africa have taken steps to develop policies and implement practical interventions to address NCDs. Progress in the implementation of these interventions, which are expected to show success, given positive experiences in some localities, is slow, however. Much needs to be done to enhance counter-measures and effect the scale-up of these interventions – to a scale that will achieve the global targets for addressing NCDs.

Most of the interventions reviewed in this chapter have only been implemented partially, with poor geographical coverage. Implementation science frameworks which adequately contextualise
the methods that have been proven to be effective and gradual scaling to achieve the NCD national goals are priorities moving forward. To enhance implementation of the interventions there is a need for more resource allocation and actor mobilisation for multisectoral action in the implementation of the interventions. There is a need as well for improved governance, coordination, and multisectoral engagement in NCD prevent-and-control interventions. In addition, there is a pressing need to address multiple other existing problems, including weaknesses in the health systems and other contextual, country-specific factors.

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