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Implementation of Policies and Strategies for Control of Noncommunicable Diseases in Malawi: Challenges and Opportunities

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Abstract

Malawi is a Sub-Saharan African country experiencing the epidemiological transition from predominantly infectious to noncommunicable diseases (NCDs) with dramatically increasing prevalence of lifestyle-related diseases such as obesity, hypertension, and diabetes. Malawi's 2011-2016 Health Sector Strategic Plan included NCDs, and an NCD Control Program was established with subsequent development of a National Action Plan for prevention and management of NCDs launched in 2013. The current study was designed to identify gaps in implementation of NCD control program policies and action plan strategies by describing current efforts toward prevention and management of NCDs in Malawi with emphasis on challenges and opportunities. Semistructured questionnaires were used to collect quantitative and qualitative data from Malawi Ministry of Health personnel (senior officers, service providers, health education officers, and nutritionists) in 10 health districts and 3 central hospitals. Frequencies were generated for quantitative data. Qualitative data were used to generate themes and most common responses. Results showed that current services focus on facility-based NCD screening and clinical services rather than active screening, prevention, and community awareness and outreach, although respondents emphasized the importance of prevention, lifestyle education, and community outreach. Respondents indicated inadequate resources for NCD services including financial capital, human resources, equipment and supplies, and transportation. While Malawi has begun to address NCDs, policy and practice implications include (a) better integration of services within the existing infrastructure with emphasis on capacity building; (b) greater implementation of planned NCD activities; (c) a stronger, more comprehensive data management system; and (d) innovative funding solutions.

Keywords

community outreach, Malawi, management, noncommunicable diseases, prevention, screening, service integration

Sub-Saharan Africa (SSA) is experiencing the epidemiological transition from predominantly infectious to noncommunicable diseases (NCDs) including cardiovascular disease, cancer, and metabolic diseases such as diabetes and obesity (World Health Organization [WHO], 2014). In 2004, more than half of all deaths in SSA were caused by infectious conditions and one quarter by NCDs; by 2030, NCDs will cause 46% of deaths (Dalal et al., 2011). The WHO predicts that deaths from NCDs will increase globally by 17% over the next decade alone, with a 27% increase in the African region (WHO, 2008). The burden of chronic NCDs is likely to increase as scaled-up programs for antiretroviral treatment of HIV-infected people lead to reduced mortality from HIV/AIDS and possible metabolic side effects resulting from lifelong antiretroviral treatment medications (WHO, 2008).

According to a 2009 WHO survey, prevalence of obesity in Malawi increased from less than 7% in the 1970s to 28%

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in 2009, with higher prevalence in urban areas than in rural areas (Msyamboza, Kathyola, & Dzowela, 2013). Diabetes prevalence increased from 1% in 1970 to 5.6% in 2009. More than 30% of the Malawian adult population have high blood pressure (Msyamboza et al., 2013).

With the incorporation of selected NCDs into the WHO essential health package (Atun et al., 2013), the Malawi Ministry of Health (MOH) included NCDs in Malawi's 2011-2016 Health Sector Strategic Plan (Government of Malawi, MOH, 2010) and subsequently established a national NCDs and Mental Health Unit. A National Action Plan for prevention and management of NCDs (2012-2016) was developed and launched in December 2013.

The Malawi NCDs Action Plan incorporates four thematic areas: (a) chronic cardiovascular, metabolic, and respiratory diseases; (b) cancers; (c) epilepsy and mental health conditions; and (d) injuries and trauma. Cross-cutting interventions include primary prevention through risk factor control (particularly tobacco use, physical inactivity, unhealthy diet, and alcohol abuse), secondary prevention through early detection and promotion of systematic clinical management, enhancement of monitoring and evaluation, strengthening of legislative and policy environments, and evidence generation through research (Government of Malawi, MOH, 2010). Implementation of some planned interventions has been initiated, especially awareness raising and improvement of clinical management. However, acceleration of primary prevention efforts is a challenge to the national program because it would require additional resources and/or reallocation of existing resources, thereby putting significant pressure on the already strained economy and health care system (WHO, 2014).

The Malawi NCD Control program serves as an example of efforts by low-income and SSA countries to adjust their health care systems to respond to the increasing prevalence of NCDs amid serious challenges in funding and inadequate capacity to address the double burden of disease (Amuyunzu-Nyamongo, Owuor, & Blanchard, 2013; Atun et al., 2013; Muna, 2013; WHO, 2008, 2012, 2013, 2014). This study supports the national program in identifying gaps in implementation of NCD policies and action plan strategies. The overall objective of this study was to describe current efforts toward prevention and management of NCDs in Malawi with emphasis on challenges and opportunities.

Method

Semistructured questionnaires were used to collect quantitative and qualitative data from Malawi MOH personnel. Data were collected in late December 2014 and early January 2015. The study protocol was approved by the Malawi Ethical Committee and the Virginia Tech Institutional Review Board.

Selection of Study Sites

Ten of 29 Malawi health districts and 3 of 4 central hospitals were selected for inclusion based on geographic distribution and variation in current NCD programming, resources, training, and infrastructure.

Questionnaires

Separate questionnaires were used for three categories of personnel: (a) senior officers (district medical officers, district health officers, hospital directors, district nursing officers, or nurse in charge/matron); (b) service providers (nurses, clinicians, and clinic coordinators); and (c) health education officers and nutritionists (all questionnaires are available online at heb.sagepub.com/supplemental). An interdisciplinary team of content experts (NCDs, health education, nutrition, health behavior, data management, and analysis) developed and reviewed the questionnaires for face validity and coverage of key content. Questions were quantitative (yes/no, multiple choice) and qualitative (open-ended). Question topics related to NCDs included (a) staff training provided, (b) perceived local NCD prevalence and risk factors, (c) primary prevention and outreach activities, (d) clinical management services provided, (e) health education and counseling activities, (f) perceived challenges and opportunities in providing services, and (g) data management.

Interviewers and Questionnaire Administration

Questionnaires were administered in person. Six interviewers attended one group training session to ensure consistent question interpretation and data collection protocol.

Respondents

Targeted sample size was 78, with 6 respondents per district: (a) district medical officer, district health officer, or hospital director; (b) district nursing officer, nurse in charge, or matron; (c) nurse; (d) clinician or clinic coordinator; (e) health education officer; and (f) nutritionist. Respondents received nominal compensation (equivalent of $7) for their time because data collection occurred during the holiday leave period.

Data Management and Analysis

Questionnaire data were entered into Epi Info™ (Version 3.5.3, U.S. Centers for Disease Control and Prevention, Atlanta, GA) for analysis. Frequencies were generated for quantitative data. Qualitative data were used to generate themes related to study objectives.

Results

Overall response rate was 71 of 78 (91%) respondents invited to participate. The primary reason for nonparticipation was inability to return to work station while on holiday leave. Response rates by position type and region are provided in Table 1.

Table 1. Response Rate by Region and Position Type.

Region	Position type						
	Senior medical officer, *n*/*N* (%)	Senior nursing officer, *n*/*N* (%)	Clinician or coordinator, *n*/*N* (%)	Nurse, *n*/*N* (%)	Health educator, *n*/*N* (%)	Nutritionist, *n*/*N* (%)	Total, *n*/*N* (%)
Central/ northern	5/5 (100)	3/5 (60)	5/5 (100)	5/5 (100)	4/5 (80)	4/5 (80)	26/30 (87)
Southern	5/5 (100)	5/5 (100)	5/5 (100)	5/5 (100)	4/5 (80)	5/5 (100)	29/30 (97)
District hospitals	2/3 (67)	3/3 (100)	3/3 (100)	5/5 (100)	2/3 (67)	3/3 (100)	16/18 (89)
Total	12/13 (92)	11/13 (85)	13/13 (100)	13/13 (100)	10/13 (77)	12/13 (92)	71/78 (91)

Perceived Prevalence and Risk Factors for NCDs

More than 95% of senior officers and 80% of service providers reported increased numbers of NCD cases in their districts over the past 3 years, and 83% of senior officers did not believe that their facility was identifying all people with NCDs in their catchment area. Service providers (85%) agreed that patients with NCDs wait until their disease is in advanced stages with complications before seeking care.

Hypertension and diabetes were selected by 96% of service providers as common NCDs among patients in their districts; stroke and cancer were selected by 27% and 38% of providers, respectively. Hypertension was recognized as the single most common NCD (62%).

Behavioral NCD risk factors acknowledged by service providers as common among their patients included alcohol consumption (81%), smoking (73%), poor diet (65%), lack of physical activity (54%), and heredity (46%). Poor diet (56%) was considered the single most common behavioral risk factor.

Social/cultural NCD risk factors selected by service providers as common among their patients included lack of knowledge about proper eating and physical exercise (96%) and lifestyle factors such as increased television time and driving versus walking (73%). Lack of knowledge about proper eating habits (81%) was selected as the single most important risk factor.

Responses from health educators and nutritionists to an open-ended question regarding factors contributing to increased numbers of NCDs in their health districts were consistent with those of senior officers and service providers. Major themes included alcohol consumption, smoking, poor diet, and overall lifestyle. Respondents attributed lack of awareness of NCDs to inadequate attention, prevention efforts, funding, and policy at the national level.

Strategies Currently Used for Prevention and Management of NCDs

Service providers endorsed education in health care facilities (81%) as the primary strategy used in their health districts to reach communities with messages related to NCDs. Only 23% conducted community outreach or distribution of health promotion materials, and only 15% used mass media. Methods used to share NCD awareness materials with communities focused on education delivered at health care facilities to patients and their guardians and visitors.

Active NCD cases were identified primarily through hypertension and diabetes screening at outpatient and NCD clinics, although only 24% of service providers reported active screening for NCDs. Most screening efforts occurred at hospitals and clinics with patients referred from the community or attending the health care facility for other services. Blood pressure was the most commonly reported screening measure for patients who were seen at health care facilities.

Service providers also selected blood pressure (95%) as the most common screening measurement used in the outpatient department, followed by body weight (79%), temperature (55%), and height (41%). Blood sugar was listed as an "other" measurement by several respondents. Regarding NCD screening, 69% of service providers reported using blood pressure to assess risk of hypertension, 42% used weight to assess obesity/overweight, and 19% used height for calculating body mass index to determine obesity/overweight.

Capacity for Service Delivery

Nurses (100%), clinicians (91%), and health surveillance assistants (74%) were most often identified by senior officers as staff involved in provision of NCD services. Involvement of nutritionists and health education officers was acknowledged by only 35% and 30% of senior officers, respectively. Reported roles in NCD services for nurses and clinicians included assessment, management, monitoring, and counseling/education. Roles for nutritionists and health education officers were limited to nutrition and health education and counseling with some data collection.

Almost all senior officers (91%), all service providers, and all health education officers and nutritionists reported some NCD training. Training related to specific NCDs by position type is provided in Table 2. Senior officers received the most comprehensive NCD training, followed by service providers. Training for each NCD was lowest for health education officers and nutritionists. Overall, respondents more often reported training for diabetes and hypertension than for

Table 2. Reported NCD Training by Position Type.

Position type	Percentage of respondents reporting training by NCD				
	Hypertension	Stroke	Diabetes	Cancer	Mental disabilities
Senior officer	87	74	100	74	78
Service provider	62	27	83	30	42
Health educator/nutritionist	36	14	36	27	23

Note. NCD = noncommunicable disease.

other NCDs. NCD training across respondent type primarily included pre-service and in-service training.

Coordination With External Partners and Across Malawi Ministry of Health Programs

Organizations external to Malawi MOH implemented NCD activities such as advocacy, health education, training, and palliative care in 82% of districts according to senior officers. External partner organizations included nonprofit groups and associations and medical/nursing universities. Collaboration between MOH and these organizations included procurement of supplies, advocacy, capacity building, service provision, patient education, community outreach, and staff training.

Service providers (69%) indicated that they collaborated with other MOH professionals such as nutritionists and health educators for NCD management. However, when nutritionists and health education officers were asked which types of MOH personnel were involved in NCD services, 76% chose nurses, 71% chose clinicians, and 38% chose health surveillance assistants. Only 29% identified health educators and 14% identified nutritionists as involved in providing NCD services.

One third of health education officers and nutritionists reported routine involvement in services related to NCD management while 57% said that they were only sometimes involved and 10% responded that they were never involved. Self-reported roles for health education officers and nutritionists in NCD services ranged widely and included screening, health education and counseling, community outreach, training health surveillance assistants, and developing and distributing health education messages and materials.

Data Management

All senior officers reported some type of data management system in place; 91% used paper-based systems and half used some type of electronic data system. Senior officers reported that NCD data were included in the District Health Information System for 68% of districts. Primary types of data included in the District Health Information System were number of NCD cases by type, number of deaths by NCD type, and number of outpatients treated for NCDs. Data were used primarily for program planning (82% of districts), followed by compiling reports to the Central MOH (50% of districts), budgeting (45% of districts), and sharing with stakeholders (25% of districts).

Financial Considerations

Almost all (95%) senior officers reported that NCDs were included in the district implementation plan. However, only 30% indicated that at least half of planned activities were funded, and 61% reported that less than one third were funded. The most frequently funded NCD activities were facility-based clinical care and training for personnel.

Overall, 90% of senior officers did not think that the NCD program was adequately funded; 74% cited insufficient personnel and 83% indicated inadequate equipment and supplies to provide NCD services. Major perceived reasons for inadequate NCD funding were competing priorities for overall inadequate government funding for health services.

External NCD funding opportunities were recognized by 86% of senior officers. Primary funding sources were nonprofit organizations such as Palliative Care Association of Malawi, Family Planning Association of Malawi, the WHO, UNICEF, the Diabetes Association of Malawi, Partners in Hope, other foundations, and so on.

Perceived Challenges and Opportunities for NCD Prevention and Management Services

More than half of senior officers endorsed each of five potential challenges to effective implementation of NCD services. Almost all (91%) cited inadequate financial capacity, 78% affirmed inadequate human resources, 65% reported inadequate technical capacity, 56% agreed that the community lacked knowledge about NCDs, and 52% viewed data management as weak.

Challenges to NCD prevention and management mentioned most frequently by service providers in open-ended comments included general lack of resources; inadequate staff, equipment, and supplies; and erratic drug supply. Lack of transportation for community outreach was a major theme. Opportunities identified by service providers to improve NCD services also focused on resources overall and specifically for community outreach for NCD

awareness, prevention, and service provision; funds for transportation to communities were emphasized. Staff training regarding NCDs was mentioned frequently.

Community awareness and outreach was also a major theme among health education officers and nutritionists regarding opportunities to address NCDs. Community-based clinics, enhanced NCD screening efforts, capacity-building, and better coordination and integration of services among departments were emphasized as opportunities to improve NCD services. Several respondents mentioned that the nutrition department should expand focus to include NCDs in addition to current attention on malnutrition.

Study Limitations

Available time and resources limited study participation to Malawi MOH personnel from 10 health districts and 3 central hospitals selected to provide representation of current variation in NCD programming resources. Lack of random selection of health districts and limiting participation to personnel providing direct preventive and management services could produce biased reporting. Additionally, engaging clients and communities would provide additional perspective regarding effectiveness of NCD programming. Finally, triangulation of these data with a population-based study of NCD prevalence and risk factors would better inform planning and development of culturally sensitive NCD programming.

Discussion, Policy Implications, and Conclusions

Malawi MOH personnel reported increased prevalence of lifestyle-related NCDs with hypertension and diabetes as most prevalent, consistent with current estimates (Msyamboza et al., 2013). NCD burden is likely to be even higher than observed since respondents reported that patients demonstrate poor health seeking behaviors and delay seeking care until NCD complications arise. Findings from this study indicate that current services available to prevent, detect, and manage NCDs lag behind the increasing prevalence of NCDs. Results also provide insight into strategies that may facilitate better coordination and use of scarce resources, however.

NCD services were heavily oriented toward clinical services and management of existing NCDs rather than prevention through lifestyle change. The reported focus on facility-based NCD screening for patients referred for other services versus more comprehensive community-based efforts is consistent with the relatively minimal reported emphasis on community outreach and awareness efforts or linkage between clinical services and the community. Respondents consistently emphasized the need for additional resources to initiate community-based programming in order to enhance NCD prevention and screening.

Data management is essential for program planning, monitoring, and evaluation at both district and national levels. A large percentage of health districts reported using paper-based data management systems, and NCD data included in reports to the national system were limited in scope and volume. A more comprehensive and integrated data management system for NCDs would allow for a more efficient, robust, and complete database to guide resource allocation as noted in national and global recommendations for NCD control (Amuyunzu-Nyamongo et al., 2013; Atun et al., 2013; Government of Malawi, MOH, 2013; WHO, 2008, 2012, 2013).

Despite government efforts to establish a strong NCD program, study respondents indicated inadequate resources for NCD services including financial capital, human resources, equipment and supplies, and transportation. NCDs were included in district implementation plans with less than half of the planned activities funded, largely due to competing priorities. Collaboration with local, national, and international organizations helped fulfill some needs, primarily related to clinical services and NCD management rather than prevention.

Policy implications of this study are consistent with findings from the 2010 Global Survey related to inadequate funding of plans, inadequate population-based surveillance, and gaps in health systems related to NCD prevention and control (WHO, 2012). Specific opportunities for strengthening NCD programming in Malawi suggested by results of the present study and previous global policy recommendations include expanded partnerships and networking, service integration, creative funding strategies, and effective use of technology (Amuyunzu-Nyamongo et al., 2013; Muna, 2013; WHO, 2013). Priorities for enhancing and expanding NCD prevention and management services should include (a) better integration of services within the existing infrastructure and human resources with emphasis on capacity building; (b) greater implementation of planned NCD activities; (c) a stronger, more comprehensive data management system; and (d) innovative funding solutions.

Integrating nutrition and health education staff stationed in all district health offices and central hospitals more fully into the NCD program and effective integration of the NCD program with long-established programs such as tuberculosis, HIV, and nutrition could be an efficient way to facilitate greater community outreach and active NCD screening. More comprehensive and systematic pre-service and in-service NCD training for all Malawi MOH personnel would build capacity and facilitate this integration and strengthen efforts to prevent, identify, and manage NCDs with greater emphasis on screening and lifestyle change.

Resources necessary for implementation of planned NCD activities would be facilitated by a stronger and more comprehensive data management system to prioritize needs according to burden and to more easily identify cost-effective prevention and management strategies. Finally, establishing intentional, systematic, and formal collaborative relationships with partners external to Malawi MOH for

NCD programming would promote enhanced and sustained NCD prevention and management efforts, particularly in the community setting.

Implications for implementation science include the opportunity to employ principles of community-based participatory research to accurately estimate and address the rising NCD burden in the African region (Israel, Shulz, Eng, & Parker, 2005; Minkler & Wallertstein, 2008; Viswanathan et al., 2004). Medical and health services agencies and personnel, community members, and other stakeholders should be involved in activities to (a) assess and build capacity; (b) identify feasible, cost-effective, and sustainable strategies to allocate resources and provide NCD services; and (c) implement and evaluate evidence-based NCD prevention and management services and programs (Diem, Brownson, Brabauskas, Shatchkute, & Stachenko, 2015; Ebrahim et al., 2013). Such efforts will require collaboration among African nations and with academic partners to avoid duplication of efforts and to identify the most appropriate and effective approaches to address NCDs in the African region.

Declaration of Conflicting Interests

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