Belize National Plan of Action for the Prevention and Control of Non-Communicable Diseases 2013-2023



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Belize, CA

The Belize National Plan of Action for the Prevention and Control of Non communicable Diseases 2013-2023

Foreword

Belize has experienced over the last two decades a significant burden by the incidence and prevalence of non communicable diseases, also termed as chronic diseases. The statistics have revealed that cardiovascular diseases have always ranked among the leading causes of hospitalization across the country.

This National Strategic Plan is developed with the purpose of setting the ground to address, as an initial effort, risk factors for four major non communicable diseases (NCDs) prevalent in all four health regions of Belize. Currently there is a global effort, to which Belize has signed on, in determining and targeting specific risk factors responsible for the prevalence of NCDs. I am aware that the goal of this plan is far reaching and very ambitious and therefore have carefully considered the time span of this endeavor, as well as the strategies to be used. I have great expectations considering the fact that we face a cultural challenge in changing eating patterns and grappling with sedentarism. For the aforementioned reasons we need to embark together with other Government and social actors to put in place sustainable mechanisms that will facilitate healthy eating, physical activity and behavioral change towards the wellness approach.

I want to strengthen efforts in every avenue within the public health setting. I am already aware of the very high cost of curative medicine needed to address the outcomes of NCDs that include but not limited to strokes, heart attacks, amputations, blindness, just to name a few. The Ministry of Health has initiated and is funding the management of End Stage Renal Diseases through hemodialysis. It is necessary to urgently embark in strategies that are sustainable and that on the medium to long term will impact directly on the prevention and control of those diseases responsible for renal complications.

Lastly, I want to thank the Chief Executive Officer of the Ministry of Health, Dr. Peter Allen, and the Director of Health Services, Dr. Michael Pitts, for spearheading the effort, and every organization that contributed directly to the development of the Strategic Plan.



Honorable Pablo Marin

Minister of Health

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ACRONYMS

BDA	Belize Diabetes Association
BHIS	Belize Health Information System
BMDA	Belize Medical & Dental Association
BTL	BelizeTelemedia Limited
CAMDI	Central American Diabetes Initiative
CAREC	Caribbean Epidemiological Research Centre
CARICOM	Caribbean Community
CCM	Chronic Care Model
CFNI	Caribbean Food & Nutrition Institute
CHRC	Caribbean Health Research Council
CHWs	Community Health Workers
CMDS	Caribbean Minimum Dataset
CME	Continuing Medical Education
COPD	Chronic Obstructive Pulmonary Disease
CVD	Cardiovascular disease
CWD	Caribbean Wellness Day
DALY	Disability Adjusted Life Years
DHS	Director of Health Services
DM	Diabetes Mellitus
FCTC	Framework Convention on Tobacco Control
FBDG	Food Based Dietary Guideline
FP	Focal Point
GDP	Gross Domestic Product
GSHS	Global School Health Survey
GYTS	Global Youth Tobacco Survey
HECOPAB	Health Education & Community Participation Bureau
HFLE	Health and Family Life Education
HIV	Human Immunodeficiency Virus
IACR	International Association of Cancer Registries
IARC	International Agency for Cancer Research
IDB	Inter-American Development Bank
INCAP	Instituto de Nutrición de Centroamérica y Panamá
KPIs	Key Performance Indicators
LAC	Latin America and the Caribbean
M&E	Monitoring and Evaluation
MOEYS	Ministry of Education, Youth and Sports
MOF	Ministry of Finance
MOH	Ministry of Health
MOL	Ministry of Labour

NDACC	National Drug Abuseand Control Council
NGO	Non –Governmental Organization
NHI	National Health Insurance
PAHO	Pan American Health Organization
PE	Physical Education
PHC	Primary Health Care
POS	Port-of-Spain
PYLL	Potential Years of Life Lost
QOC	Quality of Care
TOR	Terms of Reference
UB	University of Belize
UN	United Nations
WB	World Bank
WHO	World Health Organization

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Ministries: Health (inc. NDACC), Agriculture, Education, Human Development Social Transformation and Poverty Alleviation Youth & Sports, Finance, Trade, Public Service, Immigration & National Security, NGOs, Trade Unions, Universities, schools,

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1. Introduction

The ***Belize National Plan of Actionfor the Prevention and Control of Non communicable Diseases (NCDs) 2013-2023***(NCDs)aims to reduce the premature mortality caused by the four major NCDs (cardiovascular diseases, cancer, diabetes and lung disease) by 25% by 2023. This will be achieved through policy and advocacy; health promotion and risk factor reduction of the four common risk factors (tobacco, alcohol, unhealthy diet, physical inactivity); improving disease management and patient self-management; and strengthening surveillance, monitoring.

This Plan was developed collaboratively with the Ministry of Health and relevant stakeholders involved in NCD prevention, control and management and with technical assistance from the PAHO Regional Office, Washington and the Instituto de Nutrición de Centroamérica y Panamá (INCAP). Itis aligned with the ***World Health Organization (WHO) NCD Global Monitoring Framework and Global Action Plan 2013-2020***[1] and the ***PAHO Regional Plan of Actionfor the Prevention and Control of NCDs 2013-2019***[2]the***Millennium Development Goals (MDG) Post 2015 Development Agenda***[3]and aims to meet the global and regional goals of a 25% reduction in premature mortality due to NCDs. It is also harmonious with the Horizon 2030 Development Framework[4] which places healthy productive citizens (throughout the life cycle) at the core of long term development and espouses the refocusing of the public health system to emphasise healthy lifestyles with a life cycle approach as a critical aspect to preventative care.Itbuilds onthe draft ***National Strategic Plan for NCDs 2013-2023,*** the development ofwhich was guided

[1] WHO *NCD Global Monitoring Framework and Global Action Plan 2013-2020. Available at* http://www.who.int/nmh/events/2012/discussion_paper2_20120322.pdf.

[2] Pan American Health Organization.*RegionalPlan of Action for the Prevention and Control of NCDs 2013-2019* available at http://www.paho.org/hq/index.php?option=com_docman&task=doc_view&gid=21346&Itemid=

[3]Taken from WHO Discussion Paper October 2012.*Positioning Health in the Post-2015 Development Agenda*. Available at http://www.who.int/topics/millennium_development_goals/post2015/WHOdiscussionpaper_October2012.pdf

[4]Horizon 2030 Development Framework.
Available at http://www.Belize.g.ov.bz/index.php/government-initiatives/horizon-2030

by the***Strategic Plan Of Action For The Prevention And Control Of Chronic Noncommunicable Diseases (NCDs) For Countries Of The Caribbean Community 2011-2015***[5] and the ***WHO 2008-2013Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases***[6]and on consultation with NCD Commission members and other relevant entities across several government sectors (Health, Education, Agriculture, Economic Development), Non-governmental Organizations (NGOs) and the private sector individually as well as at a final stakeholder session that brought these entities together to further shape the plan and enrich the document which was drafted to be consistent with the WHO and CARICOM directions/frameworks but also to reflect the unique Belizean context. The draft strategy incorporates a situational analysis which was informed by epidemiological evidence, stakeholder feedback and a review of relevant policies, procedures and programmes and defines a strategic approach for Belize, providing a roadmap for the prevention, management and control of NCDs in the Belizean context. This plan of action builds on that work and applies the samevision, purpose, four lines of action,eight strategic objectives and time period of implementationbased on the established context (modified and updatedwhere applicable) going as far as the operationalisation through proposed actions, indicators (33 in total) and key partners.It will support the implementation of strategies to reduce the NCD burden and improve quality of life ensuring that services for the prioritised NCDs are sustained and equitably distributed to the population and therefore, ultimatelythe achievement of the National Health Goals which seek to make quality health care services available to all Belizeans.

[5]*Strategic Plan Of Action For The Prevention And Control Of Chronic Noncommunicable Diseases (NCDs) For Countries Of The Caribbean Community 2011-2015*http://www.caricom.org/jsp/community_organs/health/chronic_non_communicable_diseases/ncds_plan_of_action_2011_2015.pdf

[6]*WHO 2008-2013Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases*. available at:
http://www.who.int/nmh/publications/9789241597418/en/

2. Background

2.1 NCD Burden

2.1.1 Global NCD Burden

Noncommunicable diseases (NCDs) account for 60% of deaths worldwide and are the largest contributor to morbidity as well as mortality.[7]According to the WHO, 80% of NCD related deaths occur in low and middle-income countries.[1] NCDs are a therefore also a developmental issue, representing an increasing economic burden globally that impacts all levels of society. This is due to increasing health care costs and economic loss due to premature deaths. For example, a 10% rise in NCD cases is projected to cause a 0.5% decrease in the rate of annual growth.[8] Moreover; poverty exposes individuals to NCD-related risk factors, while the cost of care for an NCD patient can lead families into catastrophic expenditures and worsening poverty.

[7]World Health Organization.Global Status Report on NCDs 2010.
[8]Stuckler D. Population causes and consequences of leading chronic diseases: a comparative analysis of prevailing explanations. Milbank Quarterly, 2008, 86:273–326.

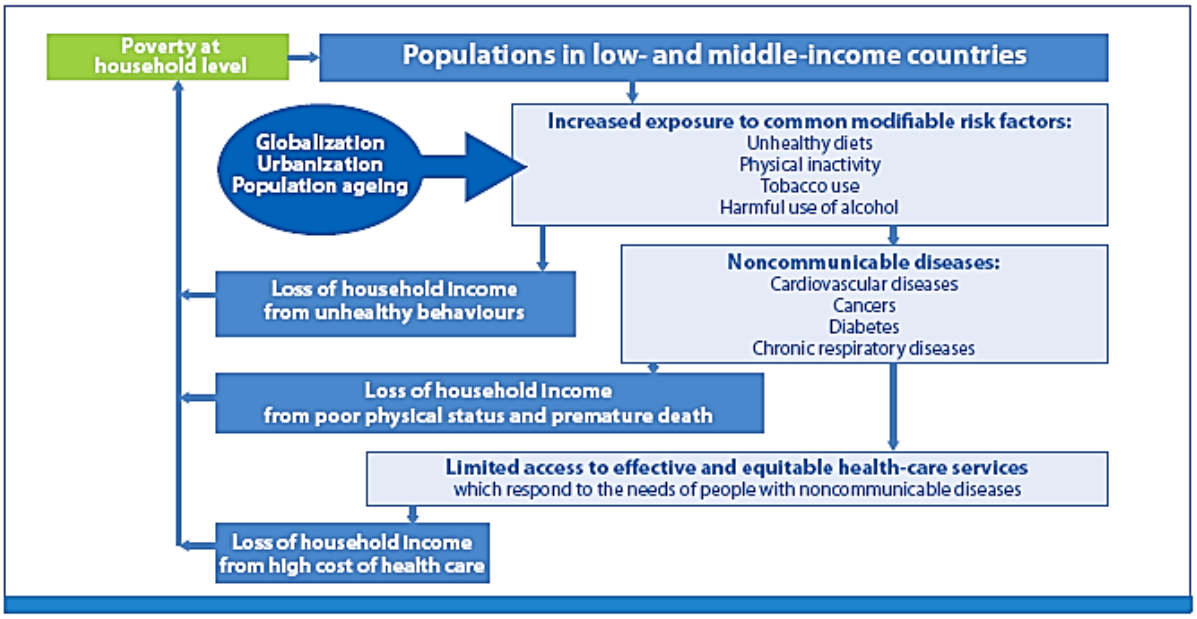


Figure 1.Poverty Contributes to NCDs and NCDs Contribute to Poverty[9]

[9] Taken from *WHO Global Status Report on NCDs 2010*

Four diseases primarily drive the global burden of NCDs and constitute the majority of the NCD burden: cardiovascular disease, chronic respiratory disease, diabetes and cancers. In addition, these four diseases are linked by four common risk factors: tobacco consumption, alcohol consumption, physical inactivity and unhealthy diets (Figure 2). Notably, a significant percentage of NCD related deaths could be avoided with cost-effective interventions that aim to prevent and control these lifestyle-related risk factors.

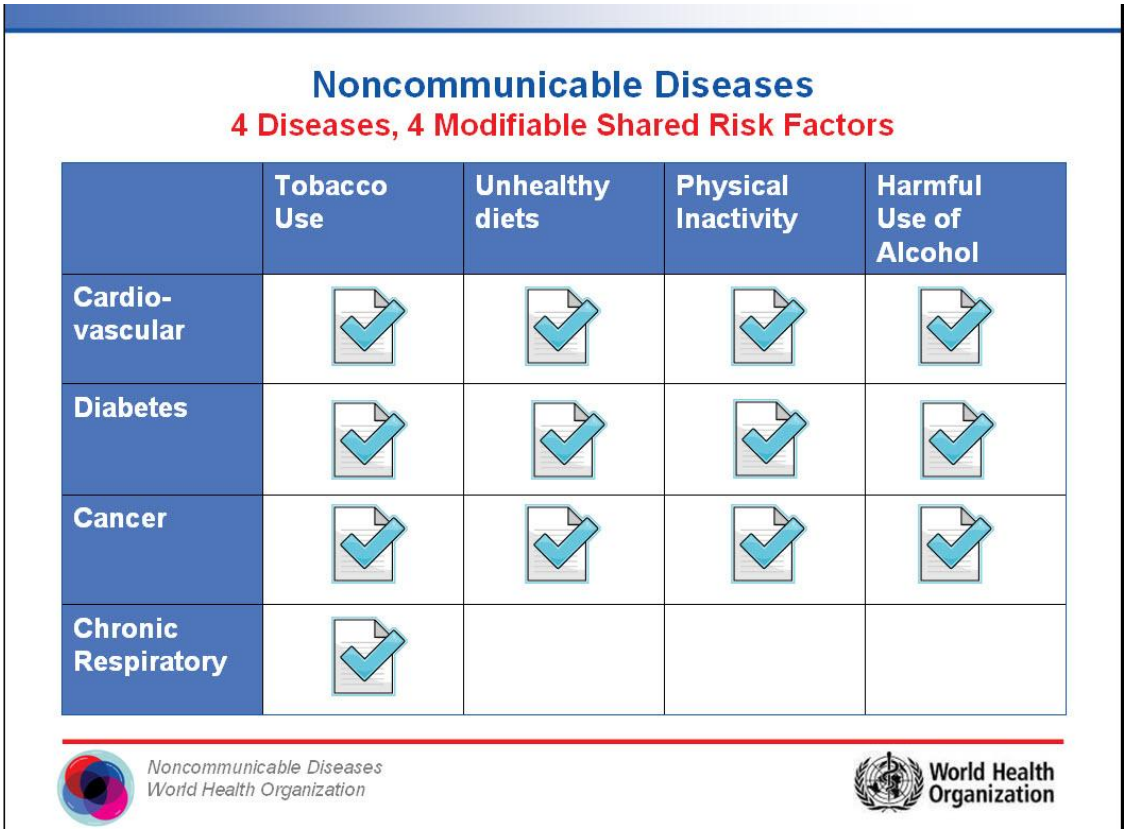


Figure 2. NCDs and Their Risk Factors - the 4 by 4

2.1.2 NCDs – Region of the Americas

At the regional level, the Caribbean epidemic of chronic NCDs is the worst in the region of the Americas.[10] In the Latin America and Caribbean region, in 2005, 31% of all deaths were attributed to cardiovascular disease; cancer accounted for 20% of NCD mortality; and an estimated 35 million people in the region were affected by diabetes. In terms of the risk factors, the region is characterised by a low consumption of fruits, vegetables and whole grains; low physical activity – an estimated 30-60% of the population does not achieve the minimum recommended level of physical activity; tobacco consumption is the leading cause of avoidable deaths. For deaths attributable to various risk factors, by disease type high blood pressure is the single most important cause, followed by overweight, alcohol and smoking. Alcohol, a known risk factor for cancers, CVD, liver disease and neuro-psychiatric conditions was implicated in 20-50% of road traffic fatalities in the region.

With regards to economic impact, the cost of treating diabetes and hypertension has been shown to be as high as 5 to 8% of GDP in selected countries in the region.[11]

Regional NCD response

The profile of NCDs has been raised by several regional declarations including the following: include the Caribbean Community's Port-of-Spain declaration on NCDs (2007); the declaration from the Regional High-level Consultation of the Americas on Noncommunicable Diseases and Obesity (2011); the NCD Declaration from the Council of Ministers of Health of Central America and Dominican Republic (2011); the Union of South American Nations resolution to strengthen inter-sectoral policies on NCDs (2011); the Andean ministers of health resolution on NCDs prevention and control (2010); and the

[10] PAHO Health Situation in the Americas. Basic Indicators 2008

[11] Taken from *Strategic Plan Of Action For The Prevention And Control Of Chronic Noncommunicable Diseases (NCDs) For Countries Of The Caribbean Community 2011-2015* with data provided by Dr. O. AbdullahiAbdulkadri, University of the West Indies

Southern Cone Common Market intergovernmental commission for NCD prevention and control (2011*).*

Additionally, momentum has been building in the fight against NCDs as evidence by the development of action plans by several countries and the implementation of a number of population-based interventionssuch as the ratification and full implementation of the Framework Convention on Tobacco Control; restrictions on availability of retailed alcohol, with comprehensive restrictions and bans on alcohol advertising and promotion endorsed through adoption of the Global Strategy to Reduce the Harmful Use of Alcohol and a regional plan of action; replacement of trans fats with polyunsaturated fats, mass media campaigns on salt intake reduction and reduced salt and interventions to increase awareness of healthier choices and create environments that promote such choicessuch as food labelling specifications and regulations and policies on foods and drinks permitted in schools and public institutions[12].

On the other hand, regional assessments point to highly fragmented health care services with inadequacies in access to high-quality, effective preventive services, early diagnosis, and timely treatment of NCD that are very often associated with socioeconomic factors and the need to emphasise improving accessibility, affordability, and quality in the broader health system.[13]

Challenges are also evident for allocation of resources for NCDs as indicated by less than a third of countries reportedly having a budget allocated for NCD and risk factor surveillance and less than half reportedly using their NCD data for evidence-based policy-making and planning.

Additionally, the PAHO regional plan of action points to the need for health information systems to better integrate the collection of the relevant data from multiple sources and to and strengthen competences for analysis and use of the information and the adequate funding required to achieve this.

[12] Point 18 of the PAHO regional *Plan of Action for the Prevention and Control of NCDs*
[13] Point 20 of the PAHO regional *Plan of Action for the Prevention and Control of NCDs*

2.1.3 NCD Burden in Belize

NCD morbidity and mortality

Belize continues to undergo an epidemiological transition in which NCDs have become increasingly prominent in the disease profile and have been increasing in their share of the disease burden for well over a decade. Cardiovascular diseases (CVDs), cancers, diabetes and chronic respiratory diseases are responsible for around 40% of deaths annually- 681 out of a total of 1555 (44%) of deaths in 2011. This is compared with 28% for injuries and external causes; and 20% for communicable diseases including HIV and acute respiratory tract infections and "other" causes combined in that same year. Moreover, 320 (47%) of the 681 of the deaths due to NCDs (roughly 21% of the 1555 total deaths in 2011) were premature deaths in persons less 70 years of age of which (169) 24.8% were males less than 70 and 151 (22.2%) were females less than 70. Almost 43% of these 320 premature deaths were attributable to cardiovascular disease; 29% to cancer; 24% to diabetes and 4% to chronic respiratory diseases.

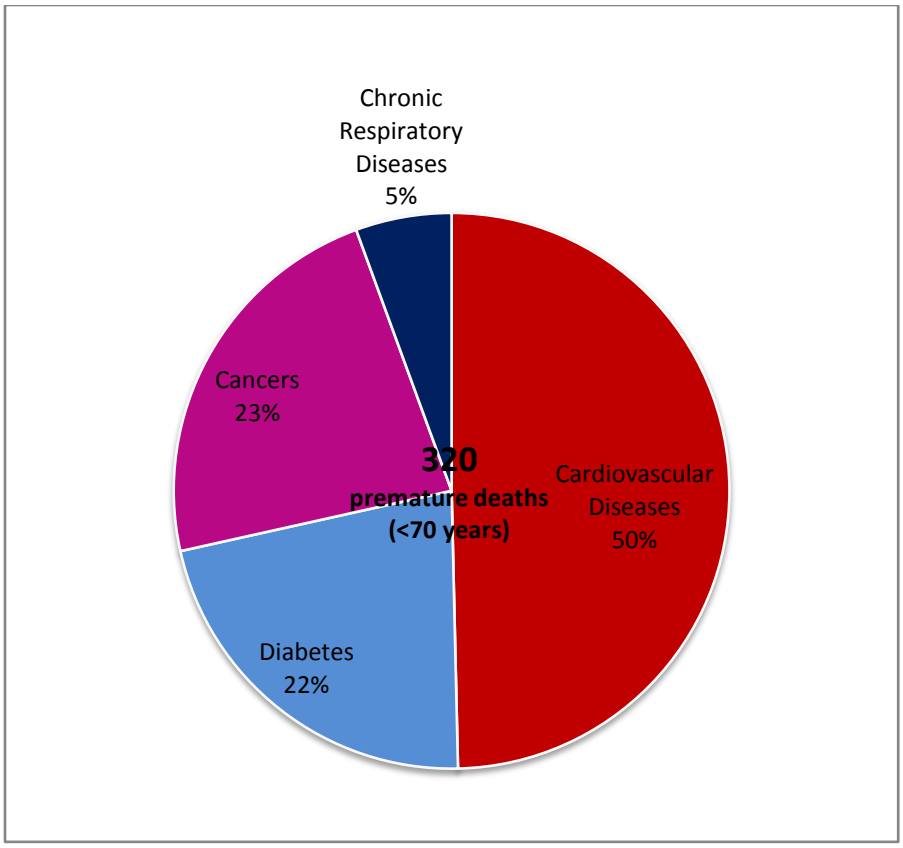
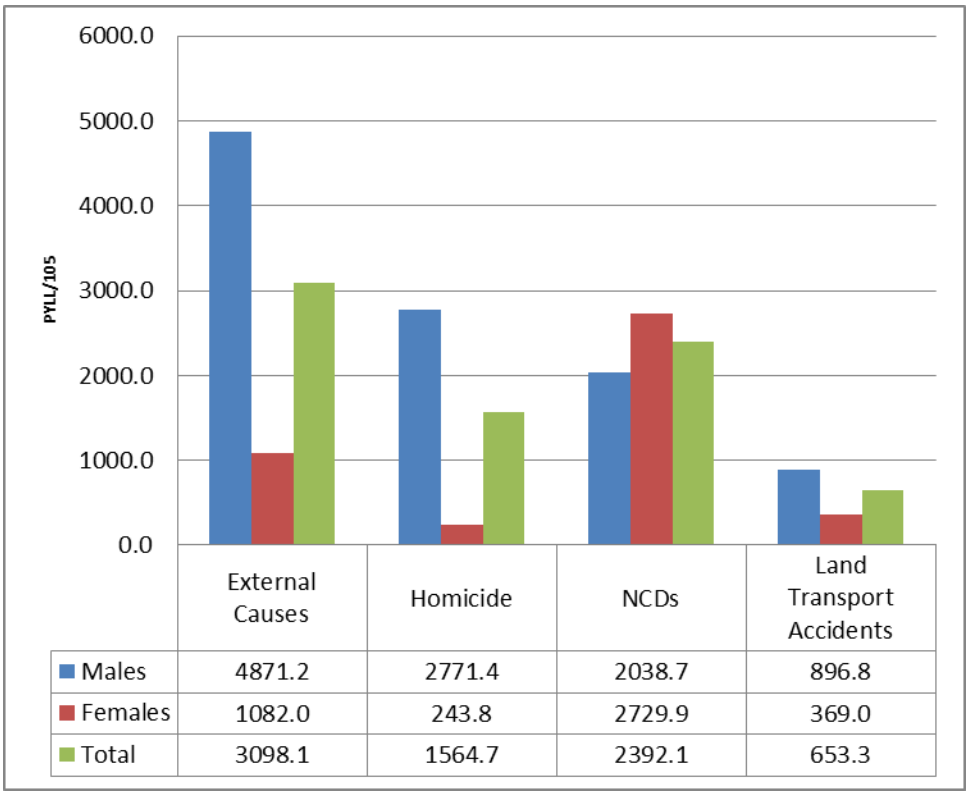


Figure 3. Premature NCD Deaths in Belize 2011

In 2011 the overall age-standardised mortality for the four NCDs - cardiovascular diseases (CVDs), cancers, diabetes and chronic respiratory disease was approximately 338 deaths per 100,000 and 159 per 100,000 for persons less than 70 years. The highest mortality rates were for cardiovascular diseases and the lowest for chronic pulmonary diseases and generally higher in males than females except in the case of diabetes and in cancers in persons less than 70 years where the rates were higher for females.

In terms of potential years of life lost (PYLL)[14] 2011 country data showed that the four NCDs were responsible for almost 2400 PYLL per 100,000 population with CVD accounting for roughly 41% of PYLL due to NCDs, cancers 34%, diabetes 21% and chronic respiratory diseases 4%.

[14] Based on 2011 country life expectancies of 72.2, 77.1 and 74.6 years for males, females and total population respectively



	External Causes	Homicide	NCDs	Land Transport Accidents
Males	4871.2	2771.4	2038.7	896.8
Females	1082.0	243.8	2729.9	369.0
Total	3098.1	1564.7	2392.1	653.3

Cardiovascular diseases

For the CVDs the burden is largely attributable to ischemic heart disease (IHD), cerebrovascular disease and hypertensive disease which together account for more than 75% of deaths due to CVDs. Belize has seen an increase in the proportion of CVD deaths due to IHD and cerebrovascular disease between 2001 and 2011 going from 23.2% to 33.4% in the case of IHD and 19.8% to 27.8% of CVD deaths in the case of CVD.

Cancers

In the case of cancer, more than 10% of deaths annually are attributable to cancer and this proportion has not changed significantly between 2001 and 2011. Almost 40% of the 1780 cancer deaths for that period were due to cancer of the cervix (12.5%), digestive tract (colon and stomach -11.6%), lung (10.7%) and female breast (5.2%) combined.The age-standardised

2012 incidence rate for cervical cancer was found to be 36.9 per 100,000 population[15] and is comparable to the high risk regions of Eastern and Western Africa with rates over 30 per 100,000[16]. This finding is consistent with previous assessments in which the estimated incidence rates for Belize were among the highest for the Caribbean region[17]. Additionally, uptake of screening according to national guidelines is suboptimal – the last reported based on a household survey conducted in 2004/2005 was 62%.[18]

Diabetes

The proportional mortality due to diabetes has increased from 5.6% in 2001 to 9.6% of total deaths in 2011. Age-standardised mortality rates are comparable with regional estimates with females having higher rates than males both overall (87.6/10^5 and 65.2/10^5 respectively) and for persons <70 years (41.5/10^5 and 38.7/10^5 respectively).

Hospitalization due to diabetes is also showing an increasing trend. With regards to prevalence, the 2006 the Central American Diabetes Initiative (CAMDI) survey revealed a prevalence of diabetes mellitus among persons 20 and older to be 13.1% overall (5.6% newly diagnosed and known cases7.7%) and with females having double the prevalence of males (17.6% and 8.3% respectively).[19]

Chronic respiratory diseases

Chronic respiratory diseases, including chronic obstructive pulmonary disease (COPD) and asthma, carry the smallest proportion of the NCD-related mortality burden, and account for approximately 2% of deaths and 5% of premature NCD deaths <70 annually. Males are affected

[15] National Epidemiology Unit 2012

[16] International Agency for Cancer Research.Globocan Report 2008. Available at http://globocan.iarc.fr/factsheets/cancers/cervix.asp

[17] GLOBOCAN 2000: Cancer Incidence, Mortality and Prevalence Worldwide, Version 1.0. IARC CancerBase No.5. Lyon, IARC Press, 2001.

[18] Taken from PAHO 2012***Situation Analysis Cervical Cancer Prevention And Control***which was submitted by Maternal & Child Health Technical Advisor

[19] The Central America Diabetes Initiative (CAMDI) Survey of Diabetes, Hypertension and Chronic Disease Risk Factors Belize 2009.

more than females with 1.5 to 4 times the number of deaths annually and approximately 1.5 times the PYLL/10^5 in 2011 (almost 7 times the number of PYLL/10^5 in 2009) as compared to females. COPD accounts for around 70% of total deaths caused by chronic respiratory diseases.

With regards to morbidity, chronic respiratory diseases are responsible for between 1 to 3% of hospitalizations annually and 3 to 4% of hospitalizations in males. For the paediatric age group, asthma accounts for around 5% of emergency visits and 10-12% of admissions for the 1-4 and 5-9 age-groups.

Risk factors – behavioural & metabolic

The Central American Diabetes Initiative (CAMDI)[20] survey also revealed a high prevalence of known NCD risk factors: overweight, obesity[21] and high cholesterol were 33.2%, 32.5%, and 5.1% respectively and sedentarism[22] was almost 78%. Mean number of daily servings of fruit and/or vegetables was 1.5 per day. Current tobacco use was around 10% and much higher in males (19.1%) than females (1.7%). Nonetheless, the adult prevalence of tobacco is lower than regional and global estimates and Belize is considered a relatively low smoking country. On the other hand, the prevalence of current tobacco smoking may be higher in adolescents as implied by the findings of the GYTS whereoverall prevalence was 26.7%, and the prevalence in males and females was 36.2% and 18.6% respectively.

With regards to alcohol, the CAMDI finding on alcohol binge drinking was 7.6% overall and much higher in males (13.1%) than females (2.7%). Per capita consumption of alcohol is estimated at around 6 litres[23] but data linking the effects of the harmful use of alcohol are lacking. However, reports from the National Drug Abuse Council indicate that over 54% of clientele seeking services for addiction are for alcohol.[24] This is compared with remaining 46%

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[20] 2006 Central American Diabetes Initiative Survey available at http://health.gov.bz/www/publications/epidemiology-publications

[21] Combined overweight and obesity i.e BMI >25 kg/m^{2}66.3% overall and 59.2 & 73.6% respectively for males and females

[22] assessed as getting less than 60 minutes of exercise per week

[23] WHO 2011. Global Status Report on Alcohol & Health

[24] National Drug Abuse and Control Council (NDACC) 2012 Annual Report.

for other substances including marijuana, cocaine, tobacco, and heroine combined. Additionally, anecdotal evidence has linked alcohol use to homicides and road traffic fatalities in the country.

Prevalence (%) of:	Total	Males	Females
Current adult tobacco smokers	10.5	19.1	1.7
Adolescent tobacco smokers (ages 13-15)[25]	26.7	36.2	18.6
Binge drinking among adults	7.6	13.1	2.7
Low physical activity in adults	77.7	75.4	80.4
Overweight-obesity (BMI >25 kg/m^2)	66.3	59.2	73.6
Adults with diabetes	13.1	8.3	17.6
Adults with raised blood pressure	28.7	28.6	24.4
High cholesterol (>200 mg/dl)	5.1	4.1	6.0
Mean number of servings of fruits and/or vegetables per day (adults)	<1.5	<1.5	<1.5

Table 1. Prevalence of Selected NCD Risk Factors in Belize

[25] From the Global Youth Tobacco Survey (GYTS) 2008 conducted among persons ages 13 to 15 years

Economic impact of NCDs in Belize

Evidence of the economic impact of NCDs in Belize is also limited. This notwithstanding, the National Health Accounts assessment exercise conducted in 2010 revealed that 1.6% of health expenditure was for dialysis.[26] This is in the context that the number persons receiving dialysis is less than 0.015% of the entire population of Belize. This single cost is indicative of the high price of tertiary care for end stage disease.

2.1.4 Country capacity and response[27]

2.1.4.1 Public Health Infrastructure, Partnerships and Multisectoral Collaboration for NCDs

The NCD Commission & Cross Sector Working

The country has a multi-sectoral NCD commission chaired by the Director of Health Services of the Ministry of Health (MOH). However, a national system to facilitate international or regional inter-sectoral collaborations for NCD control is not in place. The Commission was established by MOH in 2010 in response to the Declaration of Port of Spain. The Commission's stated goal was to strive to foster a multi-sectoral approach to addressing the epidemic of NCDs, to advocate and ensure appropriate policies and guidelines are put in place for NCD prevention and control, and to advise the Minister of Health on NCD policies and legislations.

Although the commission's membership includes stakeholders from health, private sector and representatives from national NGOs and international organizations including the following: organizations: Ministries of Health and Agriculture, National Health Insurance, Kidney Association of Belize, Belize Diabetes Association, Cancer Society, Belize Medical and Dental

[26]National Health Accounts, Ministry of Health Belize 2010

[27]Summarized based on the following surveys/assessments: WHO 2013. Country Profile of Capacity & Response to NCDs; PAHO 2012 Country Capacity Survey in Preparation for Carmen Meeting; INCAP Benchmarking Survey of National response to UN HLM on NCDs; PAHO 2012 Situation Analysis Cervical Cancer Prevention And Control and on stakeholder consultations

Association, PAHO, it has become apparent that certain strategic partners may also need to be included. The Ministry of Education for example does not have representation. To ensure the plan's success, the membership should be reviewed to ensure the inclusion of essential partners. Additionally due consideration needs to be given to the terms of reference and mandate. The NCD Commission should have primarily an advocacy, monitoring and oversight role rather than an implementation role; appropriate coordination mechanisms need to be established. It needs to maintain NCDs as a priority continuously lobbying Cabinet to keep NCDs on the front burner. It is anticipated the commission will use this plan to guide and monitor its implementation.

Resources for NCDs

Dedicated NCD-specific resources e.g. by way of a budget line have not been allocated and an NCD programme per say does not exist with the MOH so that resources specifically for NCD prevention and control would be difficult to track. Resources for NCDs are currently subsumed under the other activities and programmes of the ministry e.g. primary prevention and health promotion, early detection/screening, health care and treatment and rehabilitation services within the scope of services offered by the ministry and integrated within the healthcare system; disease surveillance which includes communicable and noncommunicable diseases and the generation of mortality statistics by cause of death on routine basis; the free provision of NCD medicines through their inclusion on the essential drug list of the country.

Political Will

It is clear that the economic, social and disease burden of NCDs in Belize is high. As a group, NCDs currently represent one of the greatest threats to health, wellness and economic development in Belize; therefore this plan's success requires raising the priority and profile of the public health threat of NCDs to provoke action. The government of Belize is the main healthcare provider, therefore a clear, strong and sustained political and policy commitment

from government is required. The challenge of NCDs is one that requires sustained, high level action commensurate with the scale of the problem.

2.1.4.2 Status of NCD-Relevant Policies, Strategies & Action Plans

NCD policy

An NCD policy has not been developed but an integrated national NCD strategy has been drafted for the priority NCDs diabetes mellitus, CVDs, cancer and chronic respiratory diseases and for which the following four strategic lines of work have been devised: Risk Factor Reduction, Health Promotion and Communications; Integrated Disease Management & Patient Self-Management; Surveillance, Monitoring & Evaluation; Programme Management, Policy & Advocacy. It addresses the major risk factors harmful use of alcohol, unhealthy diet, physical activity, tobacco. An NCD action plan which is aligned with this strategy is currently under development and combines early detection, treatment and care focusing on the four major NCDs: cancer, diabetes, CVD, overweight / obesity, and chronic respiratory diseases. The settings for the interventions include health care facility, school, community, workplace and households. An action for cancer is also under development.

Tobacco & Alcohol

With regards to tobacco policy, Belize has not had not yet achieved the highest level in any of the policy areas of implementation the tobacco policy (MPOWER) measures[28],Belize has signed the WHO Framework Convention on Tobacco Control. The National Drug Abuse Control Council (NDACC) is currently championing the drafting of FCTC legislation to make Belize fully compliant although the council is not duly constituted and this is likely to pose some challenges. Notwithstanding this, legal counsel was retained to complete the review and drafting and the adoption of this legislation has cabinet support. Key to the success of the adoption is

[28]World Health Organization 2008.*MPOWER: A Policy Package to Reverse the Tobacco Epidemic*.

enforcement. The full adoption of this legislation will demonstrate the political commitment to addressing one of the key risk factors for NCDs.

In Belize, there is currently no restriction on alcohol advertisement. As a result, a number of alcohol ads play during primetime often at news time. It is anticipated that the recently held regional meeting on National Alcohol Policy Development which was hosted in Belize will result in some tangible positive developments with regards to alcohol policy in Belize.

Additionally, Belizeans are exposed to TV and radio from external sources including fast food commercials for food and food high in sugar, salt and trans fats.

Trade and importations

The legislative option is at times necessary; however it should be kept in mind that legislative changes are not made in a vacuum. The impact on other sectors must be considered e.g. on trade and tourism. In anticipation of potential barriers, NCD policy positions must be formulated in a systematic fashion that considers comprehensive impact assessments and means to mitigate any unwanted effects.

The Government of Belize imposes a number of duties as well as exemptions on given imports[29]. For example gym and other exercise equipment are subject to a general sales tax of 12.5% and an environmental of 2%. On the other hand, a number of goods slated for *food for humanconsumption* including cooking oil, lard and salted edible meats appear on the list of duty-exempt goods. This avenue has yet to be examined to reduce the cost of goods and services that promote healthy living and conversely make access to unhealthy products more difficult. This population-based approach would include dialoguing with the relevant agencies and advocacy to bring NCD issues to the fore among key entities including pricing, content and quality of imported goods e.g. exercise equipment; foods with high trans-fat and monosodium glutamate content;

[29] Belize customs & excise Information available at http://www.customs.gov.bz/customs_duties.html

NutritionPolicy

While a national nutrition policy/plan does not exist per say, the National Food Based Dietary Guideline[30] (FBDG) was developed and launched in early 2012. This was a multisectoral collaborative effort spearheaded between the Ministries of Health, Agriculture (via the Food and Nutrition Security Commission), Economic Development, Human Development, Social Transformation and Poverty Alleviation, Belize Bureau of Standards, Belize Agricultural Health Authority and University of Belize with technical support from PAHO and INCAP. This guideline is being used extensively as an educational tool that provides advice about ways to improve diets and health in a manner that is easy for the public to understand and that incorporates the concept of a health Belizean food basket (Annex 5). They were developed with the following objectives: encourage healthy food choices in respect of variety, quality and quantity; limit the intake of fat, sugar and sodium; reduce the prevalence of overweight and obesity; reduce the incidence and prevalence of CNCDs among Belizeans; promote increased consumption of fruits and vegetables; improve the food handling practices of Belizeans; reduce the incidence and prevalence of micronutrient deficiency diseases; promote increased levels of physical activity among Belizeans. The guideline targets the general health population from two years of age upwards and can be used by health care providers, policy makers, community leaders, educators and the public at large.

A multisectoralFood and Nutrition Security Commission involving several of the same actors and chaired by the Ministry of Agriculture is in the process of revising the Food and Nutrition Security Policy. This presents another opportunity to bring about positive changes that could have substantial population level impact. Emphasis should be placed on incorporating measures to reduce salt, sugar and fats – saturated and trans fats.

[30] *Food-Based Dietary Guidelines for Belize 2011* available at www.health.gov.bz

MOH has also held consultation with the Bureau of Standards regarding the labelling of cigarette packs to ensure cigarette packs carry messages on the harmful effects of smoking. There has been sensitization of the only tobacco distributor, Caribbean Tobacco Limited of this impending action. The messages given were taken on board and they have pledged to work with MOH.

School feeding programme

Improving the quality of school meals is vital for improving children's health, especially in the effort to decrease levels of obesity and future risks of related diseases such as heart disease and diabetes. Furthermore, there is evidence that improvements in diet may benefit children's academic performance. In Belize, there is no policy covering school meals and coverage by feeding programmes is variable and focused on preventing malnutrition. Therefore the menus of those schools covered by the feeding programme are not predetermined and no minimum nutritional standards have been set. Additionally, vendors sell food next to school premises and control over the nutritional content of their goods is virtually non-existent. On the other hand, the MOE receives technical support from the MOH's nutritionist with regards to the nutritional content and quality of school meals. The MOE is also in the process of developing a school gardens programme for the production of healthy foodstuffs i.e. fruits and vegetables for consumption by the student population – primary schools in the first instance.

Nutrition strategies

An increasing proportion of the population purchase food from local industries or producers. Initiatives should also involve strategies to encourage voluntary reduction of salt, fat and sugar in locally produced by engaging the local food industry in dialogue food and providing local vendors with education. There is also a need to facilitate the re-interpretation of Belizean food in a healthy, affordable way.

The links between the NCDs and other issues that are associated over the life course should also be borne in mind. This would include maternal and child health, breastfeeding and

childhood nutrition and development. The MOH continues to spearhead a number of population-based initiatives exclusive breastfeeding campaigns (for the first six months of life) and healthy complementary feeding thereafter (up to 18 to 24 months) as well as micronutrient supplementation and deworming initiatives for pregnant women, women of child-bearing age and children. In addition, the MOH is now in the process of collaborating on a rice fortification initiative along with the Belize Bureau of Standards and the Ministry of Agriculture.

Physical Activity

Regular physical activity can help prevent cardiovascular disease, reduce the risk of developing type II diabetes and some cancers. It can also help build and maintain healthy bones, muscles and joints reducing the risk of injury; and promotes psychological well-being.[31],[32]

Physical Activity Guidelines

National Physical Activity Guidelines for Belizeans would outline the minimum levels of physical activity required to gain health benefits and outline everyday ways to incorporate physical activity. Since the requirements vary with age, these guidelines should look at different stages of life, children, adolescents, adults and the elderly. The focus must remain on low cost, practical options for people and should be heavily promoted to encourage take up. This guidance should involve expertise from MOH, MOE, Ministry of Sports and other relevant partners to develop a national physical activity guide.

Of particular concern is physical education (PE) in schools. Currently the requirement is a single session weekly and in the sessions teachers are not required to participate with students. The national guidance needs to place a renewed emphasis on PE in schools, elevating its importance to that of other subjects since being physically active is essential for growth in children and

[31]Global Recommendations on Physical Activity for Health World Health Organization 2010

[32]Parfitt G and Eston RG.The relationship between children's habitual activity level and psychological well-being.ActaPaediatr. 2005 Dec;94(12):1791-7.

adolescents. Due consideration also has to be given to the issue of adequate spaces in which to conduct PE.

Adult guidelines should also include succinct guidance for work-based programs. While a few Belizean businesses have started wellness initiatives, it is still the exception rather than the rule.

Making Physical Activity Safer and Easier

Safety concerns are a barrier to outdoor (low cost) physical activity particularly in urban areas. There is therefore a need for safe spaces where people can safely undertake activities such as walking, cycling, jogging and games.

The Belize District including Belize City, which is the commercial centre of the country, is the most populous part of the country where almost 30% and 20% of the population respectively reside[33]Belize City is undergoing major renovations to many of its streets and some parks. This improved infrastructure while primarily aimed at improving conditions for vehicular traffic may also present the opportunity to undertake mass population physical activity such as seen in other countries of the region with the potential to reach a considerable proportion of the population and that could be replicated elsewhere in the country.

2.1.4.3 Health Information Systems, Surveillance & Surveys for NCDs

NCD surveillance

Surveillance, monitoring and evaluation perform a vital function across the intervention pathway for NCD management. In resource constrained settings such as Belize, it is essential that there is an evidence-based case for instituting policy and interventions to reduce NCD burden. Epidemiological data on both risk factors and chronic disease conditions provide critical information on where to base priority as well as the selection of interventions for particular target groups. NCD surveillance is subsumed under the national surveillance system which is

[33]Derived from Statistical Institute of Belize 2010 Population Census results.

managed by the National Epidemiology Unit. Reporting includes cause-specific mortality (utilizing ICD-10 codes to assign the underlying cause of death) and hospital-based morbidity. These statistics have been mainly limited to counts of reported cases, hospitalizations and deaths aggregated by age group, sex and geographic distribution. Although data dissemination mechanisms are in place and include quarterly and annual reporting and access via the MOH webpage, room for improvement exists for more systematic and timely reporting as well as in the use of the information for policy and planning. Currently much of the basic morbidity and mortality data are being reported from the Belize Health Information System (BHIS).

Belize Health Information System (BHIS)[34]

The BHIS is the main data capture tool of the MOH and is a web-based system that came on stream in 2008. It is currently distributed in all major public health facilities & labs countrywide and provides a comprehensive and integrated infrastructure to capture clinical, laboratory, pharmacy data in electronic health records (EHR) and supply chain management data in "real time", thereby allowing for the capture of population-based, health services and record-based data incorporating the use of standardised data lists for improved data capture and integrity. The full potential of the system to provide information has yet to be realised**.** This has powerful potential to improve individual health outcomes and public health performance, and optimise resource utilization.

Chronic diseases registries are special databases containing information about people diagnosed with a specific type of disease and are now widely recognised for their potential to improve quality of care. Electronic medical record systems can be used to facilitate the development of such registries and their increasing use in this manner represents the transition that is occurring from traditional surveillance systems into the realm of health and clinical informatics. The BHIS with its EMR component can facilitate the development of disease registries.

[34] Description of the BHIS available at www.health.gov.bz

This system therefore holds incredible opportunities to reap the benefits of disease registries thereby improving patient outcomes. Its potential has yet to be fully realised and limited human capacity in these areas is in large part to blame. There is need to better exploit the potential of the BHIS maximally. Additionally, for the BHIS to be fully utilised in NCD management, it must be linked to patient care management systems. Ideally, the BHIS would also be able to flexibly accommodate an NCD registration system or easily link to or integrate with other systems.

NCD risk factor surveillance and minimum dataset reporting

Belize has made considerable strides in NCD surveillance. A significant milestone was achieved in the execution of the CAMDI survey in 2006. The following risk factor surveys have also been conducted: the 2008 Global Youth Tobacco Survey (GYTS) and the Global School Health Survey (GSHS). The areas covered are as follows: harmful alcohol use, raised total cholesterol, low fruit and vegetable consumption, raised blood pressure/hypertension physical inactivity, overweight and obesity, tobacco use, raised blood glucose/diabetes. For this information to remain current, these surveys must be repeated on a periodic basis, ideally every 3 to 5 years.

Another major milestone was in the establishment of the Caribbean Minimum Dataset (CMDS) which was developed by the Caribbean Public Health Agency (CARPHA). Belize was one of the countries that piloted the dataset in 2008 and has since been submitting reports annually to CARPHA since 2009. The report is divided into minimum, optimum and optional data elaborated as 44 core, 19 expanded and 12 optional indicators related to morbidity, mortality, risk factors and preventive service provision for cardiovascular disease, cancer, diabetes, asthma and COPD, violence and injuries. This dataset allows the captures information on mortality from/with selected NCDs including age-standardised mortality rates <70 years and PYLL (based on national life expectancies); prevalence/incidence of selected conditions; risk factors for chronic diseases (Adults & Youth); health system performance Indicators including access to services, screening for NCDs and complications from NCDs and socioeconomic and context indicators. To date Belize has reported on 31 of the 44 core, none of the 19 expanded (mainly health systems performance indicators) and all of the 12 optional indicators.

Gaps in NCD surveillance

However, national targets for reduction in risky health behaviours have yet to be set.With regards to disease registries, efforts have been made in the area of establishing a cancer registry but much work remains to be done. Additionally, there is a need to ensure collation of critical information for use in policy/planning/implementation, which may go beyond the NCD dataset currently used. These need to include but may not be limited to:

1. Inpatient and outpatient (including clinic return) hospital morbidity and mortality data including those in the private sector
2. National registries for selected diseases (Cancer, Diabetes)
3. Data on standard indicators of the major risk factors and their determinants
4. Data on process, output and outcome indicators for monitoring and evaluation of all programs related to prevention and control of major NCDs
5. Data for monitoring standards of care (audits)
6. Data generated from research and special studies on NCDs
7. The systematic publication of findings, including graphs and summaries, on the MOH webpage

Additionally, known gaps in information include the following: a comprehensive epidemiological picture of NCDs and disaggregated by ethnicity region, age, gender, vulnerable groups etc.; information of the health effects and impact of alcohol use; data on the economic costs of NCDs; impact assessments of interventions

2.1.4.4 Capacity for NCD Prevention, Early Detection, Treatment & Care within the Health System

The following NCD-related components are integrated to various degrees within the healthcare system: primary prevention and health promotion; support for self -help and self-care; risk factor detection; support for home-based care; risk factor and disease management.

Primary prevention & health promotion

Primary prevention &risk factor detection

With regards to primary prevention and early detection, the mechanism and services are in place to a large extent for parameters related to overweight and obesity, cardiovascular diseases and diabetes, except for the availability of Haemoglobin A1C testing in the public sector and the application of individual risk management with a validated CV risk score for CVDs assessments. Cervical cancer screening is widely available through pap smear services as is faecal occult blood testing for colorectal cancer. Visual inspection with acetic acid (VIA) (and followed by cryotherapy in a single visit), HPV DNA testing are and HPV vaccination have not been implemented as part of a national protocol. Mammography for breast cancer screening is not widely available in the public sector and has limited availability in the private sector.

Health promotion MOH - The Health Education and Community Participation Bureau (HECOPAB)

HECOPAB is the health promotion unit of MOH. The unit undertakes a number of different activities including the following:

- Maintains a health information resource centre
- Produces health information materials (leaflets, fliers, posters, booklets)
- Provides health educators for school and community health education sessions, discussion and demonstrations
- Designs health education messages for public information (radio & TV)
- Provides training in community organization and development

- Provides training in the design of health education materials and visual aids
- Coordinates and facilitates the training of the Community Health Workers
- Facilitate training in public health areas
- Plans and organises health fairs
- Provides technical support in programme planning and implementation with allied health personnel, other government ministries/departments, non-governmental organizations, other health and social agencies and UN agencies

HECOPAB has NCDs on its priority list of activities and health promotion is crucial to NCD prevention. However, the unit is vastly under-resourced to deal with this challenge. There certainly is a need to ensure that the wider population has access to comprehensive information about the health risks of alcohol and tobacco. To effectively engage with the public so that their messages resonate with people, HECOPAB must innovate and take a marketing approach, with Wellness as its product. A comprehensive national communication strategy is urgently required with mass media campaigns targeting NCD risk factors. It is urgent that HECOPAB receives the human and financial resources to achieve its tasks.

Health Education

Health and Family Life Education (HFLE) is a comprehensive, life-skills based programme that focuses on the development of the whole, resilient person. It educates children, adolescents, and adults through guided experiences to become contributing and productive citizens; provides a full understanding of healthy living that incorporates psychological and spiritual wellbeing, healthy eating, and physical fitness, establishes life-skills that emphasise effective interpersonal and informed sexual and reproductive choices; and, fosters the development of skills, attitudes, and knowledge that result in healthy social and family values and lifestyles.

The current HFLE curriculum is only available at the primary school level. Although some high schools do attempt to offer some degree of health and nutrition education and life skills training, these curricula are not standardised as with the HFLE. As a result there has been a push towards the adoption of HFLE for secondary schools.

Advocacy

Caribbean Wellness Day was started in 2008 in order to mobilise CARICOM citizens to engage in activities that promote and sustain healthy lifestyles. This was an initiative that emanated from the declaration of Port of Spain meeting and has since been expanded to *Caribbean Wellness Week*. This week is an ideal time to endorse health promotion. It can also be used as a launch pad for new Wellness initiatives. MOH has been involved in a number of activities promoting *Caribbean Wellness Week*. These activities can be coordinated to reflect the priorities of this strategic plan. Currently activities are focused on nutrition and physical activity. However, the scope can indeed be widened and the opportunity seized to continue those initiatives that are deemed successful.

Risk factor & disease management

A holistic wellness approach that puts the patient at the centre of management rather than the disease is essential for successful integrated care. Each interaction with health services should be an opportunity to ensure the wellness of the individual rather than the management of a single aspect of disease. In addition, the required human resources and clinical support services must also be in place and also entails the most cost efficient use of these scarce resources. This speaks to a reorientation of services so that NCDs can be managed and their course positively influenced.

Primary health care services in Belize

The national public health system, through which approximately 75% of the population accesses health care, delivers services through a network of institutions at the primary, secondary, and tertiary levels. Approximately one third of primary care services are delivered by Primary Care Providers (PCPs) from whom the National Health Insurance (NHI) arm of the Social Security Board, contracts an explicit package of primary care services which includes screening for NCD risk factors as well as breast cancer screening; management of NCDs and

prenatal care. Currently this scheme is limited to the Southside of Belize City and the two southern districts. NHI has adopted in contracts with the PCPs a set of Key Performance Indicators (KPIs) , implemented in an incremental manner as building blocks, that outline its targets. PCPs that achieve the required standards are rewarded financially.

On the other hand, Belize has a number of challenges in the provision of clinical support services. The demand for laboratory services has increased significantly; however lab services have failed to keep pace and face a number of issues in the areas of human resource, infrastructure and maintenance of supplies and equipment. Crucial to the delivery of quality evidence-based care is the availability of the necessary services such as laboratory and pharmacy. For this to be comprehensive, they should be integrated as a package of services with minimum standards covering all essential needs. To date, the NHI model provides the only experience in country along that line. This should be objectively assessed in terms of its strengths and weaknesses with the aim of expanding the successes to the national level in a sustainable manner. A cost effective clinical package will need to cover interventions, care such as urinalysis, and measurement of blood pressure, blood sugar, body weight and height as well as screening for NCDs.

NCDs often affect people in many ways resulting in complex psychological & physical challenges. Patients may be vulnerable and require support services beyond health clinic visits. There is a substantial need for services to include community outreach for those at high risk including psychosocial support.

Patient self-management

It is well known that people living with Diabetes can be taught to actively control their blood sugar levels by using self-monitoring devices. We must help people with NCDs to manage their condition in a better way, providing them with tools for self-management and care. Empowering individuals with NCDs to take responsibility for their condition can significantly reduce disease burdens. In Belize, some clinics are increasing efforts to improve patient

education and self-management including diabetic foot care. Moreover, collaborations on initiatives with supporting organizations such as the Belize Diabetes Association (BDA) have occurred. Current Belize, through the efforts of the BDA and in collaboration with the MOH, has embarked on a six-country initiative called the *Bridges Project* which involves the implementation of a culturally sensitive lay diabetes education program for adults with type 2 diabetes.However, these collaborations have generally been fragmented and non-systematic rather than an integral part of primary care. Furthermore, such initiatives have been carried to an even lesser extent for the other NCDS. Therefore, there is the need to not only establish patient self-management as a priority but also ensure that the mechanisms that support patient self-management are in place. These mechanisms may include offering different formats and venues for patient education and self-management services, and using educational processes and materials that are culturally relevant and language appropriate. It should also emphasise each clinic visit as opportunities to describe/reinforce the patient's role in their self-management and the healthcare professional's role in supporting them.

Protocols/clinical managementguidelines

Although there are some protocols are in place, e.g. covering diabetes and hypertension, these protocols do not cover all priority NCDs and their risk factors and they have had limited roll out nationally. With the exception of NHI clinics, the impact and uptake of these protocols is not clear. Especially lacking are screening guidelines for many NCDs, in particular cancers, and as a result there is wide variation in screening practices in different settings (NHI/non-NHI, public/private, urban/rural). Work on protocol development must continue, particularly screening protocol and this must be supported by national roll out and training to use these protocols. Furthermore, other dimensions such as secondary and tertiary level interventions encompassing comprehensive cancer management, pain relief, palliative care and treatment, although not the focus of this document, have also been found to be cost effective and should be included in a cancer control action plan and programme.

Accountability

NHI covers about 40 % of the population, which includes the south side of Belize City and the southern region of the country (Stann Creek and Toledo districts). Financial incentives are linked to performance and contracted health clinics must fulfil monthly and annual performance indicators to earn their incentive payments.[35]Compliance with Medical Protocols implementation is included in these Key Performance Indicators (KPIs). This two-tier system where some clinics are accountable and some are not fosters inequalities in delivery of care. Greater accountability supported by annual audits should be a part of every primary care facility to enable effective implementation of the NCD plan. This can be done in stages; key parts will include: standardizing medical records; establishing audit criteria; initial and refresher training of protocols.

Human Resources Development

The training and up-skilling of Belize's primary care work force is fundamental for the provision of services by health care professionals who have right skills and competencies to deliver first-rate care to manage NCDs and improve the overall wellness of the nation. Furthermore, a truly integrated approach to care means that they cannot function in silos managing conditions in isolation, particularly in Belize's resource-constrained setting. For example, a national referral system is in place with a protocol that defines its operation. However, particularly the counter-referral component (information sent back to the doctor who referred the patient in the first instance) has functioned sub optimally. This affects the continuity of care and may have significant implications for patient outcome.

[35]Vanzie M, Hsi N, Beith A, and Eichler R: 201.Using Supply-side Pay for Performance to Strengthen Health Prevention Activities and Improve Efficiency: The Case of Belize. Bethesda, Maryland: Health Systems 20/20, Abt Associates Inc.

The professional public health workforce includes 30% of physicians and 10% of nurses from other countries in addition to an increasing attrition rate of nurses (from 7.7% in 2001 to 9.6% in 2006).[36]A significant challenge that must be anticipated is the high turnover of foreign healthcare personnel. While they play a crucial role in healthcare delivery in Belize, they are often not permanent staff and are assigned to healthcare facilities for varying periods of time. This poses a significant training/orientation issue that must be overcome to ensure that all staff is providing the required standard of care. This applies to any new staff should this training/orientation not be provided in a timely manner.

Availability of NCD-related medicines & technologies

NCD medicines are generally available (Annex 1) with the exception of nicotine replacement therapies. The main gaps in treatment are for specialised NCD care such as chemo and radiotherapy, cardiac bypass and angioplasty and retinal photocoagulation.

2.2 Commitments &Guiding Frameworks

Belize's is a party several regional and subregional declarations and resolutions including Caribbean Community's Port-of-Spain declaration on NCDs (2007); the declaration from the Regional High-level Consultation of the Americas on NCDs and Obesity (2011) and the NCD Declaration from the Council of Ministers of Health of Central America and Dominican Republic (2011) as well as the global WHO Framework Convention on Tobacco Control (FCTC).

This action plan has also benefited from the development of the ***World Health Organization (WHO) NCD Global Monitoring Framework and Global Action Plan 2013-2020*** and the ***PAHO Regional Plan of Actionfor the Prevention and Control of NCDs 2013-2019*** and is very closely aligned with these frameworks. It targets the same four NCDs and risk factors and operates

[36]PAHO/WHO & USAID (2009). Health Systems Profile Belize*: Monitoring and Analyzing Health Systems Change/Reform.*

along four very similar lines of action. It has a total of 33 indicators. It adopts and adapts seven (7) of the nine (9) WHO voluntary global targets (Annex 1),18 of the 25 global WHO indicators (Annex 2), 8 of the 10 additional PAHO regional indictors; the remaining 7 are country-specific. The 8 PAHO and 7 country-specific indicators are more process oriented as opposed to the outcome indicators of the WHO Global Monitoring Framework.

This plan is a continuation of the work that was begun with the draft ***National Strategic Plan for NCDs***in late 2011, thedevelopment of which was guided by the ***Strategic Plan Of Action For The Prevention And Control Of Chronic Noncommunicable Diseases (NCDs) For Countries Of The Caribbean Community 2011-2016*** and the ***WHO 2008-2013Action Plan for the Global Strategy for the Prevention and Control of Noncommunicable Diseases,*** and is essentially the operationalization of that strategy so that the goal, vision, purpose, four lines of action, eight strategic objective remain the same. The time period of implementation reflects that of the revised the National Health Sector Strategic Plan 2013-2023.

3. The Plan

The ***Belize National Plan of Actionfor the Prevention and Control of Non communicable Diseases***(NCDs)was developed collaboratively with the Ministry of Health and relevant stakeholders involved in NCD prevention, control and management including NDACC, NHI, Belize Cancer Society, Belize Diabetes Association, Ministry of Education, Belize and with technical assistance from the PAHO Regional Office, Washington. The development of the plan was also informed by previouscollaborative work on the NCD Strategy with NCD Commission members and other relevant entities across several government sectors (Health, Education, Agriculture, and Economic Development), Non-governmental Organizations (NGOs) and the private sector.

3.1 Goal:

To reduce premature mortality from NCDs the chronic disease burden by 25% by 2023. This will be achieved by combining integrated action on NCD risk factors and their underlying determinants and strengthen health systems so as to reduce NCD morbidity & mortality

3.2 Vision

Improve the wellness of Belizeans by prevention and control of noncommunicable diseases and their risk factors.

3.3 Statement of Purpose

The purpose of this national plan is to promote the establishment of policies and implementation of actions geared towards the meaningful reduction of NCDs in Belize.It is intended to act as a blueprint for the organization of efforts across sectors to produce a holistic response to the impact of NCDs and their risk factors. This plan should then result in a reduction in NCD disease burden; improve life expectancy and well-being.

3.4 Principles

The following principles guided the construction of the plan:

- An integrated holistic view of health
- Emphasis on risk factor reduction and health promotion
- Complementarity with Belize's national health plan in its aim to promote cost-effective interventions and address key health priorities
- Multi-sectoral and multi-stakeholder involvement along with a cross-government approach
- Balanced population-wide and individual-based approaches
- Focus on reducing inequities in health
- Gender based approach

3.5 Scope

As per the global and regional action plans and national strategy, this plan focuses on targeting the four (4) major chronic diseases -cardiovascular disease, diabetes mellitus, chronic respiratory diseases, cancer and their four main risk factors: unhealthy diet, lack of physical activity, harmful use of alcohol, and tobacco use.

The focus of this plan is primarily on health promotion and disease prevention initiatives, primary health care services, and policy development/implementation. While established disease management is crucial, the acute care model has not been effective in the prevention and management of NCDs. Furthermore, this approach is consistent with Belize's Health Sector Reform, which strives to reorient services to deliver quality, cost-effective services.

3.6 Organization of the Plan

As per the national NCD strategy, the plan consists of four lines of action and eight corresponding strategic objectives:

I. **Risk factor reduction, health promotion and communications:**

- Obj. 1. To develop and implement policies and strategies that facilitates reduction of tobacco and alcohol use.
- Obj. 2. To stimulate inter-sectoral action that promotes the availability, accessibility and consumption of healthy foods by the Belizean public.
- Obj. 3. To develop and implement policies and strategies that promote physical activity.
- Obj. 4. To develop and implement a comprehensive health communication strategy

II. **Integrated Disease Management& Patient Self-management**:

- Obj. 5. To facilitate and support the strengthening of the capacity and competencies of the health system based on a primary care approach, for the integrated management of NCDs and their risk factors.

III. Surveillance, Monitoring and Evaluation:

- Ob.j 6. To encourage and support the development and strengthening of the capacity for surveillance of chronic diseases, their risk factors, determinants and consequences, as well as monitoring and evaluation of the impact of public health interventions.

IV. **Programme Management, Policy and Advocacy:**

- Objective 7: To ensure the effective leadership and implementation of the National Strategic Plan for NCDs
- Objective 8: To engage all sectors of society and foster international cooperation.

For each line of action and objectives there are proposed activities and indicators (33 in total). It has a total of 33 indicators. It adopts and adapts seven (7) of the nine (9) WHO voluntary global targets (Annex 1), 18 of the 25 global WHO indicators (Annex 2), 8 of the 10 additional PAHO regional indictors; the remaining 7 are country-specific. The 8 PAHO and 7 country-specific indicators are more process oriented as opposed to the outcome indicators of the WHO Global Monitoring Framework. Targets and baselines (where available) will be explicitly stated for this latter group of indicators.

3.7 NCD Action Plan

3.7.1 Risk factor reduction, health promotion and communications

3.7.1.1 Proposed Activities

1. Finalise draft alcohol policy ensuring that key areas such as point of sale restrictions, advertising and taxation are addressed
2. Submit to cabinet the alcohol policyfor approval
3. Ensure the enforcement of the existing and proposed new policies & regulations for tobacco and alcohol (ensuring that key areas such as to address the four main articles of the WHO FCTC, namely taxation, smoke free policies, advertising bans, and warning labels in the case of tobacco and point of sale restrictions, advertising and taxation in the case of alcohol are addressed)
4. Ensure comprehensive inclusion of risk factor education in the HFLE programme; develop a similar approach at secondary school level
5. Review Food & Nutrition Security policy ensuring the inclusion of salt reduction, saturated fats, trans fats & sugar
6. Continue the efforts with the Bureau of Standards in food labelling
7. Develop/revise school physical education and nutrition policies
8. Implement and monitor policies related to alcohol, tobacco, physical education, nutrition and healthy eating
9. Devise and implement a comprehensive health communication strategy
10. Vendor education, industry dialogue and support for the voluntary reduction of salt, fat and sugar in locally produced food
11. Support population-based,community and work-based initiatives for physical activity and health living
12. Maintain social mobilization activities such as Wellness Week, Caribbean Nutrition Day to engage more people in healthier living

13. Engage media in the promotion of NCD agenda e.g.increasing public awareness on diet and physical activity; voluntary regulation of alcohol advertising and promotion, especially ads aimed at young people, particularly during primetime

3.7.1.2 Indicators/targets/baselines

Process

1. Operational Food & Nutrition Security policy by end 2015
2. Operational policies to support healthy eating and physical education in schools by end 2015
3. Policies to reduce the impact on children of marketing of foods &non-alcoholic beverages high in saturated fats, trans fatty acids, free sugars, or salt by end 2023

Outcome

4. 30% relative reduction in prevalence of current tobacco smoking, by 2023 (baseline adolescents (%)total/males/females: 26.7/36.2/18.6; adults (%): 10.5/19.1/18.6)
5. 10% relative reduction in alcohol per capita consumption, measured in litres of pure alcohol by 2023 (baseline - 6 litres[37])
6. 10% relative reduction in the age-standardised prevalence of heavy episodic drinking among adolescents and adults, as appropriate, within the national context by end 2023 (baseline adults(%) total/males/females: 7.6/13.1/2.7; adolescents tbd[38])
7. 10% relative reduction in the prevalence of insufficiently physically active adolescents, defined as less than 60 minutes of moderate to vigorous intensity activity daily b by end 2030 (baseline: tbd)
8. Age-standardised prevalence of persons (aged 18+ years) consuming less than five total servings (400 grams) of fruit & vegetables per day(baseline total/males/females: <2/day)

[37]WHO 2011. Global Status Report on Alcohol & Health

[38]To be determined…

9. Age-standardised prevalence of raised total cholesterol among persons aged 18+ years (defined as total cholesterol Q5.0 mmol/l or 190 mg/dl); and mean total cholesterol concentration(baseline (%) total/males/females: 5.1/4.1/6.0)

10. 10% reduction in sedentarism by end 2023 (baseline adults (%) total/males/females: 77.7/75.4/80.4)

11. 0% increase in adult and/or overweight, obesity and Type II diabetes by end 2023 (baseline diabetes (%) total/males/females:13.1/8.3/17.6); baseline overweight/obesity (%): 66.3/59.2/80.4)

12. 25% relative reduction in the prevalence of raised blood pressure by 2023 (baseline (%) total/males/females: 28.7/28.6/24.4)

3.7.1.3 Key Partners:

Ministries: Health (inc. NDACC), Agriculture, Education, Human Development Social Transformation and Poverty Alleviation Youth & Sports, Finance, Trade, Public Service, Immigration & National Security, NGOs, Trade Unions, Universities, schools, media, Bureau of Standards, Insurance Companies, International Cooperation Organizations

3.7.2 Integrated Disease Management& Patient Self-management

Proposed Activities

1. Revise *Human Resources for Health* Plan
2. Determine minimum standards and minimum package of services covering essential drugs, laboratory services, basic equipment and maintenance checks at community (including the community health worker (CHW) network), primary and secondary levels.
3. Implement model of integrated management for NCDs (e.g. Chronic Care Model (evidence-based guidelines, clinical information system, self-care, community support)
4. Utilise the PAHO Strategic Fund and Revolving Fund and/or other cost-saving mechanisms to procure essential medicines and health technologies relevant to prevention, control and palliation for the four leading NCDs e.g., chemotherapy drugs, palliation medications, insulin, dialysis and haemodialysis, and hepatitis B and human papilloma virus (HPV) vaccines.
5. Continuing medical and professional education in relevant areas including NCDs for delivery of quality evidence-based care
6. Improve/strengthen referral mechanisms and secure healthcare professional compliance
7. Functional official commission that selects, according to the best available evidence, and operating without conflicts of interest, NCD prevention, treatment and palliative care medicines and technologies for inclusion in/exclusion from public sector services
8. Strengthen national laboratory services (including BAHA & CML)
9. Develop/Revise/Update comprehensive evidence-based cost-effective care protocols and guidelines (including screening) that cover multiple levels of staff and multiple levels of care (including palliative care)

10. Develop or improve mechanisms that support patient self-management introducing guidelines that include and psychological support behaviour and educational programmes which enable patients to take responsibility and manage their condition
11. Conduct feasibility study and implementation protocol for the introduction of the HPV vaccine

Indicators

Process

1. Model of integrated management for NCDs (e.g. Chronic Care Model (evidence-based guidelines, clinical information system, self-care, community support) implemented a by end 2015
2. Minimum package of services covering essential drugs, laboratory services, basic equipment and maintenance checks developed by end 2014
3. PAHO Strategic Fund and Revolving Fund and/or other cost-saving mechanisms utilised to procure essential medicines and health technologies relevant to prevention, control and palliation for the four leading NCDs by end 2014
4. Functional official commission that selects, according to the best available evidence, and operating without conflicts of interest, NCD prevention, treatment and palliative care medicines and technologies for inclusion in/exclusion from public sector services by end 2014
5. Availability, as appropriate, of cost-effective & affordable, of vaccines against HPV according to national programmes & policies
6. Vaccination coverage against hepatitis B virus monitored by number of third doses of Hep-B vaccine (HepB3) administered to infants: target 100% (baseline:tbd)
7. Proportion of women screened and treated for cervical cancer according to national guidelines – target 80% (baseline: 62%)
8. Proportion of women screened for breast cancer according to national guidelines – baseline and target tbd
9. Report from HPV vaccination feasibility study by end 2014

Outcome

10. 80% availability of affordable of quality, safe & efficacious essential NCD medicines, including generics& basic technologies in both public & private facilities by end 2018 (baseline: >80%)

- Incidences of cervical & breast cancer[39] (baselines cervical and breast respectively: 36.9 & 30.9)

Key Partners

Ministry of Health, Karl Heusner Memorial Hospital Authority, NHI, Disease-specific NGOs, Private medical practitioners, BMDA, Belize Medical Council, Nurses Association of Belize, University of Belize

3.7.3 Surveillance, Monitoring and Evaluation

Proposed Activities

1. Monitor at national level the selected targets and indicators in the global monitoring framework and regional NCD action (MOH as lead)
2. Setting of a research agenda for NCDs including cost benefit and analytical studies such as for the implementation of new vaccines (HPV) and technologies e.g. VIA, CVD risk score, NHI impact evaluation and roll out feasibility assessment…
3. Improve the completeness and quality of data including improved reporting in NCD minimum dataset, data/evidence gap and trend analyses
4. Development of chronic disease registries utilizing BHIS and other relevant data sources
5. Ensure the execution of risk factor surveys for the four risk factors

[39] To be incorporated in the indicator "cancer incidence by type /100,000)

Indicators

Process

1. Periodic Reviews of NCD Operational Plans annually
2. At least one repeated nationally representative population survey of NCD risk factors, in adults and youth by end 2018 and another by end 2023
3. Functional population-based disease registries for cancer and diabetes by 2015
4. Mid-term & Final Evaluations of NCD Plan (2018 & 2023)

Outcome

5. 25% reduction in the unconditional probability of dying between the ages of 30 and 70 from NCDs by end 2023 (baselines tbd)
6. Cancer incidence by type/100,000 population (baselines cervical and breast respectively: 36.9 & 30.9)

Key Partners

Ministry of Health (Epidemiology unit, PCPs), NHI, Belize Cancer Society, Belize Diabetes Association, Belize Centre for Visual Impairment, Belize Cancer Center of Dangriga

3.7.4 Programme Management, Policy and Advocacy

Proposed Activities

1. Present multi-sectoral NCD plan to cabinet for approval and endorsement
2. Develop an NCD program in the MoH , with clear leadership and governance over a multi-sector committee on NCDs, and with corresponding budget
3. Establish asecretariatto deal with NCDs- structure and operations (terms and mandate of reference)
4. Assign clear responsibility and accountability for the NCD portfolio across the various sectors
5. Expand social protection policies to provide universal health coverage and more equitable access to services, essential medicines, and technologies for NCD diagnosis, treatment, rehabilitation, and palliative care

Indicators

1. Endorsed NCD Plan by end 2013
2. Functional NCD Secretariat by end 2014
3. Social protection policy developed that includes NCDsby end 2018
4. NCD prevention policies in at least 3 sectors outside the health sector (e.g. agriculture, trade, education, labour, development, finance, urban planning, environment and transportation and other sectors) by end 2018

Key Partners: Ministries: Health, Education, Economic Development, Human Development Social Transformation and Poverty Alleviation, Finance, Trade, Labour & Local Government, Attorney General's Ministry; NGOs, Trade Unions, Universities, schools, Food manufacturers, media, food vendors, private companies

4. Belize Framework of Action for the Prevention & Control of NCDs

Line of Action	Strategic Objectives	Activities	Indicators (&Targets)	Key Partners
Risk factor reduction, health promotion and communications	Obj. 1. To develop and implement strategies that facilitates reduction of tobacco and alcohol use. Obj. 2. To stimulate inter-sectoral action that promotes the availability, accessibility and consumption of healthy foods by the Belizean public. Obj. 3.To develop and implement strategies that promote physical activity. Obj. 4. To develop and implement a comprehensive health communication strategy	1. Finalise draft alcohol policy ensuring that key areas such as point of sale restrictions, advertising and taxation are addressed 2. Submit to cabinet the alcohol policy for approval 3. Ensure the enforcement of the existing and proposed new policies & regulations for tobacco and alcoholensuring that key areas such as to address the four main articles of the WHO FCTC, namely taxation, smoke free policies, advertising bans, and warning labels in the case of tobacco and point of sale restrictions, advertising and taxation in the case of alcohol are addressed 4. Ensure comprehensive inclusion of risk factor	1. Operational Food & Nutrition Security policy by end 2015 2. Operational policies to support healthy eating and physical education in schools by end 2015 3. Policies to reduce the impact on children of marketing of foods & non-alcoholic beverages high in saturated fats, trans fatty acids, free sugars, or salt[b] by end 2023 4. 30% relative reduction in the prevalence of current tobacco use among adolescents by end 2023 5. 30% relative reduction in the age-standardised prevalence of current tobacco use among persons aged 18+ years[b] by end 2023 6. 10% relative reduction	Ministries: Health (inc. NDACC), Agriculture,Education, Food & Nutrition Security Committee,Human Development Social Transformation and Poverty AlleviationYouth& Sports, Finance, Trade, Public Service, Immigration & National Security NGOs, Trade Unions, Universities, schools, media, Bureau of Standards, Insurance Companies

	education in the HFLE programme; develop a similar approach at secondary school level		in alcohol per capita consumption, measured in litres of pure alcohol by 2023[b]
5.	Review Food & Nutrition Security policy ensuring the inclusion of salt reduction, saturated fats, trans fats & sugar	7.	10% relative reduction in the age-standardised prevalence of heavy episodic drinking among adolescents and adults, as appropriate, within the national context [b] by end 2023
6.	Continue the efforts with the Bureau of Standards in food labelling		
7.	Develop/revise school physical education and nutrition policies	8.	10% relative reduction in the prevalence of insufficiently physically active adolescents, defined as less than 60 minutes of moderate to vigorous intensity activity daily [b] by end 2030
8.	Implement and monitor policies related to alcohol, tobacco, physical education, nutrition and healthy eating		
9.	Devise and implement a comprehensive health communication strategy	9.	Age-standardised prevalence of persons (aged 18+ years) consuming less than five total servings (400 grams) of fruit & vegetables per day [b]
10.	Vendor education, industry dialogue and support for the voluntary reduction of salt, fat and sugar in locally produced food		
11.	Support population-based, community and work-based initiatives for physical activity and health living	10.	Age-standardised prevalence of raised total cholesterol

		12. Maintain social mobilization activities such as Wellness Week, Caribbean Nutrition Day to engage more people in healthier livingand ensure that all communities throughout the country are provided with educational messages, community fairs to learn about healthy ways of life 13. Engage media in the promotion of NCD agenda e.g.increasing public awareness on diet and physical activity; voluntary regulation of alcohol advertising and promotion, especially ads aimed at young people, particularly during primetime	among persons aged 18+ years (defined as total cholesterol Q5.0 mmol/l or 190 mg/dl); and mean total cholesterol concentration [b] 11. 10% reduction in sedentarism by end 2023[b] 12. 0% increase in the prevalence of overweight and obesity in adolescents by end 2023 [b] 13. 0% increase in the age-standardised prevalence of overweight and obesity in persons aged 18+ years (defined as body mass index Q 25 kg/m² for overweight and body mass index Q 30 kg/m² for obesity) by end 2023 [b] 14. 25% relative reduction in the prevalence of raised blood pressure by 2023[b]	
Integrated Disease Management&Pat	Obj. 5 To facilitate and support the strengthening	1. Revise Human Resources for Health Plan	1. Model of integrated management for NCDs	Ministry of Health, Karl Heusner Memorial Hospital	

ient Self-management	of the capacity and competencies of the health system for the integrated management of NCDs and their risk factors.	2. Determine minimum standards and minimum package of services covering essential drugs, laboratory services, basic equipment and maintenance checks at community (including the community health worker (CHW) network), primary and secondary levels. 3. Implement model of integrated management for NCDs (e.g. Chronic Care Model (evidence-based guidelines, clinical information system, self-care, community support) 4. Utilise the PAHO Strategic Fund and Revolving Fund and/or other cost-saving mechanisms to procure essential medicines and health technologies relevant to prevention, control and palliation for the four leading NCDs e.g., chemotherapy drugs, palliation medications, insulin, dialysis and haemodialysis, and hepatitis B and human papilloma virus (HPV) vaccines.	(e.g. Chronic Care Model (evidence-based guidelines, clinical information system, self-care, community support) implemented [a] by end 2015 2. Minimum package of services covering essential drugs, laboratory services, basic equipment and maintenance checks developedby end 2014 3. PAHO Strategic Fund and Revolving Fund and/or other cost-saving mechanisms utilised to procure essential medicines and health technologies relevant to prevention, control and palliation for the four leading NCDs[a] by end 2014 4. Functional official commission that selects, according to the best available evidence, and operating without	Authority, NHI, Disease-specific NGOs, Private medical practitioners, BMDA, Belize Medical Council, Nurses Association of Belize, University of Belize

	5. Continuing medical and professional education in relevant areas including NCDs for delivery of quality evidence-based care 6. Improve/strengthen referral mechanisms and secure healthcare professional compliance 7. Functional official commission that selects, according to the best available evidence, and operating without conflicts of interest, NCD prevention, treatment and palliative care medicines and technologies for inclusion in/exclusion from public sector services 8. Strengthen national laboratory services (including BAHA & CML) 9. Develop/Revise/Update comprehensive evidence-based cost-effective care protocols and guidelines (including screening) that cover multiple levels of staff and multiple levels of care (including palliative care)		conflicts of interest, NCD prevention, treatment and palliative care medicines and technologies for inclusion in/exclusion from public sector services[a] by end 2014 5. 80% availability of affordable of quality, safe & efficacious essential NCD medicines, including generics, & basic technologies in both public & private facilities[b] by end 2018 6. Availability, as appropriate, if cost-effective & affordable, of vaccines against HPV according to national programmes & policies [b] 7. Vaccination coverage against hepatitis B virus monitored by number of third doses of Hep-B vaccine (HepB3) administered to infants [b] 8. Proportion of women screened and treated

		10. Develop or improve mechanisms that support patient self-management introducing guidelines that include and psychological support behaviour and educational programmes which enable patients to take responsibility and manage their condition 11. Conduct feasibility study and implementation protocol for the introduction of the HPV vaccine	for cervical cancer according to national guidelines[b] 9. Proportion of womenscreened for breast cancer according to national guidelines[a] 10. Report from HPV vaccination feasibility study by end 2014	
Surveillance, Monitoring and Evaluation	Obj. 6. To encourage and support the development and strengthening of the capacity for surveillance of chronic diseases, their risk factors, determinants and consequences, as well as monitoring and evaluation of the impact of public health interventions.	1. Monitor at national level the selected targets and indicators in the global monitoring framework and regional NCD action 2. Setting of a research agenda for NCDs including cost benefit and analytical studies such as for the implementation of new vaccines (HPV) and technologies e.g. VIA, NHI roll out feasibility 3. Improve the completeness and quality of data including improved reporting in NCD minimum dataset, data/evidence gap and trend	1. 25% reduction in the unconditional probability of dying between the ages of 30 and 70 from NCDs by end 2023[b] 2. Cancer incidence by type/100,000 population[b] 3. Mid-term & Final Evaluations of NCD Plan (2018 & 2023) 4. Periodic Reviews of NCD Operational Plans annually 5. At least one repeated nationally representative	Ministry of Health (Epidemiology unit, PCPs), NHI, Belize Cancer Society, Belize Diabetes Association, Belize Centre for Visual Impairment

		analyses[a] 4. Development of chronic disease registries utilizing BHIS and other relevant data sources 5. Ensure the execution of risk factor surveys for the four risk factors	population survey of NCD risk factors, in adults and youth by end 2018 and another by end 2023 6. Functional population-based disease registries for cancer and diabetes by 2015	
Programme Management, Policy and Advocacy	Objective 7: To ensure the effective implementation of the National Strategic Plan for NCDs Objective 8: To develop public policy and action plans, defining policy priorities, engaging all sectors of society and fostering international cooperation.	1. Present multi-sectoral NCD plan to cabinet for approval and endorsement 2. create an NCD program in the MoH , with clear leadership and governance over a multi-sector committee on NCDs, and with corresponding budget 3. Formalise and Strengthen the NCD Commission - structure and operations (terms and mandate of reference) 4. Assign clear responsibility and accountability for the NCD portfolio across the various sectors 5. Expand social protection policies to provide universal health coverage and more equitable access to services,	1. Endorsed NCD Plan by end 2013[a] 2. Functional NCD Secretariat by end 2014 3. Social protection policy developed that includes NCDs[a] by end 2018 4. NCD prevention policies in at least 3 sectors outside the health sector (e.g. agriculture, trade, education, labour, development, finance, urban planning, environment and transportation) [a] by end 2018	Ministries: Health, Attorney General's Ministry, Ministries: Health, Education, Economic Development, Human Development Social Transformation and Poverty Alleviation, Finance, Trade, Labour & Local Government; NGOs, Trade Unions, Universities, schools, Food manufacturers, media, food vendors, private companies,

	essential medicines, and technologies for NCD diagnosis, treatment, rehabilitation, and palliative care	

[a]Adapted from PAHO regional action plan to country level
[b]Adapted from WHO global monitoring framework to country level

Table 2. Monitoring Framework for Selected WHO Global Indicators and Targets

Framework Element	Target	Indicator	Baselines
Morbidity & Mortality			
Premature Morbidity from NCDs	(1) A 25% relative reduction in the overall mortality from cardiovascular diseases, cancer, diabetes, or chronic respiratory diseases (local target set to by 2023)	(1) Unconditional probability of dying between ages of 30 and 70 from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases Additional indicator (2) Cancer incidence, by type of cancer, per 100 000 population	tbd cervical and breast respectively: 36.9 & 30.9 ('12)
Risk Factors			
Behavioural risk factors			
Harmful use of alcohol[1]	(2) At least 10% relative reduction in the harmful use of alcohol,[2] as appropriate, within the national context (local target set to 2017)	(3) Total (recorded and unrecorded) alcohol per capita (aged 15+ years old) consumption within a calendar year in litres of pure alcohol, as appropriate, within the national context (4)Age-standardised prevalence of heavy episodic drinking among adolescents and adults, as appropriate, within the national context	6 litres ('11)
Physical inactivity	(3) A 10% relative reduction in prevalence of insufficient physical activity	(6) Prevalence of insufficiently physically active adolescents, defined as less than 60 minutes of moderate to vigorous intensity activity daily	Tbd
Tobacco use	(5) A 30% relative reduction in prevalence of current tobacco use in persons aged 15+ years ((local target set to 2023)	(7) Age-standardised prevalence of insufficiently physically active persons aged 18+ years (defined as less than 150 minutes of moderate-intensity activity per week, or equivalent) (9) Prevalence of current tobacco use among adolescents (10) Age-standardised prevalence of current tobacco use among persons aged 18+ years	T/M/F: 77.7/75.4/80.4) Adolescents ('08) (%) T/M/F: **26.7/36.2/18.6** Adults ('06) T/M/F(%): 10.5/19.1/18.6)
Biological risk factors			
Raised blood pressure			
Diabetes and obesity[4]	(6) A 25% relative reduction in the prevalence of raised blood pressure or contain the prevalence of raised blood pressure, according to national circumstances (local target by end 2023)	(11) Age-standardised prevalence of raised blood pressure among persons aged 18+ years (defined as systolic blood pressure Q140 mmHg and/or diastolic blood pressure Q90 mmHg) and mean systolic blood pressure	T/M/F (%): 28.7/28.6/24.4
	(7) Halt the rise in diabetes and obesity – local target: 0% increase	(12) Age-standardised prevalence of raised blood glucose/diabetes among persons	

	in adult and/or overweight, obesity and Type II diabetes by end 2023	aged 18+ years (defined as fasting plasma glucose concentration Q 7.0 mmol/l (126 mg/dl) or on medication for raised blood glucose)	T/M/F ('06) (%):13.1/8.3/17.6
		(13) Prevalence of overweight and obesity in adolescents	Tbd
		(14) Age-standardised prevalence of overweight and obesity in persons aged 18+ years (defined as body mass index Q 25 kg/m² for overweight and body mass index Q 30 kg/m² for obesity)	T/M/F ('06) (%): 66.3/59.2/80.4
Additional indicators		16) Age-standardised prevalence of persons (aged 18+ years) consuming less than five total servings (400 grams) of fruit & vegetables per day	Total/Males/Females ('06) (%): <1.5/day (all groups)
		(17) Age-standardised prevalence of raised total cholesterol among persons aged 18+ years (defined as total cholesterol Q5.0 mmol/l or 190 mg/dl); an	Total/Males/Females('06) (%): 5.1/4.1/6.0
National systems response			
Essential NCD medicines & basic technologies to treat major NCDs	(9) An 80% availability of the affordable basic technologies and essential medicines, including generics, required to treat major NCDs in both public and private facilities	(19)Availability % affordability of quality, safe & efficacious essential noncommunicable disease medicines, including generics, & basic technologies in both public & private facilities d mean total cholesterol concentration	>80% ('13)
Additional Indicators		(22) Availability, as appropriate, if cost-effective and affordable, of vaccines against HPV, according to national programmes and policies	Tbd
		(23) Policies to reduce the impact on children of marketing of foods and non-alcoholic beverages high in saturated fats, trans fatty acids, free sugars, or salt	
		(24) Vaccination coverage against hepatitis B virus monitored by number of third doses of Hep-B vaccine (HepB3) administered to infants	Tbd
		(25) Proportion of women between the ages of 30–49 screened for cervical cancer at least once, or more often, and for lower or higher age groups according to national programmes or policies (target 80%)	62% ('04/'05)

1 Countries will select indicator(s) of harmful use as appropriate to national context and in line with WHO's global reduce the harmful use of alcohol and that may include prevalence of heavy episodic drinking, total alcohol per capita alcohol-related morbidity and mortality, among others.

[2] In WHO's global strategy to reduce the harmful use of alcohol the concept of the harmful use of alcohol encompasses that causes detrimental health and social consequences for the drinker, the people around the drinker and society at large, patterns of drinking that are associated with increased risk of adverse health outcomes.
[4] Countries will select indicator(s) appropriate to national context.

5. Estimated Implementation Costs[40]

The costs outlined below are the crucial additional investment required to make a real reduction in the NCD burden in Belize. Reference costs were largely unavailable; therefore these conservative estimates were based on several sources with indicative costs. These include:

1. National Health Accounts Health Accounts, MOH 2010
2. NHI audit and training cost information
3. Previous survey costs
4. MOH meeting costs

Although all costs included below are critical, some require special attention:

i. Prevention- As previously discussed health promotion forms the cornerstone of NCD prevention, so HECOPAB has a central role in realising the goals of this plan and are in need of urgent funding.

ii. Integrated care- Current spending on laboratory services amounts to 1.3% of expenditure (BZD$2,046,273). These services urgently need to be scaled up in order to meet current demand.

iii. Surveillance- Capacity building in data management systems, including chronic disease registries and for the necessary period repetition of risk factor surveys is an essential component of this plan. The former has potential far reaching benefits for strengthening of the health system that go well beyond the NCD agenda.

iv. Programme management- This NCD strategy must have a dedicated coordinator for oversight, monitoring and auctioning of this plan. Currently stakeholders' resources are stretched and a

[40]Taken with minor adaptations from its original estimation and description in the *Draft National NCD Strategy 2012-2016*

significant threat to this plan is that it does not take root not due to lack of will of partners, but rather due to lack of organization and facilitation.

Table 3.EstimatedBudget of NCD Action Plan Implementation

Area	Major Outputs/Activities	Year 1	Years 2-10	Total Cost (over 10 year period of implementation)
Risk factor reduction, health promotion and communications	Support the work of HECOPAB	200,000	1,800,000	2,000,000
	Development of major plans & communications strategy e.g. Nutrition, Phys. Activity, HFLE for Primary and High schools	500,000		500,000
Integrated Disease Management & Patient Self-Management	Strengthen 1° care services (Including development of minimum service package, reorientation of services & staff training)	500,000	3,000,000	3,500,000
	Strengthen & support laboratory services	500,000	4,500,000	5,000,000
	Development of major protocols & plans e.g. screening guidelines, cancer, update of NCD management protocols	150,000		150,000
	Development and national roll out of auditing mechanism for 1° care services	250,000		250,000
	Capacity building for monitoring and evaluation	100,000	180,000	180,000
Surveillance, Monitoring and	Strengthen surveillance including capacity			

Evaluation	building for data management and establishment of chronic disease registries	150,000	450000	600000
	Mid-term & Final Evaluations of NCD Plan		100,000	100, 000
	Annual reviews of NCD Action Plan	5,000	45,000	50,000
	Risk Factor Surveys (CAMDI, GYTS, GSHS) • with biomarkers (x1) • without biomarkers (x2)		 200,000 200,000	 200,000 200,000
Programme Management, Policy and Advocacy	Reproduction & Socialization of NCD plan	30,000		30,000
	Subvention for NCD secretariat	300,000	2,700,000	3000,000
	Post of a National NCD Coordinator established and filled	50,000	500,000	550,000
	Advocacy activities (incl. Caribbean Wellness Week & media campaigns)	100,000	1,500,000	1,600,000
Total		2835000	15,175,000	17,810,000
Contingency (10%)		283500	1517500	1781000
Total	BZD$	***3,118,500***	***16,692,500***	***19,591,000***

The costs of implementing a nation-wide NCD plan are a tiny fraction of the total health expenditure compared to the burden of disease that NCDs cause. Estimated costs for the first year amount to less than 3% of the recurrent health expenditure for 2011/2012 and the costs for the subsequent years are even less. This is compared to the 6.84% of the 2008/2009 National Health Budget that was spent on HIV & AIDS[41] and 1.6% on dialysis in 2010. This must be viewed as an investment and one that is quite small relative to the formidable costs of NCDs. With the integration of services and commitment of all partners, this strategic plan can make a difference in real terms.

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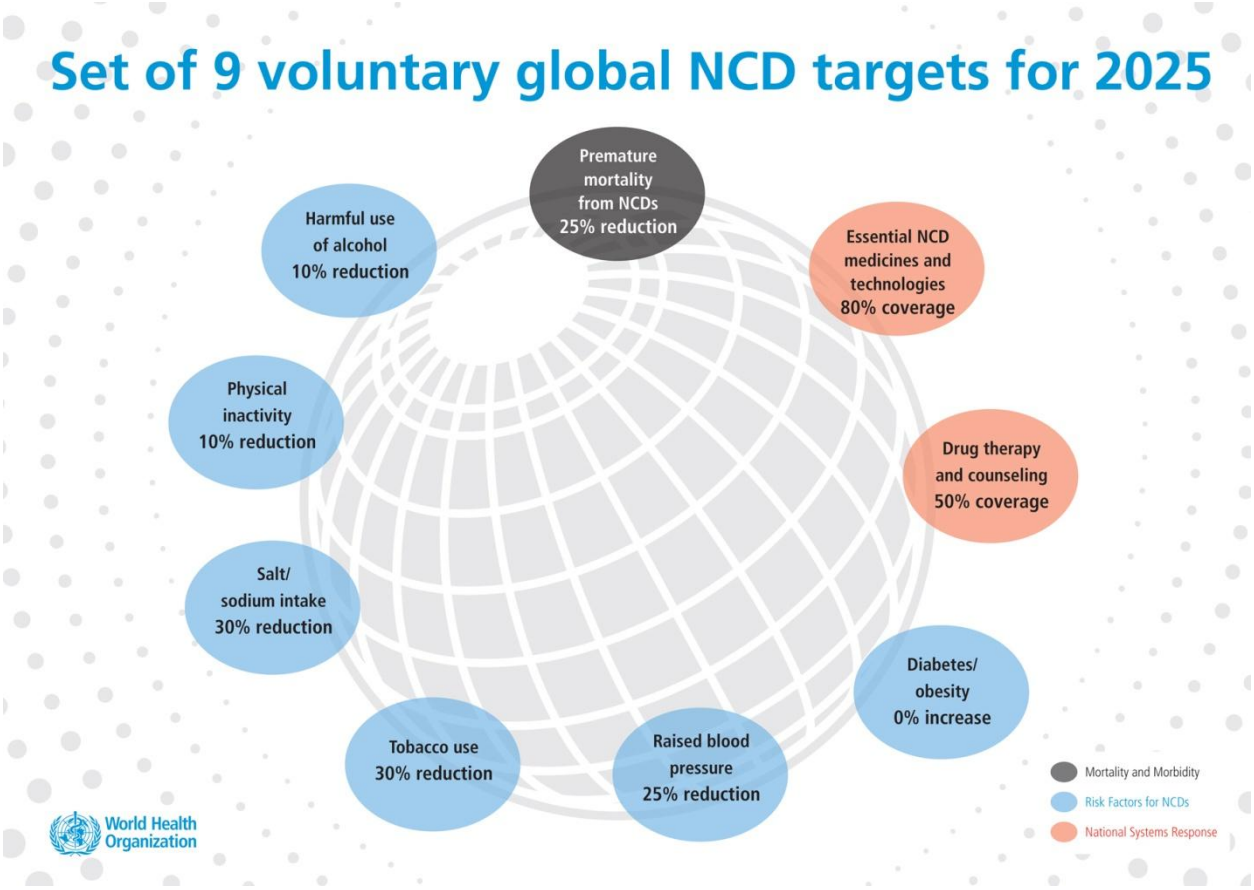
7. Annexes

Annex 1. List of NCD-related Medicines Available Free in Belize[42]

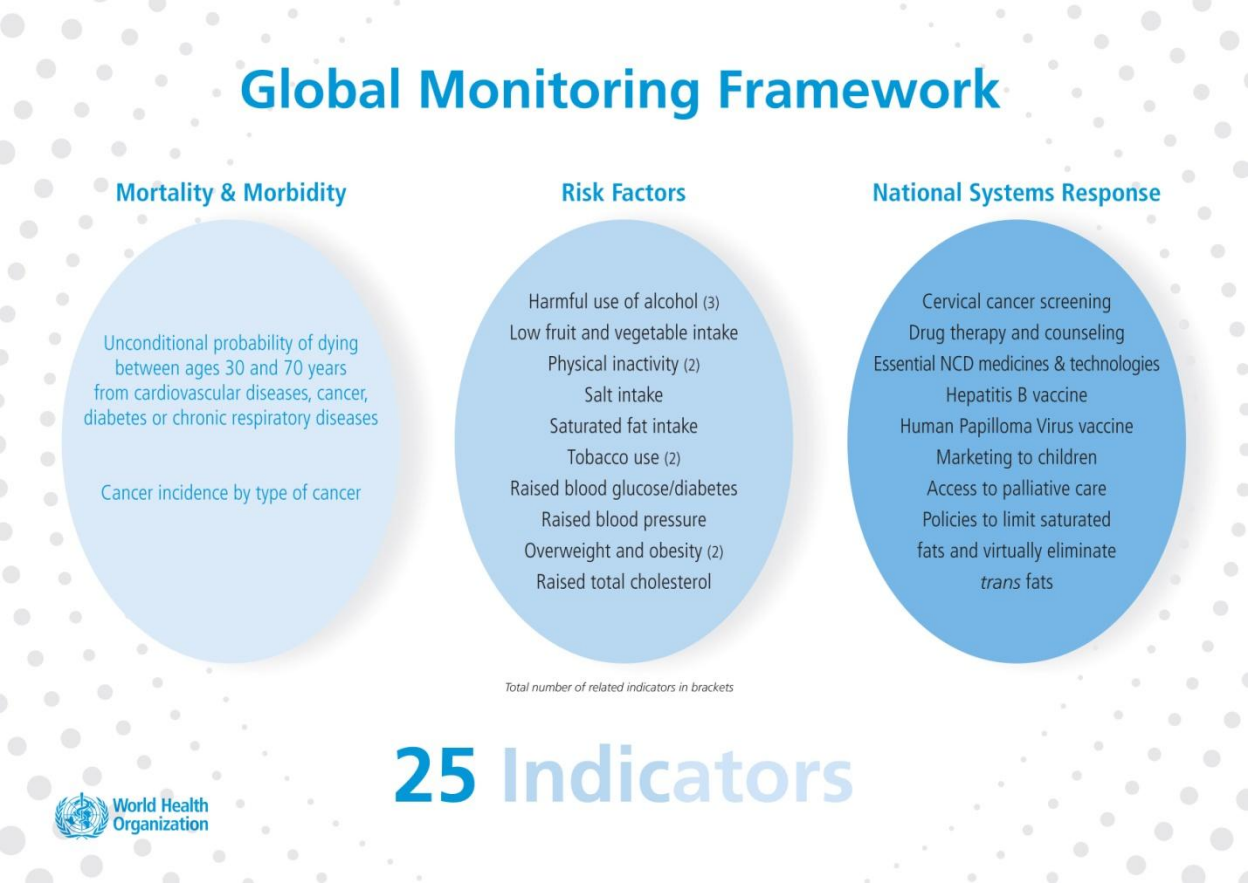
- Insulin
- Aspirin (100mg)
- Metformin
- Thiazide Diuretics
- ACE Inhibitors
- Calcium Channel Blockers
- Statins
- Oral Morphine
- Steroid Inhaler
- Bronchodilator

[42]As per the WHO *Country Profile of Capacity & Response to NCDs 2013* Survey

Annex2. WHO Global Voluntary Targets for 2025



Annex 3. WHO Global NCD Indicators

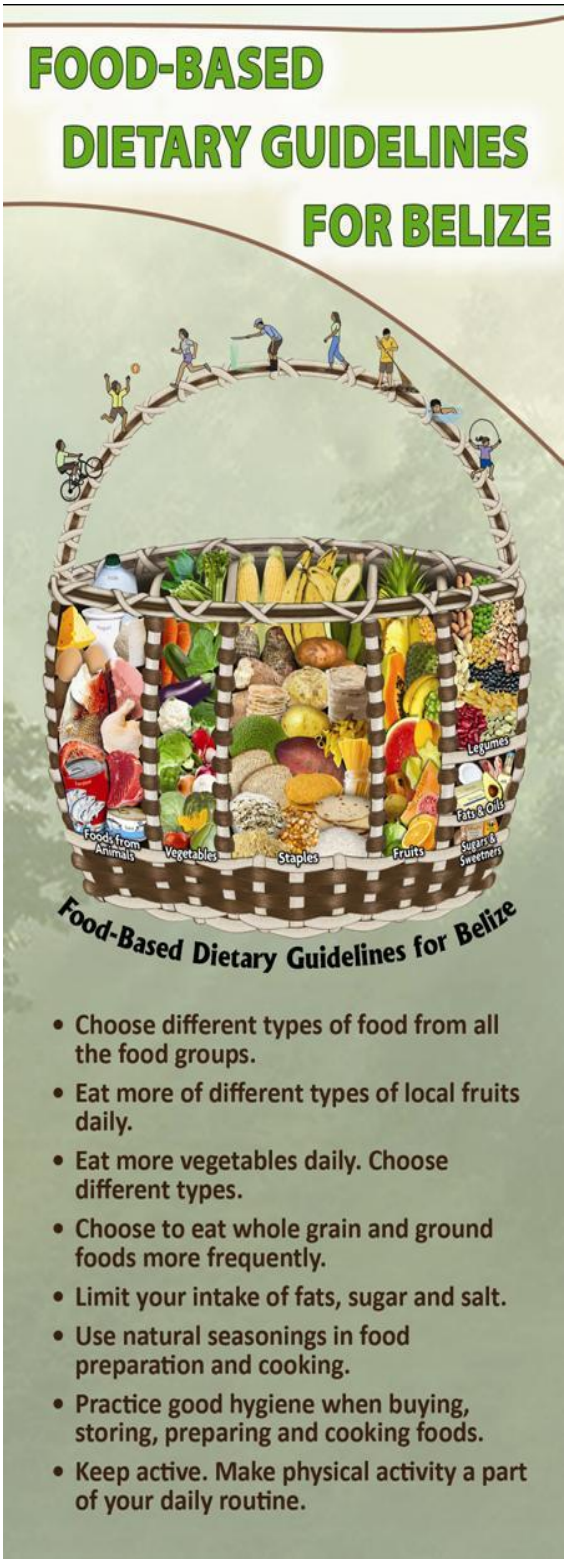


Annex 4. WHO Best Buys [43]

Risk Factor/Disease	Interventions
Tobacco use	•Tax increases •Smoke-free indoor workplaces and public places •Health information and warnings •Bans on tobacco advertising, promotion & sponsorship
Harmful alcohol use	•Tax increases •Restricted access to retailed alcohol •Bans on alcohol advertising
Unhealthy diet & physical inactivity	•Reduced salt intake in food •Replacement of trans fat with polyunsaturated fat •Public awareness through mass media on diet and physical activity
Cardiovascular disease (CVD) and diabetes	•Counselling and multi-drug therapy for people with a high risk of developing heart attacks and strokes (including those with established CVD) •Treatment of heart attacks with aspirin
Cancer	•Hepatitis B immunisation to prevent liver cancer (already scaled up) •Screening and treatment of pre-cancerous lesions to prevent cervical cancer

[43] "Best Buy" interventions are cost-effective, feasible and appropriate interventions to implement within the constraints of the local LMIC health systems description available at http://www.who.int/nmh/publications/best_buys_summary.pdf

Annex 5. National Food-based Dietary Guidelines



Annex 6. CARICOM NCD Progress Indicator Status / Capacity by Country in Implementing NCD summit Declaration - Updated September 2012

POS NCD #	NCD Progress Indicator	ANG	ANT	BAH	BAR	BEL	BER	BVI	CAY	DOM	GRE	GUY	HAI	JAM	MON	SKN	STL	SVG	SUR	TRT	TCI
	COMMITMENT																				
1,14	NCD Plan	X	X	±	√	±	√	√	√	√	√	√	x	√		√	√	±	±	√	X
4	NCD budget	X	±	X	√	X	X	X	√	±	X	±	x	X		X	√	X	X	√	X
2	NCD Summit convened	X	√	X	√	X	√	√	X	√	±	√	x	√		X	√	X	√	√	X
2	Multi-sectoral NCD Commission appointed and functional	X	X	X	√	±	√	√	X	±	√	√	x	±		X	√	X	±	√	X
12	NCD Communications plan	X	X	±	±	X	√	X	√	±	±	√	x	±		X	±	X	±	√	X
	TOBACCO																				
3	FCTC ratified	*	√	√	√	√	*	*	√	√	√	√	x	√	*	√	√	√	√	√	*
3	Tobacco taxes >50% sale price	X	X	X	√	X		X	±	X		√	x	√		±	X	X	√	X	X
3	Smoke Free indoor public places	X	√	X	√	±	√	√	√	±	√	√	x	±		X	√	X	±	√	X
3	Advertising, promotion & sponsorship bans	X	X	X	√	X	√	√	√	X	X	±	x	√		X	X	X	±	√	X
	NUTRITION																				
7	Multi-sector Food & Nutrition plan implemented	√	√	√	√	±	X	√	X	√	√	√	x	√	√	√	X	√	X	±	±
7	Trans fat free food supply					X			X	X				±			X	X	X	X	X
7	Policy & standards promoting healthy eating in schools implemented		√		√	±	√	X	±	±		±		√		±	X	X	X	±	X

8	Trade agreements utilised to meet national food security & health goals					X			X			±		X				X	X	X	√	X
9	Mandatory labelling of packaged foods for nutrition content		X			X	±		±	±		±		X				X	X	±	X	X
	PHYSICAL ACTIVITY																					
6	Mandatory PA in all grades in schools					√	√	±	±	√	√		±		±				X	X	X	√	√
10	Mandatory provision for PA in new housing developments					√	√			X	X		X		X				X	X	X	X	X
10	Ongoing, mass Physical Activity or New public PA spaces	X	√	√	√	√	√	X	√	√	√	√		√		√	√	√	√	√	√	X
	EDUCATION / PROMOTION																					
15	CWD multi-sectoral, multi-focal celebrations	√	√	√	√	√	√	√	√	√	√	√	X	√	√	√	√	√	√	√	√	√
10	≥50% of public and private institutions with physical activity and healthy eating programmes		X			X		X	X	X		±					±	X	X	±	X	
12	≥30 days media broadcasts on NCD control/yr (risk factors and treatment)		√		√	X	√	X	±	±		√		√		√	±	X	X	√	X	
	SURVEILLANCE																					
11, 13, 14	Surveillance: - STEPS or equivalent survey	X	X	√	√	√	±	√	±	√	√	±	X	√ √		√	±	X	±	√	±	
	- Minimum Data Set reporting	X	X	√	√	√	√	√	√	√	+	+	X	√	X	√	√	√	√	√	X	
	- Global Youth Tobacco Survey	X	√	√	√	√	X	√	±	√	√	√	√	√		±	√	√	√	√	X	
	- Global School Health Survey	√	√	√	±	√		√	±	√	√	√	X	√		±	√	√	√	√	X	

TREATMENT																					
5	Chronic Care Model / NCD treatment protocols in ≥ 50% PHC facilities	X	√	√	±	±	±	±	±	X	±	±	x	√		X	√	X	X	√	X
5	QOC CVD or diabetes demonstration project	±		√	√	±	±	±	√	X	√	√	±	√		±	√	X	√	√	X
		ANG	ANT	BAH	BAR	BEL	BER	BVI	CAY	DOM	GRE	GUY	HAI	JAM	MON	SKN	STL	SVG	SUR	TRT	TCI