Package of Essential Noncommunicable Diseases Interventions in Timor-Leste

Increasing access to cardiovascular diseases, diabetes, chronic respiratory diseases, and early detection of cancers (breast, cervix and oral) through primary healthcare approach-towards 2025 NCD goals

World Health Organization
Country Office for Timor-Leste

Ministério da Saúde
MINISTRY OF HEALTH
2017

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Abbreviations

APW	Agreement for Performance of Work
CHC	Community Health Centre
CHC-SD	Community Health Centers in Sub Districts
CHC-D	Community Health Centers in Districts
COPD	Chronic obstructive respiratory disease
CVD	Cardiovascular disease
DM	Diabetes Mellitus
EDL	Essential Drugs List
EML	Essential Medicines List
HP	Health Post
HPST	Health Post Services Team
NCDs	Noncommunicable Diseases
NII	National Institute of In-service
MOH	Ministry of Health
OPD	Outpatient department
PEN	Package of Essential Noncommunicable Diseases (interventions)
PHC	Primary Health Care
SISCa	Outreach clinics operated from CHCs
TL	Timor-Leste
WHO	World Health Organization
WHO PEN	World Health Organization Package of Essential NCD interventions

Message from the Health Minister

Noncommunicable diseases pose a huge threat to our Timorese population. NCDs are among the top ten leading causes of morbidity and mortality in the country. Socio-economic impact of NCDs is also significant as more and more, younger people who are the economic force of our nation are afflicted by the disease.

Growing urbanization and lifestyles associated with urban development will continue to influence adversely with unhealthy lifestyles among our population. Our population is also exposed to NCD risk factors: tobacco use, physical inactivity, alcohol use and unhealthy diet.

In relation to the health sector, the growing burden of NCDs can affect the sustainability of free healthcare provision by the State which all Timorese population enjoy. If prevention of NCDs is not prioritized, hospitals and health facilities will become crowded and drain government's limited resources.

Recognizing the threats posed by NCDs, the government of Timor-Leste has rendered priority to NCD prevention and control. We are focusing on population-based prevention as well as risk reduction through individual approaches. Health facilities services readiness is being built by equipping facilities with a team of skilled and dedicated health workforce, diagnostics services and essential medicines for NCDs.

The package of essential noncommunicable (PEN) diseases interventions has been recognized as a good primary healthcare tool to expand and improve prevention, early detection and management of NCDs. The national training on PEN concluded in 2016 showed deep interest among health care providers. The Ministry of Health endorses the PEN programme - an integrated primary healthcare NCD service and at the point of first contact.

We are hopeful that implementing PEN programme will result in concrete and demonstrable health outcomes in achieving 2025 NCD targets as well as pave our success to 2030 SDGs with the implementation of the PEN.

Dr Maria do Ceú Sarmento Pina da Costa
Health Minister, RDTL

Message from the WHO Representative

Prevention and control of NCDs are important global, regional and national health commitments. There are two major NCD reporting timelines at a global level: 2025 voluntary global NCD targets, and 2030 SDGs aiming for 25% and one third relative reductions of premature mortality. Both these timelines are not very distant.

Furthermore, in 2014, UN Member States have agreed to strengthen and orient health systems to address the prevention and control of NCDs through people-centred primary health-care systems by 2016. The first checkpoint is in 2018, where progress will be reviewed and reported to the UN General Assembly. A strong focus on primary health care is a key step for NCD response to show results of the commitments.

Accelerating primary prevention, clinical interventions for early detection of those at risk and providing an acceptable level of NCD care are critical part of the national NCD response.

The Government of Timor-Leste has taken significant steps in implementing various NCD policies and programmes in general. The national NCD targets have been aligned with the global and regional targets and numerous efforts are in progress related to addressing tobacco, alcohol, promotion of physical activity and healthy diet.

The government's decision to implement PEN is commendable. PEN offers unique opportunity to strengthen primary health care services which are the backbone of Timor-Leste health system and reduce NCD treatment gaps and reach services nearest to the people for those in need among the vulnerable and poor. As a health systems approach, PEN offers space for innovation to improve health systems capacity, quality and efficiency.

Timor-Leste has number of laurels in tackling public health issues. I remain fully assured that the expansion of NCDs at the primary health care level will be yet another feather on the nation's cap.

Dr Rajesh Pandav
WHO Representative for Timor-Leste

Executive summary

NCDs including cardiovascular disease and chronic obstructive pulmonary disease are among the top ten causes of mortality in Timor-Leste. The 2012 hospital data indicate that 22% of all deaths were due to NCDs and more than half these deaths were from cardiovascular disease. Latest WHO estimates on TL indicate that NCDs account for 44% of all deaths and that the probability of premature mortality from NCDs is high (24%).

According to 2014 NCD STEPs survey, NCD risk factors such as tobacco use and exposure to second hand smoke, alcohol consumption are highly prevalent in Timor-Leste. In terms of metabolic risks, 39% of adults have raised blood pressure, 21 % raised total cholesterol and 1.5% raised fasting blood glucose.

Recognizing the significant risk posed by NCDs in the country, Timor-Leste has joined the global movement in NCD prevention and control. The country is fully committed to achieving the 2025 Voluntary Targets for NCDs, and 2030 Sustainable Development Goals which includes prevention and control of NCDs as an important goal. The national NCD strategy and action plan identifies health system strengthening for early detection and management of NCDs as one of the four strategic priority areas.

The WHO Package of Essential NCD interventions (WHO PEN), a primary healthcare clinical tool to enhance the NCD services is well-matched to the TL healthcare system which is solidly founded on primary health care services. The Ministry of Health adapted the WHO PEN protocols to suit the needs of Timor-Leste in May 2016 in collaboration with the WHO. The Timor-Leste PEN will be implemented as an integrated component of the primary health care services.

The Timor-Leste PEN Programme (TL PEN Programme) will be implemented in a phased manner. The first phase of the TL PEN Programme will be implemented at three levels of primary health care (domiciliary visits, selected Health posts, selected Community Health Centers) in Dili and Ermera districts in 2017. Based on the lessons learned, TL PEN Programme will be scaled up nationwide (13 districts) in the subsequent years.

This document contains a brief description of the situation of NCDs, service delivery mechanisms and outlines broader strategic approaches to PEN intervention in Timor-Leste including a narrative of the first phase of the TL PEN Programme. The document also presents clinical algorithms for healthy lifestyle interventions, protocols for prevention of heart attacks, strokes and kidney disease through integrated management of diabetes and hypertension, chronic obstructive pulmonary disease and asthma, suspected breast, cervical and oral cancer at community health center.

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Section 1: Current NCD services in primary health care (PHC) in Timor-Leste

1.1 Introduction

Timor-Leste has a population of 1,183,643 according to the 2015 census. Administratively, the country is divided into 13 districts, 65 sub-districts, 442 sucos and 2225 aldeias. Thirty percent of the population lives in urban areas. NCDs including cardiovascular disease and chronic obstructive pulmonary disease are among the top ten causes of mortality. Mortality data are scanty due to limitations in the vital registration system and nearly 90% of deaths occur outside the hospital. 2012 hospital data indicate that 22% of all deaths were due to NCDs[1]. More than half these deaths were from cardiovascular disease. Latest WHO estimates on TL indicate that NCDs account for 44% of all deaths and that the probability of premature mortality from NCDs is high (24%) [2].

According to 2014 NCD STEPs survey, NCD risk factors are highly prevalent in Timor-Leste. More than half (56%) of the adults use some form of tobacco product and 9 in 10 adults are exposed to second hand smoke at home. Forty three percent of men are current alcohol consumers, 39% of adults have raised blood pressure, 21 % have raised total cholesterol and 1.5% have raised fasting blood glucose[2].

1.1 Provision of free health services; NCDs pose a threat to sustainability

Health services in Timor-Leste are provided free at the State's cost. The national health system in TL is mainly directed towards addressing communicable diseases and maternal and child health. Although services for management of cardiovascular diseases, hypertension, diabetes, chronic respiratory diseases are provided as an integrated package of primary health care services, the major gaps that exist include poor systems for early detection and follow up of care for people with NCDs at the PHC. Consequently, it often leads to individuals seeking medical attention when the diseases reach an advanced stage, and require costly tertiary care. The STEPs survey suggests a low coverage of NCD interventions and high treatment gaps[2]. Among women aged 30-49, only 1.1% ever had a screening test for cervical cancer and 97.3% with raised blood pressure are currently not on medications. To ensure long-term sustainability of the provision of free health services, early detection and health seeking behaviours among the population should be promoted so that NCD conditions can be detected at an early treatable less costly stage.

[1] National Strategy for Prevention and Control of Noncommunicable Diseases (NCDs), Injuries, Disabilities and Care of the Elderly and NCD National Action Plan 2014-2018, Ministry of Health, Timor-Leste

[2] National survey for noncommunicable disease risk factors and injuries using WHO STEPS approach in Timor-Leste, WHO Regional Office for South-East Asia 2014

TL currently spends a substantive portion of its annual health care budget (approximately US$ 4 million) in accessing overseas treatment for patients. Many of the referrals are cases of advanced NCDs such as heart attacks, strokes and late stage cancer. The demand for overseas treatment will continue to grow unless urgent population-wide as well as individual-based prevention and care through a PHC approach are strengthened.

1.2 Strengths and opportunities

A free health care system is enshrined in Article 57 of the Constitution of the Republic Democratic Timor-Leste (K-RDTL). Timor-Leste`s grand strategic development plan 2011-2030 envisions a healthier population as a result of comprehensive high quality health services accessible to all. Given the current epidemiological transition in TL, NCD prevention and control strategies need to be central in attaining this vision. The national NCD strategy and action plan identifies health system strengthening for early detection and management of NCDs as one of the four strategic priority areas[1]. The ongoing work on legislation to strengthen tobacco control and the 2014 STEPs survey also provide good footing to direct attention to strengthening PHC to address NCDs.

Provision of primary healthcare is organized through a network of health facilities (313 Health Posts, and 69 Community Health Centres at sub District and District level) and outreach services (Domiciliary visits, mobile clinics, SISCAs and School Health Services)[3].

Health post (HP) is a basic functional unit for providing primary health care services at the village level. The population assigned to a health post ranges from 1500-2000 in rural areas and up to 5000 in urban areas[3]. The minimum human resource requirement in a HP is one medical doctor, one nurse and one midwife. As all HPs have a doctor, HPs have the potential to play a central role in early detection and treatment of NCDs.

The Community Health Centers (CHCs) provide specific health services to the population at sub-district and district levels. The catchment population of CHCs range from 7500 to 15000[3]. CHCs provide technical, administrative and logistic support to HPs. The composition of human resource in CHCs includes general medical officers, family physicians, nurses, midwives, laboratory technicians, pharmacists, radiology technicians, ophthalmic technicians, public health technical officers, administrative staff and other support staff. CHCs have laboratory and pharmacy facilities which make it possible to manage referrals from HPs and mobile clinics.

The PHC outreach services (domiciliary visits, mobile clinics and SISCA) are well placed to engage the community in NCD prevention and control. Community engagement and ownership would be pivotal to the success and sustainability of provision of NCD services at the primary health care level.

The WHO Package of Essential NCD interventions (WHO PEN), a primary healthcare clinical tool[4] to enhance the NCD services is well matched to the TL health care needs for NCD services at the primary health care level.

[3] Comprehensive service package for primary health care, National Directorate of Public Health, Ministry of Health. Timor-Leste, 2015.
[4] Implementation tools: Package of Essential Noncommunicable Disease Interventions for primary health care in low resource settings. Geneva, World Health Organization , 2014

1.3 Health systems strengthening and a primary health care approach

TL has a long term plan to provide comprehensive primary care services [4]. A list of potential areas to strengthen delivery of NCDs through health systems response at the PHC is summarized in Table 1. The short- and medium- term remedial measures are required to bridge the existing health system gaps. Gaps in clinical skills of health personnel and quality of services need to be improved through long-term efforts including through collaborative initiatives with NII.

Table 1. *Health systems improvement areas in TL for delivery of NCD services at the PHC level*

Component	Areas of improvement
Leadership/ governance	▪ Improve efficiency in the use of available resources ▪ Political support to increase resources to implement NCD services
Health care financing	▪ Prioritize cost effective NCD interventions ▪ Identify an affordable high impact NCD services package for national scale-up ▪ Contain costs by improving NCD interventions in PHC.
Medicines and technologies	▪ Prioritize a core set of appropriate technologies in primary healthcare ▪ Pay attention to affordability and equity in selecting essential NCD medicines ▪ Update essential medicines and technologies for NCD services
Health information system	▪ Introduce individual records for continuity of care ▪ Harmonize multiple data reporting requirements
Health workforce	▪ Improve NCD management skills ▪ Make trainings sensitive to long-term healthcare needs of NCDs
Service delivery	▪ Focus on early detection of NCDs ▪ Expand access to essential preventive and curative NCD interventions through an integrated approach at the PHC ▪ Define standards for quality of care including referrals ▪ Introduce performance and clinical audits ▪ Strengthen gate-keeping function of PHC to through improving services at CHCs, HPs and domiciliary visit

Section 2: Integrating NCD services in Primary Healthcare Services in Timor-Leste

Provision of NCD services is included in the primary health care package of services of TL. The National Strategy for Prevention and Control of Noncommunicable Diseases (NCDs), Injuries Disabilities and Care of the Elderly & NCD National Action Plan 2014-2018, aligns with the WHO Regional NCD Action Plan and identifies package of NCD services at primary health care level as an important strategy. The Ministry of Health recognizes the necessity of adapting WHO package of essential NCDs (PEN) in Timor-Leste context to achieve the 2025 NCD voluntary targets.

The following five strategic measures will be implemented to bridge gaps in PHC services taking into consideration the impact, feasibility and sustainability issues:

1. Address gaps in early detection and diagnosis of NCDs including through engagement of families by incorporating WHO PEN components in domiciliary visits
2. Improve access to evidence based treatment taking into consideration costs involved in coverage of the total eligible population
3. Strengthen the health information system in PHC for NCD prevention and control
4. Strengthen population-wide prevention activities to compliment the PHC approach for NCD prevention and control
5. Implement Timor-Leste Package of Essential Noncommunicable Disease (TL PEN) Programme as an integrated primary health care service

2.1 Strategic measure 1: Address gaps in early detection and diagnosis of NCDs including through engagement of families by adapting WHO PEN components in domiciliary visits

Domiciliary visit is recognized as a fundamental activity for the Health Post Services Team (HPST), comprised of at least one medical doctor, one midwife and one nurse, at the present time [5] [6]. There are at least four ways in which domiciliary visits can contribute to NCD care. They include:

a) proactive early detection of NCDs

b) cardiovascular risk stratification of individuals and families

c) promotion of adherence to behavior change and treatment

d) counseling for behavior change contextualizing the household conditions so that people can make decisions in their own surroundings

As the program of domiciliary visits has been introduced very recently, activities for early

[5] Domiciliary visit register; village health profile, Ministry of Health, Timor-Leste 2016

[6] Guidelines for Domiciliary visits, Ministry of Health, Timor-Leste, 2016

detection will be incorporated as a package of domiciliary visit.

In addition, access to core set of diagnostic tests and technologies need to be organized in PHC, as shown below in Table 2. More diagnostic test/equipment can be added once basic ones are provided to all the primary care facilities in the country.

***Table 2**. The core set of diagnostic tests/equipment to be made available at different levels of PHC in TL for NCD management*

Test/equipment	Domiciliary visits	Mobile clinic/SISCA	Health Posts I	Health Posts II	Community Health Centers-SD	Community Health Centers-D
Weighing Scale	✓	✓	✓	✓	✓	✓
Stethoscope	✓	✓	✓	✓	✓	✓
Sphygmomanometer	✓	✓	✓	✓	✓	✓
Urine sugar test strips	✓	✓				
Urine albumin test strips		✓	✓	✓	✓	✓
Blood sugar (glucometer test strips or laboratory test)		✓	✓	✓	✓	✓
Blood cholesterol					✓	✓
Peak flow meter		✓	✓	✓	✓	✓
Tuning fork		✓	✓	✓	✓	✓
Monofilament		✓	✓	✓	✓	✓
Nebulizer		✓	✓	✓	✓	✓
Electrocardiograph					✓	✓
Cardiovascular risk charts	✓	✓	✓	✓	✓	✓

2.2 Strategic measure 2: Address health system gaps related to treatment, taking into consideration costs involved in coverage of the total eligible population

Weaknesses and inefficiencies are currently encountered in the treatment of NCDs [7]. Effective delivery of essential NCD interventions requires strengthening of the health system at all levels of care in terms of treatment including access to medicines as shown below in Table 3.

[7] Medicines in Health Care Delivery in Timor-Leste; Situation Analysis. Ministry of Health Timor-Leste and World Health Organization, Regional Office for South-East Asia, 2015

Table 3. *Essential medicines for NCD management to be made available at different levels of the primary health care system in TL*

Test/equipment	Domiciliary visits	Mobile clinic/SISCA	Health Posts I	Health Posts II	Community Health Centers-SD	Community Health Centers-D
Acetylsalicylic acid	✓	✓	✓	✓	✓	✓
Thiazide diuretic		✓	✓	✓	✓	✓
Calcium channel blocker (long acting)		✓	✓	✓	✓	✓
Beta blocker (long acting)		✓	✓	✓	✓	✓
Angiotensin converting Enzyme inhibitor (long acting)		✓	✓	✓	✓	✓
Simvastatin					✓	✓
Metformin		✓	✓	✓	✓	✓
Glibenclamide		✓	✓	✓	✓	✓
Insulin		✓	✓	✓	✓	✓
Salbutamol tablet, inhaler and respirator solution		✓	✓	✓	✓	✓
Beclomethasone		✓	✓	✓	✓	✓
Prednisolone		✓	✓	✓	✓	✓

In the interests of equity, affordable generic preparations of the above medicines have to be made available for the entire island before using expensive versions or expanding the list. Currently, captopril is the angiotensin converting enzyme inhibitor that is available in PHC [8]. It needs to be replaced by enalapril as captopril has to be given several times a day resulting in higher cost and lower adherence. All facilities require a calcium channel blocker such as amlodipine or long acting nifedipine. All facilities also require a beta blocker. Although bisoprolol, metoprolol and carvedilol have advantages they are currently more expensive than atenolol.

2.3 Strategic measure 3: Strengthen the health information system in PHC for NCD prevention and control

Individual medical record

An individual medical record for documenting a patient's treatment and progress over time is essential for ensuring continuity and quality of NCD care. A NCD record should be opened for all

[8] Timor-Leste Essential Medicines List, Third Edition. May 2015

NCD patients. The record should not be unduly long and time consuming to complete [9]. It should contain only the salient medical information required for monitoring patient progress and performing clinical audits. The patient record can be inserted in a family folder/envelope with records of other family members. Paper based records will be improved until the capacity is built to adopt an electronic medical record system in the country. Annex 3.2 presents a sample template of a simplified individual NCD record. Based on the feedback of users, the individual medical record can be further adapted to local needs at periodic intervals.

Daily NCD patient register

Each patient for whom a NCD patient record is opened, should be documented in the daily NCD patient register. Each health facility will maintain a paper-based or an electronic NCD register. A sample template of a NCD register is shown in Annex 3.3
The NCD patient register serves several purposes:

- ✓ Tracking the numbers of new and cumulative NCD patients by age, gender, diagnosis and initial risk level for routine service reports;
- ✓ Provision of a denominator or sampling frame for clinical audit to assess quality of care indicators;
- ✓ Establishment of patient cohorts for outcome monitoring over time.
- ✓ Ongoing supervision is needed to ensure the accuracy of the register and that it corresponds to the patient records. Accuracy of the register is important as it informs the monthly NCD report.

Aggregate NCD reports

The monthly NCD report needs to summarize the information in the NCD register, providing aggregate information on the number of new and cumulative NCD patients by age, gender, diagnosis and initial risk level (see annex 3.4). The report should be compiled monthly at facility level and should be integrated into the routine PHC reporting system. The report is submitted to district / subnational level for entry into a data base that can produce monthly, quarterly and/or annual NCD reports.

Health facility dash board on NCDs

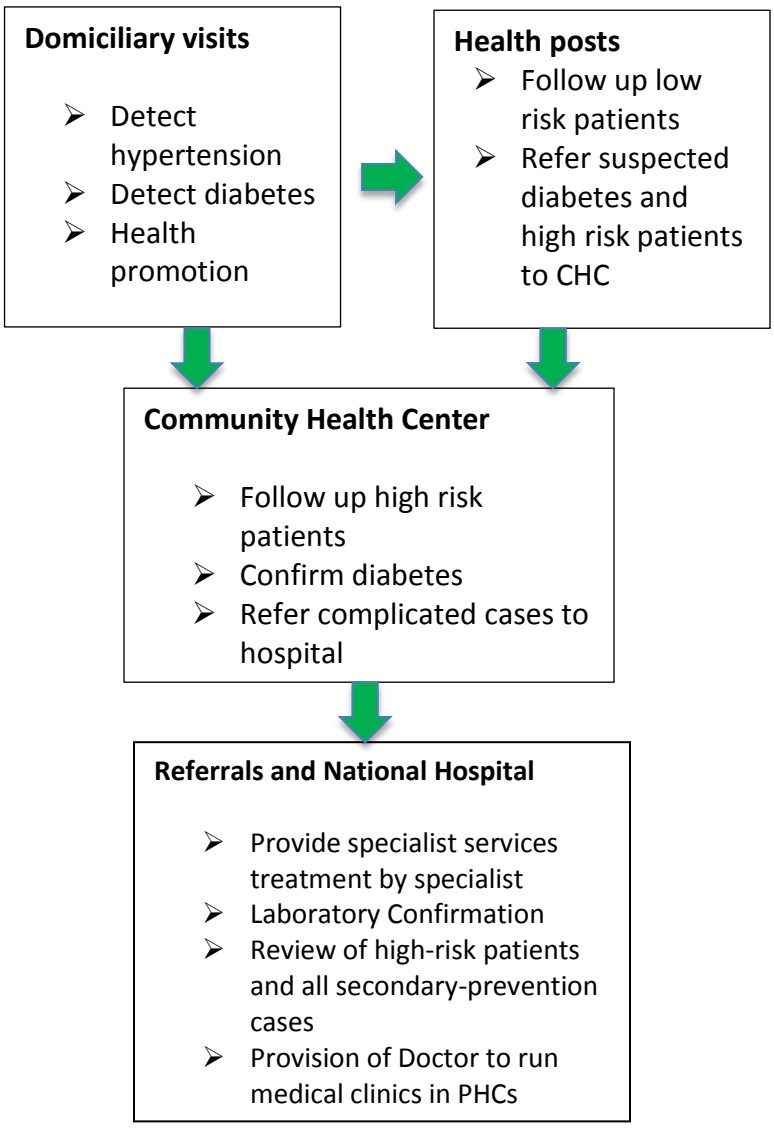
Each health facility will display a set of minimum information through a dashboard/information board. The dashboard will contain information related to coverage of NCD services, number of people living with NCDs and number of deaths due to NCDs.

Early detection, diagnosis, management and referral

The process of early detection, diagnosis, management and referral is organized across domiciliary visits, HPs and CHCs. Core of tests and essential medicines will be made available in HPs and CHCs. Referrals will be documented and made by using prescribed standard referral form. (see annex 3.5)

[9] Livru Rejistu Pasiente Moras La Hada' et, Programa Nasional Moras La Hada' et Timor-Leste. Ministerio Da Saude, Direccao Nacional De Saude Publica, Departmento De Controlo De Doencas Nao Contagiosa E Mentais 2015

Figure 1. ***Process of early detection and management and referral***



2.4 Strategic action 4: Strengthen population wide prevention activities to compliment the PHC approach for NCD prevention and control

Stronger population-wide prevention strategies are needed to compliment individual based strategies implemented in PHC[10]. In TL, this combined approach is particularly important in at least in five areas:

Tobacco control

Tobacco use is very high in TL (71% in men and 29% in females). In addition nearly 50% of males smoke tobacco daily and are likely to be addicted to the habit. Although counseling will be

[10] Global Status Report on Noncommunicable Disease 2014. World Health organization, Geneva.

provided in the WHO PEN package, counseling alone may not be effective for addicted smokers without additional support with nicotine replacement therapy. Providing nicotine replacement therapy is not affordable, currently. Therefore a policy environment that supports quitting will be critical for reducing the risks due to tobacco use.

Reducing indoor air pollution

Mortality due to chronic obstructive pulmonary disease is high in TL due to tobacco use as well as indoor air pollution. Although treatment for chronic obstructive pulmonary disease will be provided in primary care, reducing indoor air pollution and tobacco use will both be essential for stopping the progress of the disease. The effects of indoor air pollution can be reduced by using improved cooking stoves, burning cleaner fuel, improving ventilation in the kitchen, and reducing exposure to smoke from cooking. All these approaches should be thoroughly explored to reduce indoor air pollution. Given that the climate is tropical improving ventilation through affordable approaches should receive particular attention. Women and children from low socioeconomic groups will particularly benefit from these efforts.

Reducing population salt intake

Given the high prevalence of hypertension, individual health system approaches to manage hypertension need to be complimented with population- wide measures to shift the distribution of the population blood pressure. In this regard, it would be critical to reduce the population intake of salt through a range of cost-effective policy measures [8]. The main sources of sodium in the TL diet need to be identified, in order to develop an effective strategy and to set realistic targets for reducing the population salt intake.

Reducing harmful use of alcohol

There is a direct link between high levels of alcohol consumption and the risk of cancers, liver cirrhosis, pancreatitis, hypertension and stroke. Counseling to reduce alcohol intake will be provided as part of the WHO PEN package. However counseling alone is unlikely to enable 43% of current alcohol drinkers to quit. It would be very important to focus on very cost effective interventions to reduce harmful use of alcohol listed in the WHO's Global strategy to reduce the harmful use of alcohol.

2.5 Strategic action 5: Implement Timor-Leste Package of Essential Noncommunicable Disease (TL PEN) Programme as an integrated primary health care service

Currently, NCD prevention and management is not fully operationalized across health system building blocks in PHC. The WHO-package of essential noncommunicable disease (WHO-PEN) provides a package of effective primary health care approach in early detection and management of all four major NCDs: cardiovascular disease, diabetes, chronic pulmonary disease and cancer that can be adapted in limited resource settings. Technical package of the WHO-PEN will be adapted to a Timor-Leste PEN programme. The Timor-PEN Programme will contribute towards the 2025 country's NCD targets in achieving:

i. 50% of eligible persons (defined as aged 40 years and over with a 10-year cardiovascular risk ≥30%, including those with existing cardiovascular disease) receive drug therapy and counselling (including glycaemic control) to prevent heart attacks and strokes;
ii. 80% of public facilities have essential noncommunicable disease medicines, including generics, and basic technologies as per the national package; and
iii. 80% of primary health care workforce trained in integrated NCD prevention and control.

The Timor-Leste PEN program will be implemented in a phased approach. Few districts will be selected in the first phase of the TL PEN Programme. Subsequently the TL PEN Programme will be scaled up building on the lessons learned from the previous phase.

Building on an integrated primary health care approach

The Timor-Leste PEN will be implemented as an integrated component of the primary health care services. The services for management of hypertension, diabetes and chronic respiratory diseases are already within the current PHC package of services. The added value of the TL PEN is that it reemphasizes on the early detection and prevention, providing risk based management for cardiovascular diseases. In the health systems front, PEN will enable strengthening the current delivery systems with slight adjustments such as addition of a medicine, instituting health facility quality improvement and follow up of patients to improve patient outcome of care. The same health workers who are providing the services at the primary health care will be engaged in the delivery of the TL PEN services. The PHC services will be linked to referral care because of which tertiary level care providers will be sensitized on the Timor-Leste Package Essential Noncommunicable Disease.

Table 7. *Standard of NCD health services, reporting and supervisory functions by level of healthcare for TL PEN Programme*

Level	Service	Person responsible	Report	Supervision	Equipment and supplies	Essential medicines
Referral and National hospital	Inter consultation with specialist and Comprehensive examination	Consultants in 4 NCDs	To the national NCD working group,	Technical support to lower levels		
CHC	CVD risk assessment DM diagnosis and management HTN management Management of Asthma and COPD	Doctors, Nurses Midwife	To the district Health Manager	Support and coordination for HP under the CHC	Stethoscope Sphygmomanometer Urine glucose strips for domiciliary visits Urine albumin strips Blood sugar assay Blood cholesterol assay (Semi-automated biochemistry	Aspirin Hydrochloro thiazide Enalapril Nifedipine retard Metformin Glibenclamide Atorvastatin and Simvastatin Atenolol Insulin

Level	Service	Person responsible	Report	Supervision	Equipment and supplies	Essential medicines
					analyser) ECG Peak flow meter Weighing scale Measuring tape Nebulizer Posters, flip charts, brochure, and stickers on NCDs Food models	Salbutamol tablet and inhaler Beclomethasone inhaler Antibiotics
Health Post	HTN management, follow up Asthma management and follow up Brief intervention for Tobacco ,Alcohol, Diet and Physical Inactivity	Doctors, Nurses, Midwife	To the CHC	Support the domiciliary team	Stethoscope Sphygmomanometer Weighing machine Urine glucose strips for domiciliary visits Urine albumin strips Glucometer and test strips Posters, flip charts, brochure, and stickers on NCDs Food models Weighing scale Measuring tape Reporting forms	Aspirin Hydrocholorothiazide Enalapril Amlodipine Metformin Glibenclamide Salbutamol Antibiotics
Domiciliary visit	Identify people at risk, and provide brief interventions and referral, compliance to medicines, foot care etc	Domiciliary team	To the CHC		Posters, flip charts, brochure, and stickers on NCDs BP apparatus Measuring tape Torch Gloves Weight Scale Reporting Form Food Models	

Section 3: First Phase of the Timor-Leste PEN Programme

3.1 First Phase of the Timor-Leste PEN Programme

The Ministry of Health has made a decision to implement the First Phase of Timor Leste PEN Programme in the districts of Dili and Emera for one year. A total of six CHCs and five (HPs): Dili (4 CHCs- Comoro, Vera cruz, Farmosa, Becora; 3 HPs- Maloa, Manleuana, Lemkariu); Ermera (2 CHCs: Gleno,Railaku:2 HPs - Lodudu, Aitura) have been selected for the first phase PEN services. The lessons learned from the implementation in these facilities will be incorporated for the planning and development of the second phase of Timor-Leste PEN in 2018.

3.2 Adaptation of WHO-PEN to Timor-Leste PEN protocols

A situation assessment of NCD services in TL was conducted in a mission supported by WHO from 12- 19 May 2016. The information was gathered from meetings with policy makers and administrators in several government departments responsible for primary health care, visits to health facilities in two regions, interviews with health personnel and a desk review of recent NCD documents in TL.

Following the situation assessment, one and a half day consultative workshop was held on 18-19 May 2016 to finalize the adaptation of WHO PEN protocols. A core team of health personnel from 3 community health centers and 7 health posts from the districts of Dili and Elmera and specialists attended the workshop. The Timor-Leste PEN protocols for various levels of primary health care were drafted. The PEN protocol was further reviewed by the Ministry of Health's Board of Director and endorsed the following clinical tools for TL:

- Timor Leste PEN protocol for domiciliary visit
- Timor Leste PEN protocol for integrated management of diabetes and hypertension at CHCs Health Post Type 1, Health Post Type 2 and mobile clinics
- Timor Leste PEN protocol on health education and counselling on healthy behaviours
- Timor Leste PEN protocol for cardiovascular diseases and integrated management of diabetes and hypertension at CHCs
- Timor Leste PEN protocol for management of asthma and chronic obstructive pulmonary disease at health posts, CHCs and mobile clinics
- Assessment and referral of women with suspected breast cancer at primary health care

Overall objectives of first phase of TL PEN Programme

Overall objective of the first phase of the TL PEN Programme is to integrate WHO PEN into three levels of primary health care (domiciliary visits, selected Health posts, selected Community Health Centers) in a defined area in Dili and Ermera and learn lessons to scale up NCD interventions at the PHC.

Expected coverage of the programme

The first phase of TL PEN Programme may reveal unforeseen challenges that may arise during the national scale up (such as logistic issues, staffing and finances). The first phase of the programme will also provide an opportunity to gauge the target population's reaction to the program and plan further adaptations. The programme is expected to achieve the following service coverage:

- Coverage of early detection of hypertension and diabetes increased from zero households (currently) to a minimum of 2000 households (HPs perform about 15 domiciliary visits a week and CHCs perform about 25 domiciliary visits a week). Refer Table 5 for population population in the two districts
- Cost effective integrated management of hypertension, diabetes, prevention of heart attacks and strokes and prevention of chronic renal disease made available in 5 CHCs and 7 HPs.
- Early detection of hypertension and diabetes operationalized through domiciliary visits in a defined area.
- Health information system for monitoring NCD management operationalized in 5 CHCs and 5 HPs.

Table 5. *Population and health centers for Dili and Ermera districts*

Administrative Unit (Municipality and Administrative Post)		**CUMMUNITY HEALTH CENTER (CHC)**	**Population**			**Sex Ratio**	**Age Medium**	**Broad Age Groups**		
			Total	**Male**	**Female**			**0-14**	**15-59**	**60+**
MUNICIPALITY	**SUB-MUNICIPALITY**									
Dili			**277,279**	**143,677**	**133,602**	**107.5**	**21.2**	**94,141**	**173,107**	**10,031**
	ATAURO	CHC ATAURO	9,274	4,669	4,605	101.4	20.6	3,536	4,926	812
	CRISTO REI	**CHC FORMOSA**	**62,848**	**32,509**	**30,339**	**107.2**	**20.7**	**22,143**	**38,210**	**2,495**
	DOM ALEIXO	**CHC COMORO**	**130,095**	**67,646**	**62,449**	**108.3**	**21.2**	**44,225**	**82,575**	**3,295**
	METINARO	CHC METINARO	5,654	2,908	2,746	105.9	19.4	2,204	3,065	385
	NAIN VETO	**CHC BECORA**	**32,834**	**17,067**	**15,767**	**108.2**	**22.2**	**10,291**	**21,084**	**1,459**
	VERA CRUZ	**CHC VERA CRUZ**	**36,574**	**18,878**	**17,696**	**106.7**	**21.9**	**11,742**	**2,3247**	**1,585**
ERMERA			**125,702**	**63,557**	**62,145**	**102.3**	**17.9 5**	**52,657**	**64,527**	**8,518**
	ATSABE	CHC ATSABE	18,563	9,223	9,340	98.7	18.2	7,772	9,030	1,761
	ERMERA	**CHC GLENO &** CHC ERMERA	36,105	18,166	17,939	101.3	17.7	15,165	18,929	2,011
	HATULIA	CHC HATULIA	36,778	18,602	18,176	102.3	17.2	16,110	18,263	2,405
	LETEFOHO	CHC LETEFOHO	22,128	11,216	10,912	102.8	18.6	8,868	11,727	1,533
	RAILACO	**CHC RAILACO**	**12,128**	**6,350**	**5,778**	**109.9**	**18.8**	**4,742**	**6,578**	**808**

Implementation of the First Phase of Timor-Leste PEN Programme

Meticulous planning is required to ensure adequate skills of providers, assurance of supplies and logistics for the delivery of PEN services at the selected health facilities.

The MoH and WHO Country Office conducted a five day training workshop in Dili for service providers from the implementing sites of two districts from 17-21 October 2016. Thirty five participants (2 district health officers, 17 doctors, 3 nurses, 3 midwives, 3 laboratory technicians, 2 pharmacy technicians, 2 consultant and 1 specialists, 1 NCD director, and 1 WHO officer) attended the training workshop. In addition to orientating on the TL PEN protocols, the participants laid down a detailed next step micro plan to facilitate the launch of the First Phase of TL PEN by January 2017.

Next Steps for implementing the First Phase of TL PEN Programme

As shown in Table 6, the next steps of implementing the First Phase of TL PEN are broadly classified into five major areas:

1. Policy support, preparatory work and launch of First Phase of Timor–Leste PEN Programme
2. Capacity building, programme administration and management in two implementing districts
3. Medicines, supplies and logistics management
4. Improving information system
5. Review and planning for the Second Phase of Timor-Leste PEN programme

Implementation matrix along with responsible agency, timeline and deliverables are provided in the table below.

Table 6. *Next steps for launching and implementing the First Phase of the TL PEN Programme*

Actions	Responsible agency	Time of completion	Deliverables
1. Policy support, preparatory work and launch of NCD services			
Develop and print Timor-Leste PEN protocol (along with the Service Standard Guidelines for the CHC, HP and domiciliary visit)	NCD Department and WHO	May 2017	Timor-Leste PEN Package containing NCD Services to be provided at different levels Standard Guidelines for the CHC, HP, and home visits Programme monitoring and roles and responsibilities
Establish National NCD management working group and initiate three monthly meetings	NCD Department	May 2017	Members identified and minutes of the meetings
Serve a Ministerial notification to the district/municipal administrations to integrate the Timor-Leste PEN programme	NCD Department	May 2017	Signed notification of the Minister of Health to district/municipal administrations
Launch the first phase of the Timor-Leste PEN Programme preferably by Hon'ble Prime Minister	MoH and WHO	First week June 2017	Launch the Timor-Leste PEN protocol, media coverage and press release
2. Capacity building, programme administration and management in two implementing districts			
Develop a standard course curriculum and materials for training different levels of health workers	NCD working group and WHO	May 2017	
Identify a 4-5 member Timor PEN core trainers and assign them to develop the Timor PEN Programme orientation program for CHC and health post staff in two districts	NCD Department and National Training Institute	May 2017	
Conduct in-house workshop and orientation for CHC and health post staff by the Timor-Leste PEN core trainers	CHC manager, district health manager and NCD Department	June 2017	Doctors and health staff of CHC and health posts workshop

Actions	Responsible agency	Time of completion	Deliverables
Introduce NCD screening for hypertension and diabetes, and healthy lifestyle interventions among females attending antenatal and post natal care at all levels of care	NCD Department and Maternal and Child Department	Develop service package by June 2017 and launch implementation of the package by August 2017	Education materials (flip chart, brochures on NCD risk factors) for females attending antennal and post natal clinics
Establish district program management group with representatives from CHC and HP and initiate three monthly meetings	NCD Department and District Health Officers	June 2017	Minutes of the meetings
Set up quality improvement teams or use the existing management teams at CHC and conduct monthly meetings[11]	CHC manager	June 2017	Quality improvement teams formed
Develop patient appointment and follow up register and appoint NCD focal point to manage the appointment and follow up	CHC and HP managers	June 2017	Patient appointment and follow up register set up and NCD focal point identified
Develop supportive supervisory and clinical mentoring checklist	NCD Department and physician consultants	November 2016	Checklists for : i) Supportive supervision and ii) Clinical mentoring
Conduct supportive supervisory visit using the checklist	National and district managers	July 2017	Supportive supervision report
3. Medicines, supplies and logistic management			
Procure and supply drugs and equipment as per the Timor-Leste PEN protocol and standard of services	NCD Department, Pharmacy Department	April 2016	Glucometer, antihypertensive drugs are supplied
Update the EDL by including statin and ACE inhibitors	NCD Department, Pharmacy and drug quality Team	February 2018	Updated EDL with statin and ACE inhibitors
Conduct real time monitoring supplies and medicines	NCD Department, Pharmacy Department	June 2017	Monitoring visits conducted by pharmacy department
4. Improving information system			
Document monthly clinical records for CHC and HP domiciliary visit NCD services and submit to district health sector	HMIS , NCD Department and District Health Officers	June 2017	Monthly report

[11] Currently monthly staff meetings are conducted. In addition, the quality improvement team meetings will be conducted in addition to monthly staff meeting.

Actions	Responsible agency	Time of completion	Deliverables
Prepare a dummy dash board for NCDs and display at CHC and HP	NCD Department	June 2017	Dummy dash board sent to CHCs and HPs
Set up dash board on NCDs in CHC and HP	CHC and HP	June 2017	Dashboard displayed in all health settings
Develop NCD patient education materials (flip chart, brochure, stickers) for health centers	NCD and Health Promotion Department	June – August 2017	A comprehensive flip chart containing information on NCDs and risk factors, brochure and stickers
Develop patient card/books	NCD Department	June 2017	Patient card/books printed
Patient CVD risk charts for the health centers	NCD Department	December 2017	CVD risk charts delivered to the health centers
5. Review and planning for the Second Phase of Timor-Leste PEN programme			
Conduct a quarterly review meeting of the MoH and WHO	MoH and WHO	July 2017, October 2017, January 2018, April 2018	Minutes of the meeting
Conduct a joint review of the First Phase PEN programme with government and other partners at **six months** of implementation	NCD Department and WHO	December 2017	Review report
Conduct an evaluation of the First Phase Timor-Leste PEN programme with government and other partners at **12 months** of implementation	NCD Department and WHO	July –August 2018	Evaluation report
Planning exercise for Second Phase Timor-Leste PEN Programme	NCD Department and WHO	September 2018	Second Phase Timor-Leste PEN Programme document
Launch the Second Phase of the PEN programme	NCD Department and WHO	December 2018	

Program monitoring

The progress of the first phase of TL PEN programme will be monitored at various levels:

- At the national level:
  - The National NCD management working will review the progress every three months
  - MoH and WHO will conduct a quarterly review meeting
- At the district level:
  - The district programme management group will discuss the progress and implementation issues monthly

- At the health facility level:
    - Quality improvement teams/health facility management teams meet at the minimum once a month

Strengthening supportive supervision

Supportive supervision is necessary to promote quality of NCD care and management through directing and supporting health centers and health workers in order to enhance their skills, knowledge and abilities with the goal of improving health outcomes for patients. It promotes team building and two way communication between a supervisor and the supervisee.
A district manager or physician's visits health centers for the clinical mentoring visit should be made objective by use of a standard supportive supervision checklist. (See annexure 2)

Table 8. *Levels of supportive supervision and frequency*

Level	Supervisors	Minimum visits
National supervisors	Director NCD Department, senior officials of the MoH, consultants from the Referral Hospitals (for clinical mentoring), and other relevant units such as Pharmacy and procurement officer	Three monthly visit to the districts and health centers
	Members of the National NCD management working group	Once in four months
District/municipal level supervisors	District health officer and other relevant officers	Two visit to every health centers

Program evaluation

Two reviews will be conducted during the first phase of TL PEN Programme. The first review will be conducted at six months of the programme implementation. This will be a formative assessment and measure efforts and the direct outputs of the programmes, and examine the whether the programme is implemented as planned. The results will be used to make adjustments for the remaining period of implementation.

At the twelve month of implementation, a summative evaluation will be conducted which will take into account the short term outcomes such as knowledge, adoption of healthy behaviours (tobacco use and alcohol use) and control of blood pressure and blood sugar level among those on treatment.

The reviews will be conducted jointly by the MoH and WHO. The lessons will be used for improving the programme quality and ensuring that future planning is more evidence-based.

Indicators for the First Phase of Timor-Leste PEN Programme

The progress of the programme will be measured by a following set of process, short- and medium-term outcome indicators:

Table 9. *Monitoring framework for Phase One Timor-Leste PEN Programme*

Indicators	Means of verification	Key assumptions
Health service delivery		
Number of health facilities having all essential medicines listed in the TL PEN protocol for cardiovascular disease, hypertension, diabetes and chronic respiratory disease	Health facility survey	Budget and technical assistance available
Number of health facilities with medical doctors trained on TL PEN providing NCD services in ninety percent of the time	Health facility survey	Budget and technical assistance available
Number of health facilities reporting uninterrupted supply of essential medicines since the start of the TL PEN programme	Health facility survey	Budget and technical assistance available
Number of health facilities participating in a supportive supervision exercise using the supportive supervision checklist every two months	Health facility survey	Budget and technical assistance available
Patient services		
Proportion of diabetes patients receiving at least one glucose and cholesterol test in 12 months	PEN clinical audit	Budget and technical assistance available
Proportion of hypertensive patients receiving at least 2 blood pressure check up by a doctor in 12 months	PEN clinical audit	Budget and technical assistance available
Proportion of patients asked for use of tobacco and alcohol at the OPD consultation by a doctor	PEN clinical audit	Budget and technical assistance available

Indicators	Means of verification	Key assumptions
Proportion of tobacco users provided with brief intervention (using 5 A method)	PEN clinical audit	Budget and technical assistance available
Proportion of alcohol users provided with brief interventions (using 5 A method)	PEN clinical audit	Budget and technical assistance available
Proportion of outpatients patients above 40 years educated with CVD risk scoring chart	PEN clinical audit	Budget and technical assistance available
Patient outcomes		
Proportion of diabetes patients receiving treatment for diabetes with blood sugar controlled	PEN clinical audit	Budget and technical assistance available
Proportion of hypertensive patients on treatment with blood pressure controlled	PEN clinical audit	Budget and technical assistance available
Number of people living with diabetes, hypertension, COPD, and cancers by health facilities	PEN clinical audit	Budget and technical assistance available
Number of deaths due to diabetes, hypertension, COPD, and cancers and related complications by health facilities	PEN clinical audit	Budget and technical assistance available

Documenting the effect of the PEN programme

It is important to document the effect of the PEN intervention to understand how intervention works in TL setting. The effect can be evaluated using a quasi-experimental design comparing patient outcomes among the intervention and nonintervention health facilities. A control group can be selected among patients attending health facilities not implementing the PEN Programme in other districts. Patients in the two arms can be compared with patient outcomes for diabetes, hypertension, tobacco cessation and alcohol abstinence and other lifestyle behaviours. The evaluation can be conducted after the 12 months of implementation.

Sustainability and scale up

The Government and the Ministry of Health Timor-Leste recognizes that introduction of health care services should occur within a sustainable means of the government resources. As management of NCDs are an integrated part of NCD services, TL PEN Programme has an added value in building on the existing standard of care at the primary health care level. Hence, scale up of PEN will be core response of the Government of Timor-Leste and Ministry of Health towards achieving 2025 NCD targets and SDG targets. Budget and other resources will be allocated within the government annual budget cycle to sustain the PEN programme.

Section 4: PEN Clinical protocols

The aim of using standard treatment protocols is to improve the quality of clinical care and simplify treatment options, particularly in primary health care.[12] Treatment protocols have been developed by adapting WHO-PEN protocols and taking into account other international recommendations and review by clinical experts and policy makers in TL. The protocols include:

- 4.1 Protocol for Domiciliary Visit
- 4.2 Protocol for Health Post Type I and II and Mobile Clinic
- 4.3 Protocol on lifestyle intervention and treatment adherence (Apply for all level of services)
- 4.4 Protocol on tobacco cessation (for all level of services)
- 4.5 Protocol on Prevention of heart Attacks, Strokes and Kidney Disease through Integrated Management of Diabetes and Hypertension (For Community Health Centers in sub districts (CHC-SD), Community Health Center in Districts (CHC))
- 4.6 Protocol for management of asthma and chronic obstructive pulmonary disease:
- 4.7 Protocol for management of Asthma and exacerbation of asthma
- 4.8 Protocol for management of COPD and exacerbation of COPD
- 4.9 Protocol for assessment and referral of women with suspected breast cancer at primary health care
- 4.10 Protocol for assessment and referral of women with suspected cervical cancer at primary health care
- 4.11 Protocol for early detection and referral of persons with suspected oral cancer

[12] HEARTS Technical package for cardiovascular disease management in primary health care , World Health Organization 2016

4.1 Domiciliary Visit

Ask and Check	Take Action
▪ In people 40 years and above check seated blood pressure twice with a 10 minute interval ▪ Check urine sugar of all adults above 40 years(if overweight and obese above 30 years)	▪ Refer to Health Post (or CHC) those with seated blood pressure ≤140/90 mm Hg (checked twice with a 10 minute interval) ▪ If positive refer to Health Post (or CHC)

4.2 Health Post Type I and II and Mobile Clinic

Action 1. Ask about:	
▪ Diagnosed heart disease, stroke, TIA, DM, kidney disease ▪ Angina, breathlessness on exertion and lying flat, numbness or weakness of limbs, loss of weight, increased thirst, polyuria, puffiness of face, swelling of feet, passing blood in urine etc. ▪ Medicines that the patient is taking ▪ Current tobacco use (yes/no) answer yes, if tobacco use during the last 12 months)	▪ Alcohol consumption(yes/no) if 'Yes', frequency and amount) ▪ Occupation (Sedentary or active) ▪ Engaged in more than 30 minutes of physical activity at least 5 days a week (Yes/No) ▪ Family history of premature heart disease or stroke in first degree relatives

Action 2. Assess (physical examination)	Urine and blood tests
▪ Measure: Body weight, height, and waist circumference ▪ Measure blood pressure, look for pitting oedema ▪ Palpate apex beat for heaving and displacement ▪ Auscultate heart(rhythm and murmurs) ▪ Auscultate lungs (bilateral and basal crepitation) ▪ Examine abdomen (tender liver) ▪ In DM patients examine feet: sensations, pulses and ulcers	▪ Urine albumin ▪ Blood sugar (glucometer)

Action 3. Refer to next level if any of the following are detected

- Blood pressure >200/>120 mm Hg (Urgent referral)
- Blood pressure >140/>90 mm Hg in those below 40 years in order to exclude secondary hypertension
- If while on two drugs blood pressure is not controlled(control means blood pressure <130/<80 mm Hg in diabetes and <140/<90 mm Hg in others)
- Raised blood sugar
- Urine albumin positive
- Known heart disease, stroke, transient ischemic attack, diabetes mellitus, kidney disease(for assessment, if this has not been done)
- New chest pain or changes in severity of angina or symptoms of transient ischemic attack or stroke
- Target organ damage (e.g. angina, claudication, heaving apex, cardiac failure)
- Cardiac murder
- Medium or high cardiovascular risk (See below)

Action 4. Assess cardiovascular risk using WHO/ISH risk stratification chartsbased on age, smoking status, systolic blood pressure, cholesterol, diabetes

Action 5. Counsel all and treat as shown below

- Counsel all on diet, physical activity, smoking cessation and avoiding harmful use of alcohol while using Protocol on lifestyle intervention and treatment adherence.
- For all individuals with BP ≥160/100 mm Hg counsel and start antihypertensive treatment whatever the level of cardiovascular risk. Follow –up monthly and control BP less than 140/90 mm Hg and continue treatment.
- Cardiovascular risk <10%, persistent BP ≥140/90 mm Hg (less than 160/100).
  - Counsel.
  - Follow-up monthly. If at 2 month follow-up BP remains ≥140/90 mm Hg, start antihypertensive treatment.

  If under 55 years give thiazide diuretic (low dose) and/or angiotensin converting enzyme inhibitor (enalapril) first. Enalapril should not be used for women in child bearing age.

  If over 55 years give calcium channel blocker such as amlodipine or nifedipine retard and /or low dose of thiazide diuretic first

  If intolerant to angiotensin converting enzyme inhibitor or for women in child bearing age consider a thiazide diuretic or a beta blocker such as atenolol

All follow –up visits after the first visit
▪ Ask about: new symptoms, adherence to advise on tobacco and alcohol use, physical activity, healthy diet, medications etc ▪ Action 2 Assess (Physical exam) ▪ Action 3 Estimate cardiovascular risk ▪ Action 4 Refer if necessary ▪ Action 5 Counsel all and treat as shown in protocol

4.3 Protocol on lifestyle intervention and treatment adherence (Apply for all level of services)

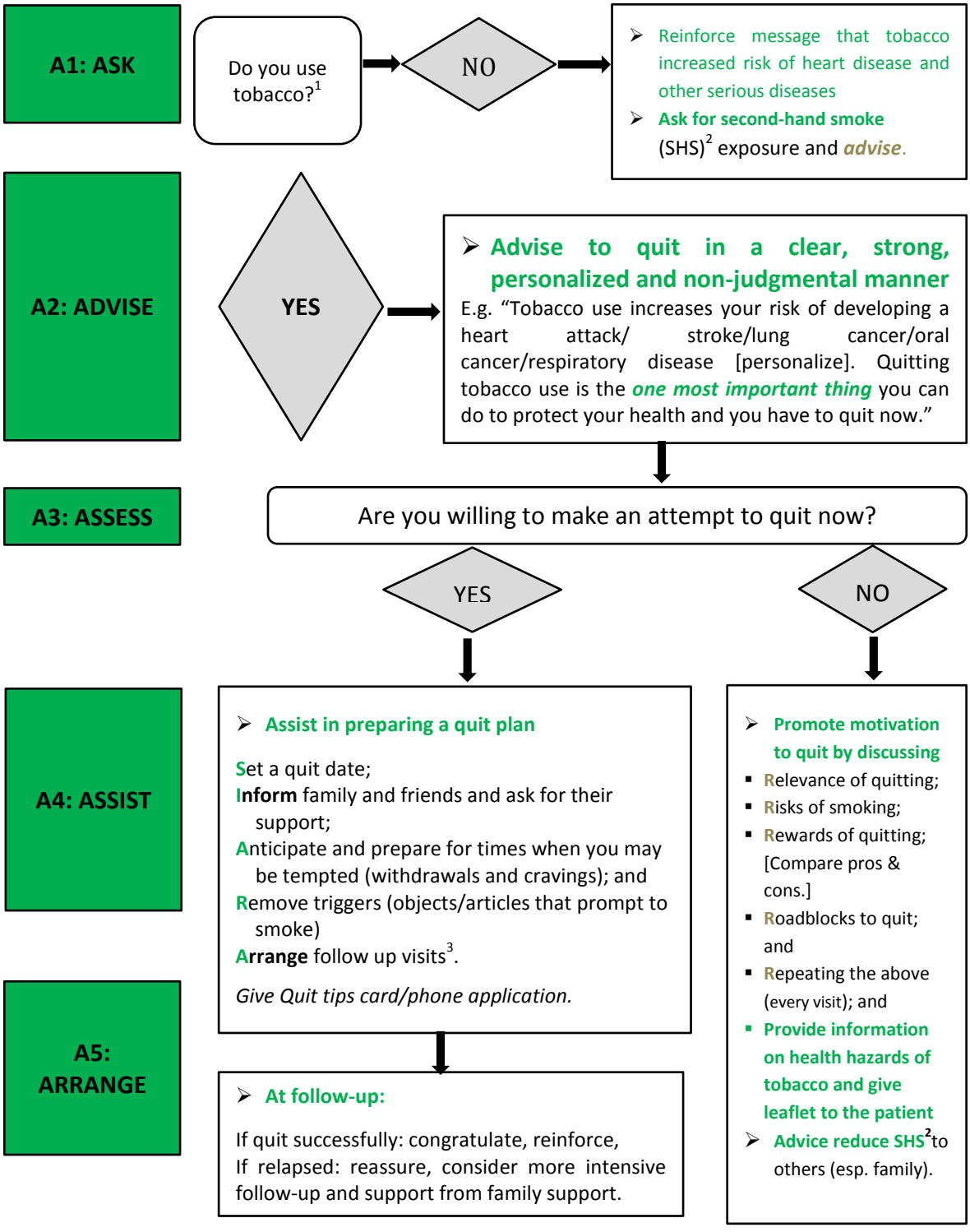
Educate your patient to
▪ Take regular physical activity ▪ Eat a " heart healthy diet" ▪ Stop tobacco and avoid harmful use of alcohol ▪ Attend regular medical follow-up
Take regular physical activity
▪ Progressively increase physical activity to moderate levels(such as brisk walking); at least 150 minutes per week ▪ Control body weight and avoid overweight by reducing high calorie food and taking adequate physical activity

Salt(sodium chloride) ▪ Restrict to less than 5 grams (1 teaspoon) per day ▪ Reduce salt when cooking, limit processed and fast foods **Fruits and vegetables** ▪ 5 servings (400-500 grams) of fruits and vegetables per day ▪ 1 serving is equivalent to 1 orange, apple, mango, banana or 3 tablespoons of cooked vegetables **Fatty food** ▪ Limit fatty meat, dairy fat and cooking oil (less than two tablespoons per day) ▪ Replace palm and coconut oil with olive, soya, corn oil ▪ Replace other meat with chicken (without skin)

Stop tobacco and avoid harmful use of alcohol
▪ Encourage all non-smokers not to start smoking ▪ Strongly advise all smokers to stop smoking and support them in their efforts ▪ Individuals who use other forms of tobacco should be advised to start taking alcohol for health reasons ▪ Advise patients not to use alcohol when additional risks are present, such as: - Driving or operating machinery - Pregnant or breast feeding - Taking medications that interact with alcohol - Having medical conditions made worse by alcohol - Having difficulties in controlling drinking

Adherence to treatment
If the patient is prescribed medicine/s: ▪ Teach the patient how to take it at home ▪ Explain the difference between medicines for long-0term control(e.g. blood pressure) and medicines for quick relief (e.g. for wheezing) ▪ Tell the patient reason for prescribing the medicine/s ▪ Show the patient the appropriate dose ▪ Explain how many times a day to tale the medicine ▪ Label and package the tablets ▪ Check the patient's understanding before the patient leaves the health centre ▪ Explain the importance of: ▪ Keeping an adequate supply of the medications ▪ The need to take the medicines regularly as advised even if there are no symptoms

4.4 Protocol for counselling for tobacco cessation (for all level of services)



[1]Tobacco use includes smoked, smokeless tobacco such as chewing with or without areca nut, sniffing, vapour or e-cigarettes and other forms.
[2] SHS: Second-hand smoke exposure
[3]Ideally second follow-up visit is recommended within the same month and every month thereafter for 4 months and evaluation after 1 year. If not feasible, reinforce counselling whenever the patient is seen for blood pressure monitoring.

4.5 Protocol on Prevention of heart Attacks, Strokes and Kidney Disease through Integrated Management of Diabetes and Hypertension (For Community Health Centers in sub districts (CHC-SD), Community Health Center in Districts (CHC))

When to use this protocol
The protocol is for assessment and management of cardiovascular risk using hypertension, diabetes mellitus and tobacco use as entry points. It should be used for the following categories of people: ▪ Age >40 years ▪ Smokers ▪ Waist circumference (≥ 90 cm in women, ≥ 100 cm in men) ▪ Known hypertension ▪ Known diabetes mellitus ▪ History of premature CVD in first degree relatives ▪ History of DM or kidney disease in first degree relatives

Follow instructions given in Action 1 to Action 4, step by step

FIRST VISIT

Action 1. Ask about:	
▪ Diagnosed heart disease, stroke, TIA, DM, kidney disease ▪ Angina, breathlessness on exertion and lying flat, numbness or weakness of limbs, loss of weight, increased thirst, polyuria, puffiness of face, swelling of feet, passing blood in urine etc. ▪ Medicines that the patient is taking ▪ Current tobacco use (yes/no) answer yes, if tobacco use during the last 12 months)	▪ Alcohol consumption(yes/no) if 'Yes', frequency and amount) ▪ Occupation (Sedentary or active) ▪ Engaged in more than 30 minutes of physical activity at least 5 days a week (Yes/No) ▪ Family history of premature heart disease or stroke in first degree relatives

Action 2. Assess (physical examination)	Urine and blood tests
▪ Measure: Body weight, height, and waist circumference ▪ Measure blood pressure, look for pitting oedema ▪ Palpate apex beat for heaving and displacement	▪ Urine ketones(in newly diagnosed DM) and protein ▪ Fasting or random blood sugar (diabetes=fasting blood sugar ≥7mmol/l (126 mg/dl) or random blood sugar ≥11.1 mmol/l (200

▪ Auscultate heart(rhythm and murmurs) ▪ Auscultate lungs (bilateral and basal crepitation) ▪ Examine abdomen (tender liver) ▪ In DM patients examine feet: sensations, pulses and ulcers	mg/dl) Point of care devices can be used for testing blood sugar if laboratory facilities are not available)

Action 3. Assess cardiovascular risk (in those not referred)

Action 4. Referral criteria for all visits

▪ BP >200/>120 mm Hg(urgent referral) ▪ BP ≥140 or ≥ 90 mm Hg in people <40 years (to exclude secondary hypertension) ▪ Known heart disease, stroke, transient ischemic attach, DM, kidney disease(for assessment, if this has not been done) ▪ New chest pain or change in severity of angina or symptoms of transient ischemic attack or stroke ▪ Target organ damage (e.g. angina, claudication, heaving apex, cardiac failure) ▪ Cardiac murmurs ▪ Raised BP ≥140/90 mm Hg (in DM above 130/80 mmHg) while on treatment with 2 or 3 agents	▪ Any proteinuria ▪ Newly diagnosed DM with urine ketones 2+ or above in lean persons of <30 years ▪ Total cholesterol >8mmol ▪ DM with poor control despite maximal metformin with our without sulphonylurea ▪ DM with severe infection and/or foot ulcers ▪ DM with recent deterioration of vision or no eye examination in 2 years ▪ High cardiovascular risk

If referral criteria are not present go to Action 5

FIRST VISIT

Action 5. Counsel all and treat as shown below

Risk <20%

- Counsel on diet, physical activity, smoking cessation and avoiding harmful use of alcohol
- If risk <10% follow up in 12 months
- If risk 10-<20% follow up every 3 months until targets are met, then 6-9 months thereafter

Risk 20 to <30%

- Counsel on diet, physical activity, smoking cessation and avoiding harmful use of alcohol
- Persistent BP ≥140/90 mm Hg consider drugs (see below** Antihypertensive medications)
- Follow-up every 3-6 months

Additional actions for individuals with DM:

- Give an antihypertensive for this with BP ≥130/80 mmHg
- Give a statin to all with type 2 D< aged ≥ 40 years
- Give Metformin for type 2 DM if not controlled by diet only (FBS >7 mmol/l), and if there is no renal insufficiency, liver disease or hypoxia.

	Risk >30%	▪ Counsel on diet, physical activity, smoking cessation and avoiding harmful use of alcohol ▪ Persistent BP ≥130/80 mm Hg consider drugs (see below** Antihypertensive medications) ▪ Give a statin ▪ Follow-up every 3 months, if there is no reduction in cardiovascular risk after six months of follow up refer to next level		▪ Titrate metformin to target glucose value ▪ Give sulfonylurea to patients who have contraindication to metformin[13] or if metformin does not improve glycaemic control. ▪ Give advice on foot hygiene, nail cutting, treatment of calluses, appropriate footwear and assess feet at risk of ulcers suing simple methods(inspectio, pin-prick sensation) ▪ Angiotensin converting enzyme inhibitors and/or low-dose thiazides is recommended as first-line treatment of hypertension. ▪ Beta blockers are not recommended for initial management but can be used if thiazides or angiotensin converting enzyme inhibitors are contraindicated. ▪ Follow up every 3 months
	Important practice points	**Consider drug treatment for following categories** ▪ All patients with established DM and cardiovascular disease (coronary heart disease, myocardial infarction, transient ischemic attack, cerebrovascular disease or peripheral vascular disease. If stable, should continue the treatment already prescribed and be considered as with risk >30% ▪ People with albuminuria, retinopathy, left ventricular hypertrophy ▪ All individuals with persistent raised BP ≥160/100 mmHg; antihypertensive treatment ▪ All individuals with total cholesterol at or above 8 mmol/l(320 mg/dl); lifestyle advice and statins		
		** Antihypertensive medications ▪ If under 55 years low dose of a thiazide diuretic and/or angiotensin converting enzyme inhibitor ▪ If over 55 years calcium channel blocker and/or low dose of a thiazide diuretic ▪ If intolerant to angiotensin converting enzyme inhibitor[14] or for women in child bearing age consider a beta blocker ▪ Thiazide diuretics and/or long-acting		

[13] Contraindications include renal impairment, hepatic dysfunction, acute or chronic acidosis
[14] Adverse effects include dry cough, and renal dysfunction in patients with impaired renal function

		calcium channel blockers are more appropriate as initial treatment for certain ethnic groups. Medications for compelling indications should be prescribed, regardless of race or ethnicity ▪ Test serum creatinine and potassium before prescribing an angiotensin converting enzyme inhibitor		

FIRST VISIT

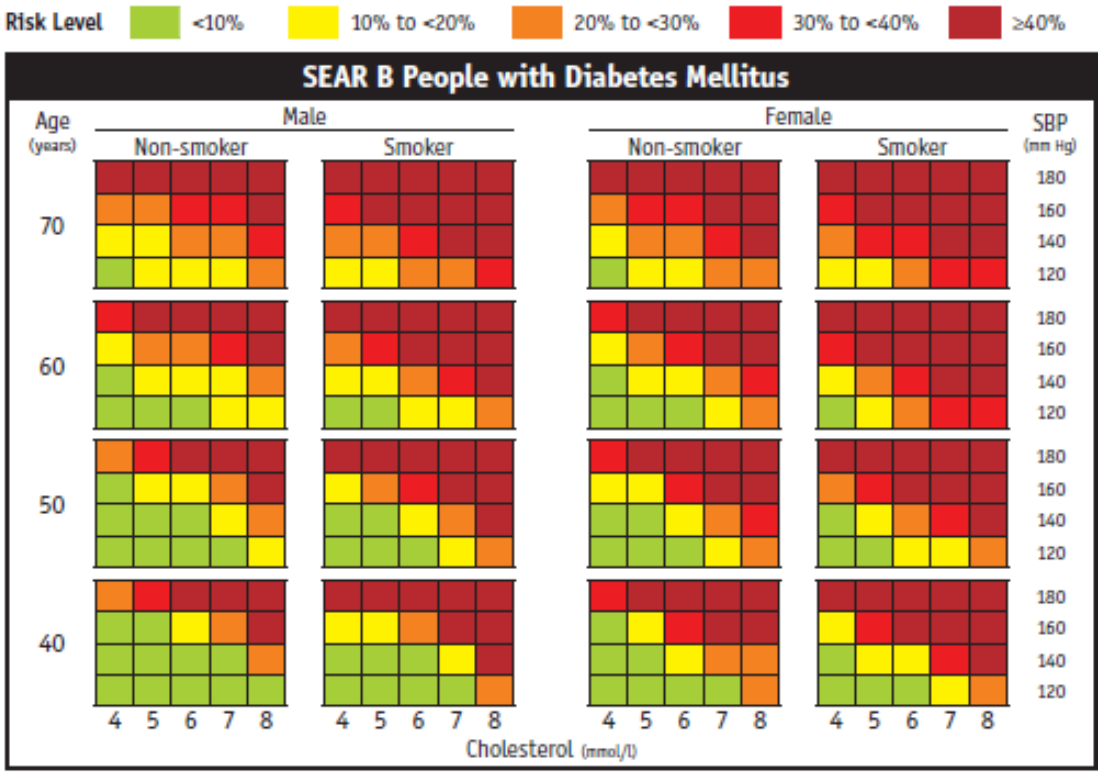
Advice to patient and family
▪ Avoid table salt and reduce salty foods such as pickles, salty fish, fast food, processed food, canned food and stock cubes ▪ Have your blood glucose level, blood pressure and urine checked regularly
Advice specific for Diabetes Mellitus
Advise overweight patients to reduce weight by reducing their food intake. Advise all patients to give preference to low glycaemic-index foods(e.g. beans, lentils, oats and unsweetened fruit) as the source of carbohydrates in their diet If you are on any DM medication that may cause your blood glucose to go down too low to carry sugar or sweets with you If you have DM, eyes should be screened for eye disease(diabetic retinopathy) by an ophthalmologist at the time of diagnosis and every two years thereafter, or as recommended by the ophthalmologist Avoid walking barefoot or without socks Wash feet in like warm water and dry well especially between the toes Do not cut calluses or corns, and do not use chemical agents on them Look at your feet every day and if you see a problem or an injury, go to your health workers

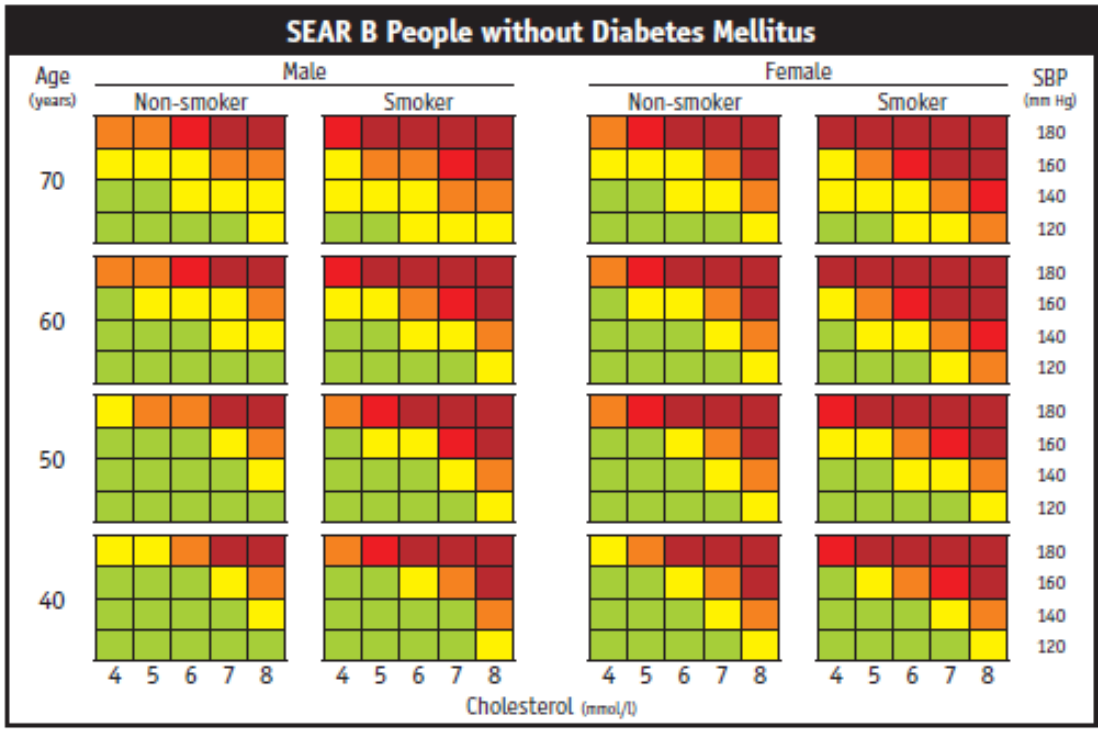
SECOND VISIT

Repeat
Ask about: new symptoms, adherence to advise on tobacco and alcohol use, physical activity, healthy diet, medications etc Action 2 Assess (Physical exam) Action 3 Estimate cardiovascular risk Action 4 Refer if necessary Action 5 Counsel all and treat as shown in protocol

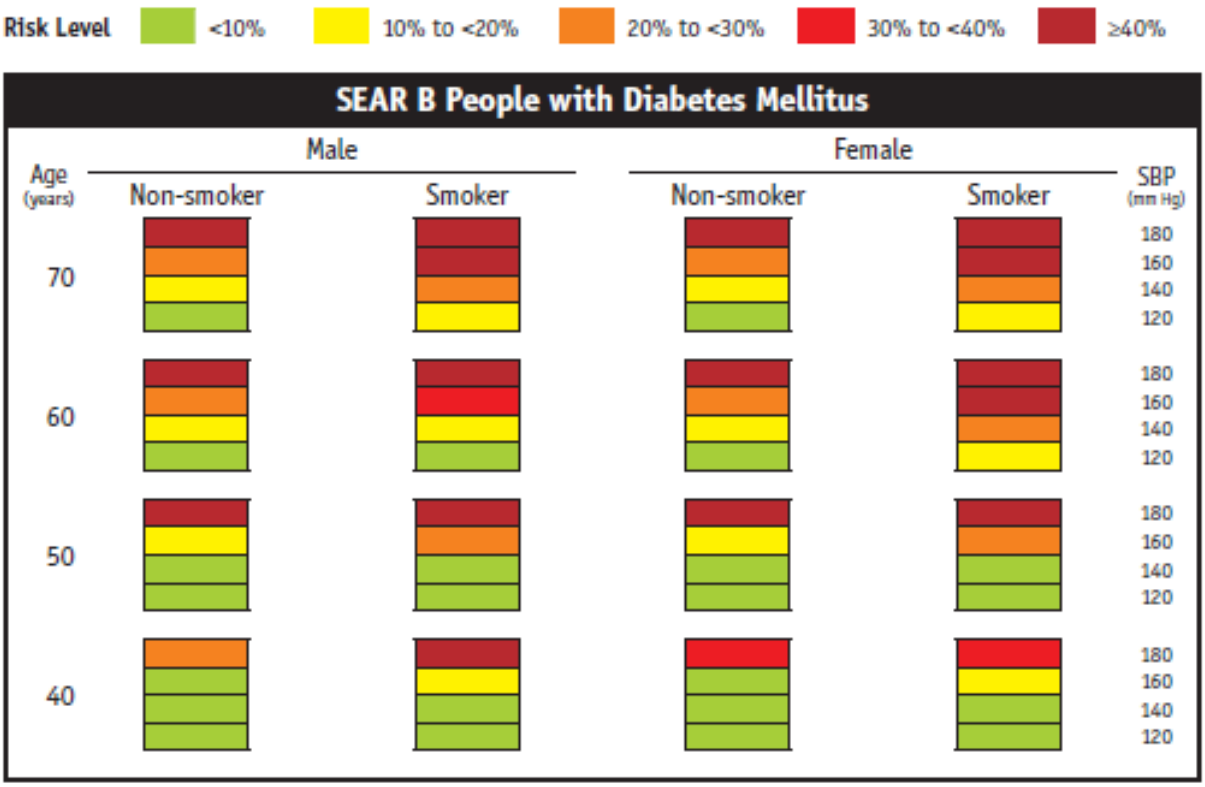
SEAR B WHO/ISH risk prediction chart

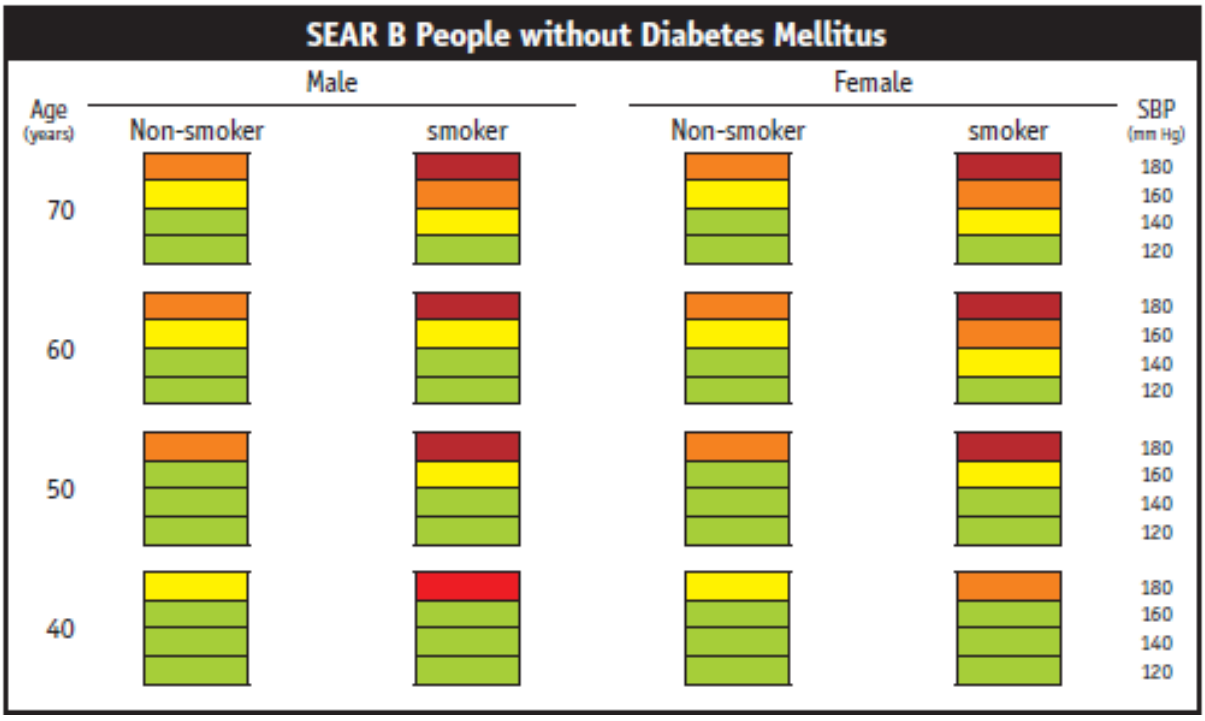
10 year risk of a fatal or non-fatal cardiovascular event by gender, age, systolic blood pleasure, total blood cholesterol, smoking status and presence or absence of diabetes mellitus





10 year risk of a fatal or non-fatal cardiovascular event by gender, age, systolic blood pleasure, smoking status and presence or absence of diabetes mellitus if blood cholesterol CANNOT be measured


Risk Level
<10%
10% to <20%
20% to <30%
30% to <40%
≥40%
SEAR B People with Diabetes Mellitus
Male
Female
Age (years)
Non-smoker
Smoker
Non-smoker
Smoker
SBP (mm Hg)
70
60
50
40
180
160
140
120


SEAR B People without Diabetes Mellitus
Male
Female
Age (years)
Non-smoker
smoker
Non-smoker
smoker
SBP (mm Hg)
70
60
50
40
180
160
140
120

4.6 Protocol for management of asthma and chronic obstructive pulmonary disease:

ASK	Asthma and COPD can both present with cough, difficulty breathing, tight chest and/or wheezing	
DIAGNOSIS	The following features make a diagnosis of asthma more likely: ▪ previous diagnosis of asthma; ▪ symptoms since childhood or early adulthood; ▪ history of hay fever, eczema and/or allergies; ▪ intermittent symptoms with asymptomatic periods in between; ▪ symptoms worse at night or early morning ▪ symptoms triggered by respiratory infection, exercise, weather changes or stress; and ▪ symptoms respond to salbutamol	The following features make a diagnosis of COPD more likely: ▪ previous diagnosis of COPD; ▪ history of heavy smoking, i.e. >20cigarettes per day for >15 years; ▪ history of heavy and prolonged exposure to burning fossil fuels in an enclosed space, or high exposure to dust in an occupational setting; ▪ symptoms started in middle age or later (usually after age 40); ▪ symptoms worsened slowly over a long period of time; ▪ long history of daily or frequent cough and sputum production often starting before shortness of breath; and ▪ symptoms that are persistent with little day-to-day variation
TEST	Measure Peak Expiratory Flow rate (PEFR) ▪ Give two puffs of salbutamol and measure again in 15 minutes ▪ If the PEF improves by 20%, a diagnosis of asthma is very probable ▪ Smaller response makes a diagnosis of COPD more likely ▪ Do an ECG, if available (especially if diagnosis uncertain /possibility of cardiac cause	

4.7 Protocol for Management of Asthma

ASK	Is asthma well controlled or uncontrolled?
	Asthma is considered to be well controlled if the patient has: ▪ daytime asthma symptoms and uses a beta agonist two or fewer times per week ▪ night time asthma symptoms two or fewer times per month ▪ no or minimal limitation of daily activities ▪ no severe exacerbation (i.e. requiring oral steroids or admission to hospital) within a month ▪ PEFR, if available, above 80% predicted. If any of these markers are exceeded, the patient is considered to have uncontrolled asthma

TREAT	Increase or decrease treatment according to how well asthma is controlled using a stepwise approach
	Step 1. Inhaled salbutamol prn **Step 2. Inhaled salbutamol prn plus low dose inhaled beclometasone, starting with 100** *u*g twice daily for adults and 100 ug once or twice daily for children **Step 3**. Same as step 2, but give higher doses of inhaled beclometasone, 200 ug or 400 ug twice daily **Step 4**. Add low-dose oral theophylline to Step 3 treatment (assuming long-acting beta agonists and leukotriene antagonists are not available) **Step 5.** Add oral prednisolone, but in the lowest dose possible to control symptoms (nearly always less than 10 mg daily) At each step, check the patient's adherence to treatment and observe their inhaler technique

REFER	Review asthma control every 3-6 months and more frequently when treatment has been changed or asthma is not well controlled.
	▪ Referral for specialist: ▪ When asthma remains poorly controlled; ▪ When the diagnosis of asthma is uncertain; ▪ When regular oral prednisolone is required to maintain control.

Management of exacerbation of Asthma

ASSESS	Assess severity
	Severe: ▪ Inability to complete sentences in one breath. ▪ Respiratory rate more than 25 breaths/minute (adult) ▪ Heart rate ≥110 beats/minute.(adult) ▪ PEFR 33-50% best or predicted. **Very severe:** ▪ Altered conscious level, exhaustion, arrhythmia, hypotension, cyanosis, silent chest, poor respiratory effort. ▪ SpO2 <92%

TREAT	First line treatment		Second line treatment to be considered if the patient is not responding to first-line treatment
	▪ Prednisolone 30-40mg for five days for adults and 1 mg per kg for three days for children, or longer, if necessary, until they have recovered; ▪ Salbutamol in high doses by metered dose inhaler and spacer (e.g. four puffs every 20 minutes for one hour) or by nebulizer; ▪ Oxygen, if available, and if oxygen saturation levels are low (below 90%) Reassess at intervals depending on severity		▪ Increase frequency of dosing via MDI and spacer or by nebulizer, or give salbutamol by continuous nebulization at 5-10 mg per hour, if appropriate nebulizer available; For children, nebulized ipratropium, if available, can be added to nebulized salbutamol.

ADVICE	Asthma - Advice to patients and families
	Regarding prevention: ▪ avoid cigarette smoke and trigger factors for asthma, if known ▪ avoid dusty and smoke-filled rooms; ▪ avoid occupations that involve agents capable of causing occupational asthma ▪ reduce dust as far as possible by using damp cloths to clean furniture, sprinkling the floor with water before sweeping, cleaning blades of fans regularly and minimizing soft toys in the sleeping area; ▪ It may help to eliminate cockroaches from the house (when the patient is away) and shake and expose mattresses, pillows, blankets, etc. to sunlight. ▪ Regarding treatment, ensure that the patient or parent: -knows what to do if their asthma deteriorates (self-care) -understands the benefit from using inhalers , that they are not addictive and the benefit of a spacer -is taught the proper technique for use of inhalers and devices ▪ is aware that inhaled steroids take several days or even weeks to be fully effective and gurgle after the use of inhalers

4.8 Protocol for management of COPD

ASSESS	Assess severity
	Moderate - if breathless with normal activity Severe - if breathless at rest Measure PEFR and oxygen saturation

TREAT	
	▪ Inhaled salbutamol, two puffs as required, up to four times daily; ▪ If symptoms are still troublesome, consider low-dose oral theophylline; ▪ If ipratropium inhalers are available, they can be used instead of, or added to, salbutamol, but they are more expensive

ADVICE	COPD - Advice to patients and families
	▪ Ensure they understand that smoking and indoor air pollution are the major risk factors for COPD – therefore, patients with COPD must stop smoking and avoid dust and tobacco smoke; ▪ Keep the area where meals are cooked well ventilated by opening windows and doors ▪ Cook with wood or carbon outside the house, if possible, or build an oven in the kitchen with a chimney that vents the smoke outside; ▪ Avoid working in areas with occupational dust or high air pollution – using a mask may help, but it needs to have an appropriate design and provide adequate respiratory protection.

Management of exacerbation of COPD

TREAT	
	▪ Antibiotics should be given for all exacerbations; ▪ For severe exacerbations, give oral prednisolone 30-40 mg for around seven days; ▪ Give high doses of inhaled salbutamol by nebulizer or metered doses inhaler with spacer;(e.g. four puffs every 20 minutes for one hour) or by nebulizer; ▪ Oxygen, if available, should be given by a mask that limits the concentration to 24 % to 28%

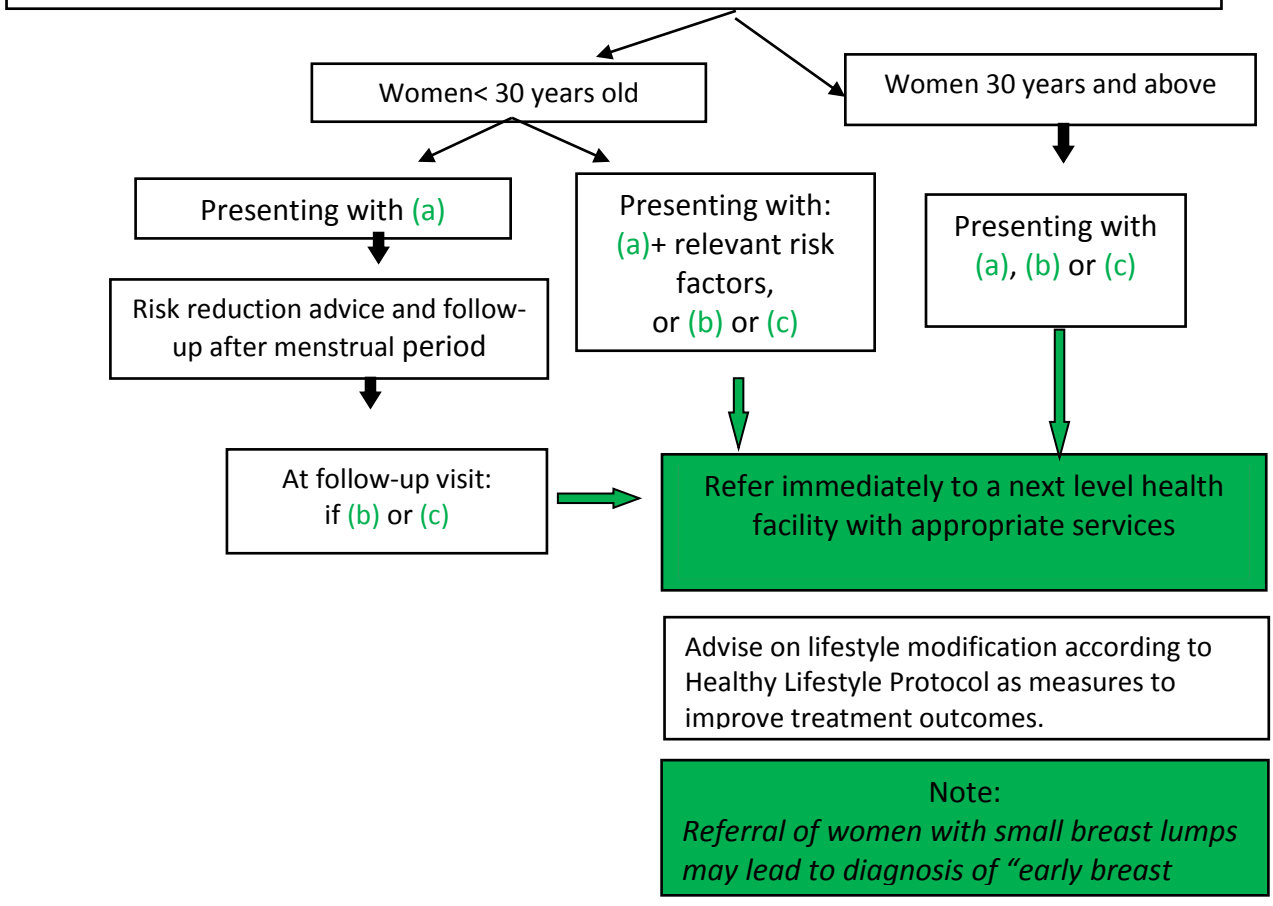
4.9 Protocol for assessment and referral of women with suspected breast cancer at primary health care

Women who present with the following persistent and unexplained signs and symptoms seeking consultation at a PHC:

(a) Breast lump, or any change in the shape or consistency of the breast
(b) Breast lump that enlarges and/or is fixed and hard
(c) Other breast problems (i.e. eczematous skin changes, nipple retraction, peaud'orange, ulceration, unilateral nipple discharge - particularly bloody discharge, lump in the axilla) with or without palpable lump

Assess likelihood for breast cancer

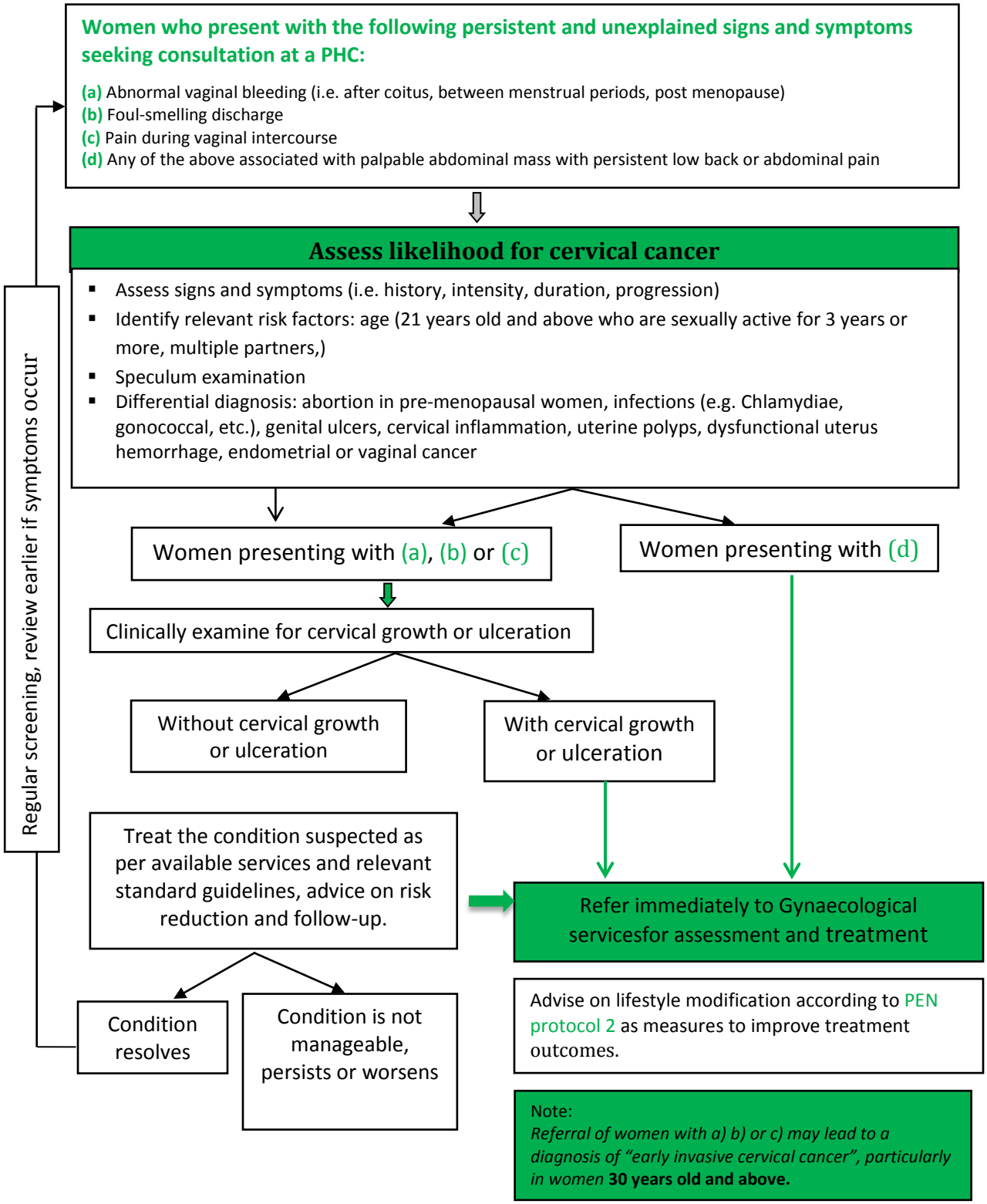
- Assess signs and symptoms (i.e. history, intensity, duration, progression)
- Identify relevant breast cancer risk factors (including age, family history of breast or ovarian cancer, previous history of breast cancer, chest irradiation)
- Clinical examination of both breasts, axillae and neck
- Differential diagnosis: benign breast diseases (e.g. fibroadenoma, fibroadenosis, mastitis, abscess, etc.)



Advise on lifestyle modification according to Healthy Lifestyle Protocol as measures to improve treatment outcomes.

Note:
Referral of women with small breast lumps may lead to diagnosis of "early breast

4.10 Protocol for assessment and referral of women with suspected cervical cancer at primary health care



4.11 Protocol for early detection and referral of persons with suspected oral cancer

When to use the protocol in the clinical setting:

- People using or with history of tobacco use (smoking or smokeless)
- People using or with history of areca nut consumption
- Patients presenting with symptoms and signs listed below

Ask and look for:

Risk factors:	Symptoms and signs:
1. Age > 30 years 2. Tobacco use (chewing tobacco or smoking) 3. Chewing areca nut or betel quid 4. Alcohol use	• Patch of whitish or reddish discolouration of mucosa • Non-healing ulcer lasting >2 weeks • Oral hairy leukoplakia (roughening of tongue surface) • Submucous fibrosis (hardening of inside of mouth or cheek, difficulty in speaking, biting swallowing or other movement of mouth of tongue, mouth or throat) • Visible mass • Unexplained persistent gum bleeding • Unexplained loss of sensation in mouth, tongue, cheek or throat • Difficulty swallowing or feeling of something in throat

If any symptoms, signs or risk factors are present

Oral visual examination

For any abnormality on oral visual examination, including but not limited to:
Ulceration, discolouration of mucosa, hairy leukoplakia, submucous fibrosis, visible mass

Any abnormality on oral visual examination

Arrange/refer for detailed assessment by a Dentist/Dental surgeon for further management

Normal findings

Advise to avoid tobacco use, areca nut chewing and risk minimization of other risk factors

Advise:

- Advise to avoid tobacco use, areca nut chewing and alcohol according to healthy lifestyle protocol.
- Any history of habitual tobacco or alcohol use - Refer for cessation assistance to physician, counselor or nearest cessation service
- Advise elimination of local irritants and risk reduction

References:

Operational Framework: Management of Common Cancers. Annexure 1c: Screening and Management Algorithm for oral cancer. Ministry of Health and Family Welfare, Government of India

Guideline for the Early Detection of Oral Cancer in British Columbia 2008. College of Dental Surgeons British Columbia. Vancouver, Canada: Clinical Practice Guidelines, March 2008.

Annexure 1

Terms of references

1.1 Terms of reference for the National NCD management working group

The National NCD management working group provide overall guidance on health service delivery for NCD management with a focus on the primary health care level in Timor-Leste. It will cooperate and interact with any other policy groups and committees related to NCD prevention and control in the country. The working group will be hosted by the Ministry of Health. The working group will be officially appointed through an executive order of the Ministry of Health. The members of the group will comprise of experts and senior officials who have policy and technical foresight in health service delivery.

Composition:
Chairs: Director Public Health and senior consultant in medicine at the national hospital.
Members: Consultants in cardiology, diabetes, cancer and respiratory diseases. Director, primary health care, Pharmacy focal point, health information system focal point, Nursing administrator, one representative of CHC doctors, one representative of a Health post, National Laboratorium, INS, District Health Director, WHO country office,

Tenure: Working group should be appointed for a period of 3 years. The membership can be updated based on the situational needs.

Member Secretary: Director, NCD

Meetings schedule: Once in 3 months

Responsibilities:

i. Provide overall guidance in aspects of delivery of health services related to noncommunicable diseases to the government and ministry of health
ii. Update the government, Health Minister, DG, and partners about the implementation status of NCD health services
iii. Advocate Local Municipal Authorities to improve NCD services at health facilities
iv. Support and advocate for NCD funding for health service delivery at all levels

1.2 Terms of reference for district programme management group

The purpose of the constituting district programme management group is to provide guidance and advice on health service delivery to the district/municipal health sector. The management group provides a platform for using NCD management as an entry point for health service improvement. The group will discuss the bottlenecks in the health service delivery and identify problems solving measures in improving access and quality of health services including issues related to NCD service delivery.

Composition:

The members of the management group will comprise of 6-7 members and will play a significant role in advising on broad functions related to delivery of health services including NCD management.

Chair: district health manager

Members: Municipality –drug store manager, District TB programme manager, Manager of a CHC, Manager of a Health Post, a NCD focal point , a laboratory focal point, and a Maternal and Child Health focal point.

Frequency of the meeting: Once a month

Responsibilities:

i. Review NCD activities in the district
ii. Identify bottlenecks and solutions in health service delivery in general including delivery of NCD health services in the district
iii. Provide measures and guidance to managers of health centers to improve health services including services for NCD management
iv. Report and seek support of the national NCD management working group and the Ministry of Health to address bottlenecks in health service delivery that are beyond the capacity of the district management group

Annexure 2

Checklist for supportive supervision

Period for which supervision was conducted: From……to ……
Name of the supervisor:……..
Name of the health center:……

	Observation of the supervisor	Actions agreed by the supervisor and supervisee
Administration and management		
Are the quality improvement teams formed?		
Describe whether quality enhancement discussions are conducted monthly? *(Review reports of the meetings)*		
Logistics (Medicines, supplies & equipment)		
Are the common medicines required for treatment of hypertension, diabetes, COPDs available in the stock to last for at least 2 months?		
Is the blood glucometer in use?		
Are weighing scale, and measuring tape available at the OPD?		
Comment whether physical measurements such as weigh, height, waist and hip are conducted routinely on patients?		

	Observation of the supervisor	Actions agreed by the supervisor and supervisee
Record keeping		
Is the referral register updated?		
Is patient appointment system documented and well organized?		
Is the NCD dashboard displayed with updated information		
Patient care		
Are all patients above 40 years screened for hypertension at the health center?		
Does care for diabetes appear to be adequate		
Cardiovascular diseases such as myocardial infarction and stroke?		
Is care for COPDs adequate?		
Can doctors recall the purpose of CVD risk prediction chart		
Does it appear that CVD risk score is routinely provided to the eligible patients at the OPD?		
Integration of NCD services		
Are staff and units of the health facility aware of purpose of Timor-Leste PEN programme?		
Is health education on tobacco, alcohol, unhealthy diet and physical activity provided at the antenatal and postnatal clinics?		
What is the state of screening for raised blood pressure and raised blood sugar at the antenatal and postnatal clinics for mothers?		
Are referrals occurring among the units within the same health facility for CVD risk stratified management?		

	Observation of the supervisor	Actions agreed by the supervisor and supervisee
Overall observations and summary		
How would you rate the level of overall performance on NCD management on the scale of 1 to 10, 1 being minimal and 10 being excellent? Briefly state the reasons for the rating	Rating:……. Brief explanation why the rating:	
Clearly outline a summary of recommendations agreed between the supervisor and the supervisee within an agreed set time for the next supervision.	Summary of recommendations: i. ii. iii. iv.	
Signatures	Supervisor: Date/month/year…….	Head of the Health Center: Date/month/year……

Annexure 3

Data and reporting forms

3.1 NCD Dash Board at the CHC and HP

A set of minimum information on NCD management is necessary for the health service providers to guide their implementation as well as for information to the general audience. A dashboard or an information chart will be displayed in each health center to provide monthly information on NCD services. At the minimum following information will be displayed at the health center.

Table 8. *Contents of NCD dashboard*

Indicators	**Implementation months (From …. To ……)**												
	1	2	3	4	5	6	7	8	9	10	11	12	Total
Total population in the health facility catchment area													
Households provided with information on tobacco, alcohol, diet and physical activity and NCDs during the domiciliary visit													
Number of people provided with brief intervention on tobacco at inpatient and outpatient services													
Number of people provided with brief intervention on alcohol to inpatient and outpatient services													
Number of females attending antenatal and postnatal clinics provided with healthy lifestyle interventions including tobacco, alcohol, unhealthy diet and physical activity													
Number provided CVD risk assessment													
Number of people living with NCD risk factors													
Number of people living with: hypertension, stroke, diabetes, COPDs on medications													

3.2 KSP 11a. Clinical record – Health post and Community Health Center

Name of patient ……. Age …

Health Facility No. ……. Name of Doctor……

Gender (1) □ male (2) □ female

Registration number ……House No…….

Diagnoses (tick as appropriate)	
Hypertension □ yes Diabetes □ yes Stroke □ yes Coronary heart disease □ yes	Bronchial Asthma □ yes COPD □ yes (Suspected) Cancer □ yes Rheumatic valve disease □ yes
Any other significant diagnosis:	

History

Angina/MI □ yes Stroke □ yes Premature CVD in family □ yes

Shortness of breath □ yes

Any other information and main complaints:

Physical Examination

Anaemia □ yes Odema □ yes Height Weight

Pulse /minute Cardiac Murmurs □ yes

Other findings

	Blood Pressure	Blood sugar	10-year cardiovascular risk	Peak Flow Rate
Visit 1				
Visit 2				
Visit 3				
Visit 4				

	Visit 1	Visit 2	Visit 3	Visit 4
Foot examination of diabetics	☐ yes	☐ yes	☐ yes	☐ yes
Tobacco smoking	☐ yes ☐ no	☐ yes ☐ No	☐ yes ☐ no	☐ yes ☐ no
Counselling tobacco cessation	☐ yes	☐ yes	☐ yes	☐ yes
Counselling diet/physical activity	☐ yes	☐ yes	☐ yes	☐ yes

Urine albumin Yes ☐

Arrangement for eye exam for diabetics in the next 24 months Yes ☐

	Medicines
Visit 1 Date	
Visit 2 Date	
Visit 3 Date	
Visit 4 Date	

3.3 KSP 11b - NCD patient register Facility

Serial Number	Date	Patient number	Name	M/F	Year of birth	New/old	Referred	Diagnosis							
								Coronary heart disease	Stroke	Diabetes	Hypertension	Cancer	Bronchial asthma	COPD	10 year CV risk %
1															
2															
3															
4															
5															
6															

The name and details of the patient are entered ONLY ONCE in this register, at the time the individual NCD record is created.

3.4 KSP 11C –Monthly NCDs Report

Form: **Non Communicable Disease KSP 11C**	
Name of Facility	
Type of Facility	
Reporting Month	

Non-Communicable diseases

Diagnosis of diseases	0-39 Years				40-70 Years				70+ years			
	New		Old		New		Old		New		Old	
	M	F	M	F	M	F	M	F	M	F	M	F
Diabetes												
Hypertension												
Cancer- Cervical												
Cancer-Breast												
Cancer- Lung												
Cancer- Oral												
Cancer- Others												
Coronary Heart Disease												
Stroke												
COPD												
Bronchial Asthma												
Risk factors												
Obesity												
Current Tobacco Users												
High Cholesterol												

10 year cardiovascular Risk (for age group 40-70 years)					
Risk %	M	F	Risk %	M	F
<10%			10-<20%		
20-<30%			≥30%		

3.5 Patient Referral Form

Instructions: This referral form is to be used at Health Post and Community Health Center to refer patients to another health facility.

1. Referring center details

Name of the referring doctor/health worker……..

Date of referral (Day/Month/Year)……Time of referral (AM/PM)……..

Mode of referral: ambulance / self-organized transport

Contact details of the referring center (Telephone number of the center)……

2. Socio demographic information

Name of patient…… Age……. Gender: male / female

Patient national ID number (if available)…… Patient's house number…….

Health facility number…… Patient registration number……

3. History

Angina/MI □ yes Stroke □ yes Family history of CVD □ yes

Shortness of breath □ yes

Any other information and main complaints:

4. Physical Examination

Anaemia □ yes Oedema □ yes Height …….cm Weight…….kg

Pulse …… /minute Cardiac Murmurs □ yes

Other findings

5. Laboratory and other diagnostic tests

(Write a any significant findings of laboratory tests and radiology)

6. Diagnosis

(This should include diagnosis including possible differential diagnosis)

Hypertension □ yes	Bronchial asthma □ yes
Diabetes □ yes	COPD □ yes
Stroke □ yes	(Suspected) Cancer □ yes
Coronary heart disease □ yes	…..
	Rheumatic valve disease □ yes

Any other significant diagnosis and comorbidities:

7. Management

(This section should include the details of medication and life support services provided at the referring center)

8. Reason/s for referral

(This section should include the expected management at the referral site)

3.6 Patient Referral Form (Back)

1. Referring center details

Name of the contra referring doctor/health worker……..

Date of contra referral (Day/Month/Year)……Time of back-referral (AM/PM)……..

Mode of back referral: ambulance / self-organized transport

Contact details of the back- referring center (Telephone number of the center)……

2. Socio demographic information

Name of patient…… Age……. Gender: male / female

Patient national ID number (if available)…… Patient's house number…….

Health facility number…… Patient registration number……

3. Summary of Clinical History and patient prognosis when received

4. Summary of service delivery and treatment for patient at the health facility

5. Recommendations and advise during the back- referral

Annexure 4

List of Contributors for Development and Adaptation of Package Essential of Noncommunicable Disease (PEN) protocols through Consultation workshops and meetings

No	Name	Designation	Institution	Obs
1	Dr Maria do Ceu Sarmento Pina da Costa	Minister for Health	Ministry of Health	Council of Director
2	Dr Ana Isabel de.F.S. Soares MPH PhD	Vice Minister for Health	Ministry of Health	Council of Director
3	Mr Natalino Gonsalves de Araujo	General Inspector for Health	Ministry of Health	Council of Director
4	Mr Jose dos Reis Magno Lic SP MM	General Director for Corporate Services	Ministry of Health	Council of Director
5	Dra. Odete da Silva viegas, Dermatologist	General Director for Health Services	Ministry of Health	Council of Director and technical consultation
6	Mr Narciso Fernandes, Lic SP MPH	National Director of Policy and Cooperation	Ministry of Health	Council of Director and technical consultation
7	Mr Pedro Canisio da Costa Amaral, SKM	National Director of Public Health	Ministry of Health	Council of Director and technical consultation
8	Dr. Horacio Sarmento da Costa	National Director of Hospital and Emergency Services	Ministry of Health	Council of Director and technical consultation
9	Mr Francisco Borges	National Director of Logistic and Property Administration	Ministry of Health	Council of Director
10	Mr Maximiano Neno, MPH	National Director of Human Resources	Ministry of Health	Council of Director
11	Mr Marcelo Amaral, AMKEp Lic Ec	National Director of Planning and Financial Management	Ministry of Health	Council of Director
12	Mr Agapito da Costa	National Director of Supply	Ministry of Health	Council of Director
13	Mrs Jonia Lourença Nunes Brites da Cruz,	National Director of Pharmacy and Medicine	Ministry of Health	Council of Director and technical consultation
14	Mr Bernardino Victor Ximenes	Director of Inspection Services for Health Services and Pharmacy.	Ministry of Health	Council of Director
15	Dr. Maria Amelia Noronha Barreto	Director of Health Service Quality Assurance Cabinet and Dentist	Ministry of Health	Council of Director

No	Name	Designation	Institution	Obs
16	Dr.Jose Antonio Gusmão Guterres MMED, Obsgyn	Executiva Director Timor-Leste	National Hospital Guido Valadares	Council of Director and technical consultation
17	Dra. Odete Maria Freitas Belo	Executive Director of Autonomy Services for Health Medicine and Equipment	SAMES	Council of Director
18	Mr Antonio Bonito, MPH	Executive Director of National Health Institution	INS	Orientation Workshop
19	Dr. Elizabeth Leto Mau Lebos	Executive Director of Baucau Referral Hospital.	Referral Hospital Baucau	Council of Director
20	Dr. Bourdaloue Fernandes Moniz	Executive Director of Maliana Referral Hospital	Referral Hospital Maliana	Council of Director
21	Dra. Gabriela da Conçençáo Magno Pereira	Executive Director of Maubisse Referral Hospital.	Referral Hospital Maubesi	Council of Director
22	Mr Bernardino A. da Silva, Lic SP	Executive Director of Suai Referral Hospital.	Referral Hospital Suai	Council of Director
23	Dr Herculano Seixas dos Santos	Health Municipality Director	Ermera Health Municipality	Technical consultation and Orientation workshop
24	Mrs Agostinha Segurado, Lic SP	Health Municipality Director	Dili Health Municipality	Technical consultation
25	Dr Rajesh Pandav	WHO Country Representative	WHO-TLS	Technical consultation
26	Dr Cherian Vengal Varghese	Coordinator for Management NCD	WHO Headquarters	Technical consultation and Orientation workshop
27	Dr Maria Dolores Castello Francesh	Health Policy Advisor	WHO-TLS	Technical Consultation
28	Dr Gampo Dorji	Technical Officer for NCD, NDE	WHO SEARO	Technical consultation and Orientation workshop
29	DR Santhi Mendish	WHO Consultant	WHO-Consultant	Technical consultation and Orientation workshop
30	Mr Leoneto Soares Pinto, Lic SP	NCD, Health Promotion and Menatl Health Program Associate	WHO-TLS	Technical consultation and Orientation workshop
31	Dr Sudath Peiris	Medical Officer	WHO-TLS	Orientation workshop
32	Dr Arun Kumar Mallik	Medical Officer	WHO-TLS	Orientation workshop
33	Mrs Dirce Maria Soares, MPH	Director for In-Services Trainning	INS	Council of Director and Orientation Workshop

No	Name	Designation	Institution	Obs
34	Dr Andre Andrade Monteiro, Esp.Cardiolog	Cardiologist	National Hospital Guido Valadares, Dili	Technical Consultation
35	Dr Artur Corterial, Esp. Internist	Internist	National Hospital Guido Valadares, Dili	Technical Consultation
36	Dr Celia Alexandra Gusmao Santos, Esp. Internist	Internist	National Hospital Guido Valadares, Dili	Technical consultation and Orientation workshop
37	Mr Pedro Almeida da Silva	Director Toxicology	National Laboratory	Technical consultation
38	Mr Ivo Ireneu da C.Preitas, Lic SP	Head of Partners and Cooperation Department.	Ministry of Health	Technical consultation
39	Mr Ivo Cornelio Lopes Guterres, Lic SP MPH	Head of Health Statistic and Information Department.	Ministry of Health	Technical consultation
40	Mr Carlitos Correia Freitas, AMKEp Lic SP	Head of Monitoring and Evaluation Department.	Ministry of Health	Technical consultation
41	Dra. Olinda dos Reis Albino	Head of Nutrition Department.	Ministry of Health	Technical consultation
42	Mrs Misliza Vital, Lic SP	Head of Health Promotion Department	Ministry of Health	Technical consultation
43	Dr. Helder Juvinal Neto da Silva	Head of Non Communicable Diseases Department.	Ministry of Health	Technical consultation and Orientation workshop
44	Mrs Isabel Maria Gomes, Lic SP	Head of Maternal and Child Health	Ministry of Health	Technical consultation
45	Mr Emmanuel de Oliveira dos Santos Martins	Head of Authorization of Introduction to the Market Department.	Ministry of Health	Technical consultation
46	Dr Jorge da Silva Marques	Head of Management for Equipment and Midication	Ministry of Health	Technical consultation
47	Dr Noel Gama Soares	Head of Primary Health Care Cabinet	Ministry of Health	Technical consultation
48	Mr Jose de Carvalho, Lic SP	Head of Community Health Center Gleno	Community Health Center Gleno, Ermera Municipality	Technical consultation and Orientation workshop
49	Mrs Dulce Pinto Tilman, Lic SP	Head of Community Health Center Vera Cruz	Dili Health Municipality	Technical consultation
50	Mr Abel Barreto dos Santos, Lic SP	Head of Community Health Center Dom Aleixo	Dili Health Municipality	Technical consultation
51	Mrs Luisa da Costa	Head of Health Post Maloa, CHC Comoro	Dili Health Municipality	Technical Consultation

No	Name	Designation	Institution	Obs
52	Dr Marcelo Amaral	Primary Health Care Cabinet	Ministry of Health	Technical Consultation
53	Dr Adelia Maria M. Barreto	Primary Health Care Cabinet	Ministry of Health	Technical Consultation
54	Dr Ramila F.P.Paiva	Primary Health Care Cabinet	Ministry of Health	Technical Consultation
55	Mrs Norberta Belo, SKM MPH	Public Health Advisor	Ministry of Health	Technical Consultation
56	Dr Murali	Health Information System Advisor	Ministry of Health	Technical Consultation
57	Mr Antonio de Deus Fatima	NCD and Mental Health Officer	Ermera Health Municipality	Technical Consultation
58	Mr Anacleto A. Guterres, Lic SP	NCD and Mental Health Officer	Dili Health Municipality	Technical Consultation
59	Mr Francisco B. C. Soares, Ssos	Elderly and Disability Officer	Ministry of Health	Technical Consultation
60	Dr Joao Francisco Sequeira	Eye Care Officer	Ministry of Health	Technical Consultation
61	Mr Mario Serekai, MPH	Tobacco Control Officer	Ministry of Health	Technical Consultation
62	Mrs Maria Angela C. da Silva	NCD Officer	Dili Health Municipality	Technical Consultation
63	Mrs Ermintje D. S. Madeira	Laboratory Officer	Community Health Center Gleno, Ermera Municipality	Technical consultation and Orientation workshop
64	Mr Napoliao j. Pereira	Pharmacy Officer	Community Health Center Gleno, Ermera Municipality	Technical consultation and Orientation workshop
65	Dr Vergilio N. da Cruz Soares	Health Post Railaco Leten -CHC Railaco Ermera	Health Post Aitura-CHC Railaco, Ermera Municipality	Technical consultation and Orientation workshop
66	Dr Constantino J. da Silva	Medical Doctor	Community Health Center Formosa, Dili Municipality	Orientation workshop
67	Dr Jaimito Lopes	Medical Doctor	Community Health Center Formosa, Dili Municipality	Orientation workshop

No	Name	Designation	Institution	Obs
68	Mrs Isabel Lilis Sarmento	Nurse	Community Health Center Formosa, Dili Municipality	Orientation workshop
69	Eduarda da C E Silva	Laboratory Officer	Community Health Center Formosa, Dili Municipality	Orientation workshop
70	Mrs Caolina S. Barbosa	Pharmacist	Community Health Center Formosa, Dili Municipality	Orientation workshop
71	Dr Augusta da Costa Gomes Tavares	Medical Doctor	Community Health Center Comoro, Dili Municipality	Orientation workshop
72	Dr Maria Julia Freitas	Medical Doctor	Community Health Center Comoro, Dili Municipality	Orientation workshop
73	Dr Elia Reis Amaral	Medical Doctor	Community Health Center Comoro, Dili Municipality	Orientation workshop
74	Alfredo Godinho	Medical Doctor	Community Health Center Comoro, Dili Municipality	Orientation workshop
75	Mrs Margareta M. Bere, AmKep	Senior Nurse	Community Health Center Comoro, Dili Municipality	Orientation workshop
76	Mrs Eufemia Soares, Lic SP	Senior Midwife	Community Health Center Comoro, Dili Municipality	Orientation workshop
77	Mr Renato da Cruz	Laboratory Officer	Community Health Center Comoro, Dili Municipality	Orientation workshop
78	Mrs Agostinha da Costa F.	Pharmacist	Community Health Center Comoro, Dili Municipality	Orientation workshop

No	Name	Designation	Institution	Obs
79	Dr Diana M.P.Matos	Medical Doctor	Community Health Center Vera Cruz, Dili Municipality	Orientation workshop
80	Mr Pedro Agostu Mali	Nurse	Community Health Center Vera Cruz, Dili Municipality	Orientation workshop
81	Dr Yohanes Filomeno da Costa Pereira	Medical Doctor	Health Post Maloa, Comoro CHC	Orientation workshop
82	Dr Manuela Maria de Fatima Soares Mendosa	Madical Doctor	Health Post Lemocari, Comoro CHC	Orientation workshop
83	Dr Floriana da Silva Moreira	Medical Doctor	Health Post Lemocari, Comoro CHC	Orientation workshop
84	Dr Deonisio Caetano De Jesus	Medical Doctor	Community Health Center Gleno, Ermera Municipality	Orientation workshop
85	Dr Marcos da Cruz Gomes	Medical Doctor	Community Health Center Gleno, Ermera Municipality	Orientation workshop
86	Dr Virna Alcina Freitas Vong	Medical Doctor	Community Health Center Gleno, Ermera Municipality	Orientation workshop
87	Mrs Adelina Pereira Jorge	Senior Midwife	Community Health Center Gleno, Ermera Municipality	Orientation workshop
88	Mrs Anabela Piris de Araujo	Senior Nurse	Community Health Center Gleno, Ermera Municipality	Orientation workshop
89	Mr Albano Madeira	Senior Nurse	Community Health Center Gleno, Ermera Municipality	Orientation workshop
90	Dr Joaquina da Silva Araujo	Medical Doctor	Health Post Aitura-CHC Gleno, Ermera Municipality	Orientation workshop

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91	Dr Felix Salsinha	Medical Doctor	Health Post Aitura-CHC Gleno, Ermera Municipality	Orientation workshop
92	Dr Avelina Maria Soares	Medical Doctor	Health Post Aitura-CHC Gleno, Ermera Municipality	Orientation workshop
93	Mr Francisco da Silva	Trainning Officer	INS	Orientation workshop
94	Maria Auxiliadora Cardoso de Magalaenhaes	Medical Doctor	National Hospital Guido Valadares, Dili	Orientation workshop
95	Viriania Berta E. Goncaslves	Medical Doctor	National Hospital Guido Valadares, Dili	Orientation workshop
96	Claudia Natalicia Xavier Magno	Medical Doctor	National Hospital Guido Valadares, Dili	Orientation workshop
97	Sidonio Mesquita Viana	Medical Doctor	National Hospital Guido Valadares, Dili	Orientation workshop

This document contains a brief description of the situation of NCDs, service delivery mechanisms and outlines broader strategic approaches to PEN intervention in Timor-Leste including a narrative of the first phase of the TL PEN Programme. The document also presents clinical algorithms for healthy lifestyle interventions, protocols for prevention of heart attacks, strokes and kidney disease through integrated management of diabetes and hypertension, chronic obstructive pulmonary disease and asthma, suspected breast, cervical and oral cancer at community health center.

World Health Organization
Country Office for Timor-Leste
United Nations House
Caicoli street, Dili,
Timor-Leste