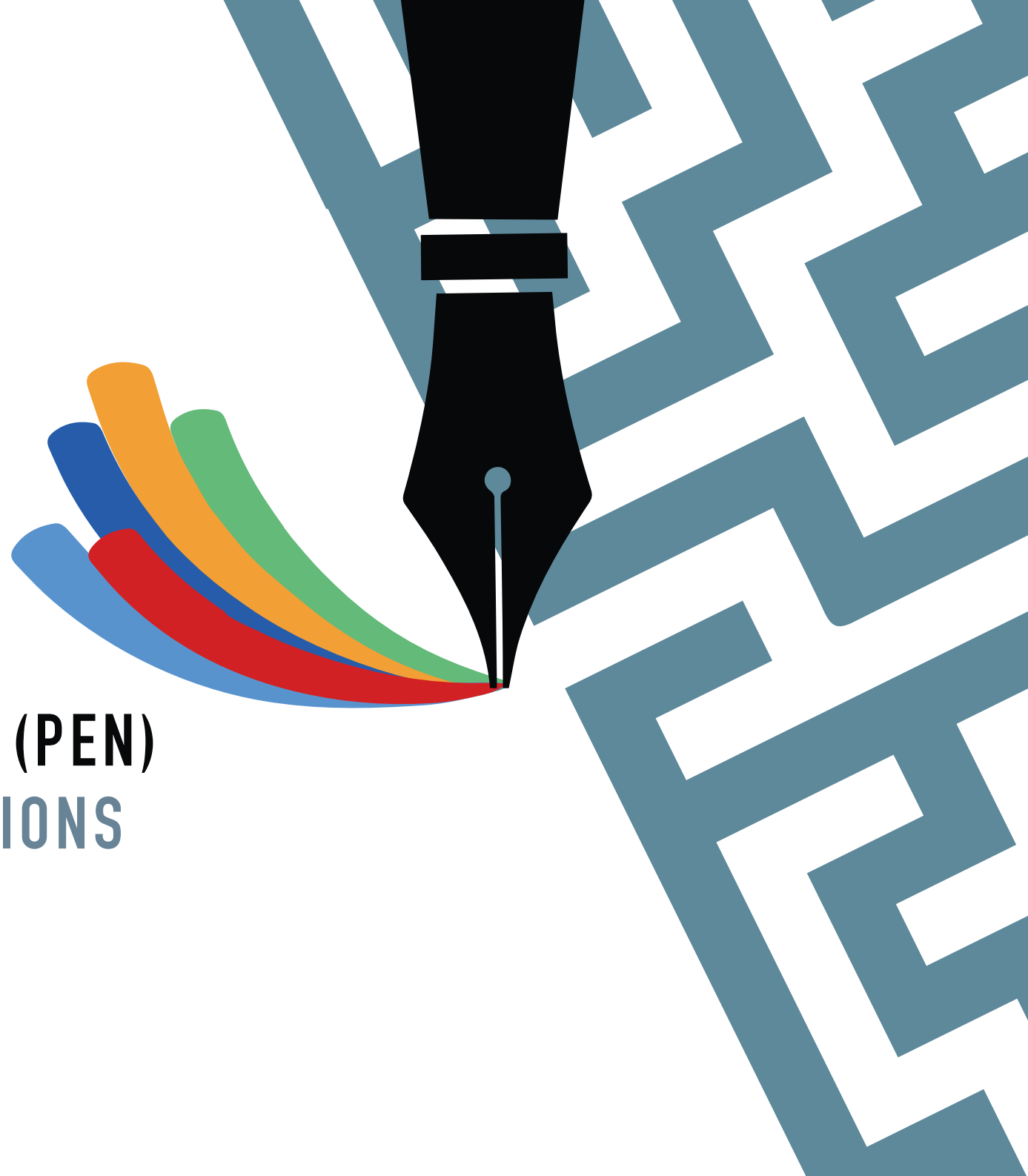

WHO PACKAGE OF ESSENTIAL NONCOMMUNICABLE (PEN) DISEASE INTERVENTIONS

FOR PRIMARY HEALTH CARE

World Health Organization

WHO package of essential noncommunicable (PEN) disease interventions for primary health care

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WHO PACKAGE OF ESSENTIAL NONCOMMUNICABLE (PEN) DISEASE INTERVENTIONS

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CONTENTS

FOREWORD

The adoption of the Global Strategy for the Prevention and Control of Noncommunicable Diseases (NCDs) at the World Health Assembly in 2000 was an act of solidarity with the many low- and middle-income countries facing the catastrophic consequences of NCDs. It was also an acknowledgement that the long-term needs of people living with NCDs were being neglected, and was a turning point that has inspired action over the past two decades.

The risk of a 30-year-old person dying from any of the four major NCDs (cardiovascular diseases, cancers, chronic respiratory diseases, and diabetes) before the age of 70 years declined by 15% globally between 2000 and 2012. This rapid improvement was largely due to policy, legislative and regulatory measures put in place to provide more people with access to screening; early diagnosis and treatment for hypertension (such as aspirin, beta blockers, diuretics and statins); and to protect people against tobacco use (such as through tobacco-control legislation).

Despite the important progress made in the first decade of the 21st century, momentum has since dwindled, with annual reductions in age-standardized premature mortality rates slowing for the main NCDs. Between 2000 and 2016 overall NCD risk declined only 18% globally – with the risk of diabetes showing a 5% increase. In the past two decades NCDs have killed 200 million women and men aged between 30 and 70 years, the majority living in low- and middle-income countries. Most of these premature deaths could have been avoided. Unless immediate action is taken, Sustainable Development Goal (SDG) target 3.4 (reduce premature mortality from NCDs by one third) by 2030 will not be met. It is therefore more important than ever for the global community to mobilize for accelerated action to progressively cover 1 billion additional people with essential health services and medicines for the prevention and control of NCDs.

WHO has been providing guidance to advance this work. The Package of essential noncommunicable (PEN) disease interventions for primary health care in low-resource settings was first introduced in 2010 as a prioritized set of cost-effective interventions able to deliver an acceptable quality of care, even in resource-limited settings. Information on the cost-effectiveness of the interventions helped to make limited resources go further. From 2010, many additional elements were added and in 2013 a comprehensive set of tools was developed. The total cardiovascular risk assessment charts and management of type 2 diabetes were further updated in 2019.

The result today is this user-friendly WHO package of essential noncommunicable (PEN) disease interventions for primary health care resource, which brings together all these updates as protocols that are adaptable to local settings and able to empower primary care physicians, as well as allied health workers, to contribute to NCD management. WHO PEN is not meant to be exhaustive or prescriptive, but rather to be an important first step for integration of NCD management into primary health care. WHO PEN is also suitable for emergency and humanitarian settings. When implemented, it will bring more people living with or affected by NCDs into contact with the health system and promote universal health coverage.

Dr Bente Mikkelsen
Director, Department of Noncommunicable diseases

ACKNOWLEDGEMENT

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ABBREVIATIONS

CKD	chronic kidney disease
COPD	chronic obstructive pulmonary disease
CRD	chronic respiratory diseases
CVD	cardiovascular diseases
HDL-C	high-density lipoprotein cholesterol
HPV	human papilloma virus
NCD	noncommunicable diseases
PHC	primary health care
TC	total cholesterol
UHC	universal health coverage
WHO	World Health Organization

1. INTRODUCTION

Noncommunicable diseases (NCDs), also known as chronic diseases, tend to be of long duration and are the result of a combination of genetic, physiological, environmental and behavioural factors. The main types of NCDs are cardiovascular diseases (CVDs like heart attacks and stroke), cancers, chronic respiratory diseases (such as chronic obstructive pulmonary disease – COPD and asthma) and diabetes. NCDs kill 41 million people each year, equivalent to 71% of all deaths globally.

NCD prevention and control includes population-wide interventions to reduce risk factor exposure, individual approaches to modify risk factors for high-risk individuals, and treatment of NCDs. Investing in better management of NCDs is critical. Management of NCDs includes detecting, screening and treating these diseases, and providing access to palliative care for people in need. High-impact essential NCD interventions can be delivered through a primary health care approach to strengthen early detection and timely treatment. Evidence shows such interventions are excellent economic investments because, if provided early to patients, they can reduce the need for more expensive treatment.

Countries with inadequate health insurance coverage are unlikely to provide universal access to essential NCD interventions. Yet NCD management interventions are essential for achieving the global target of a 25% relative reduction in the risk of premature mortality from NCDs by 2025, and the SDG target of a one-third reduction in premature deaths from NCDs by 2030.

An integrated approach is particularly important for low-resource settings for efficient use of limited resources. Several approaches are needed to contain the escalating costs of health care required for providing sophisticated medical services for NCDs and their complications. First, there should be more investment in prevention and primary care. Second, the cost of treating CVD, diabetes and COPD can be reduced to a minimum by carefully selecting essential evidence-based interventions. Third, the cost of treating complications of NCDs that require hospitalization (e.g. heart attacks, strokes, amputations, and blindness due to diabetic or hypertensive retinopathy, or end stage renal disease requiring dialysis) can be reduced.

WHO Package of Essential NCD interventions will help to improve the coverage of appropriate services for people with NCDs services in primary care settings.

WHO package of essential noncommunicable (PEN) disease interventions for primary health care

The Package of essential noncommunicable (PEN) disease interventions for primary health care in low-resource settings, first published in 2010, is a prioritized set of cost-effective interventions that can be delivered to an acceptable quality of care, even in resource-poor settings. The interventions were upated in 2017 as the “best buys” and other recommended interventions for the prevention and control of noncommunicable diseases. Modules of the WHO HEARTS technical package were released in 2019–2020.

This version, WHO package of essential noncommunicable (PEN) disease interventions for primary health care (WHO PEN), is developed by integrating these additional technical guidance to serve as an important first step for integration of NCD into PHC and for reforms that need to cut across the building blocks of the national health system. It provides protocols and tools for NCDs to strengthen national capacity to integrate and scale up care of NCDs in primary health care.

WHO PEN TO SUPPORT PEOPLE WITH NCDS THROUGH UNIVERSAL HEALTH COVERAGE

Universal health coverage (UHC) means that all individuals and communities receive the health services they need without suffering financial hardship. It includes the full spectrum of essential, quality health services, from health promotion to prevention, treatment, rehabilitation, and palliative care. UHC enables everyone to access the services that address the most significant causes of disease and death, and ensures that the quality of those services is good enough to improve the health of the people who receive them.

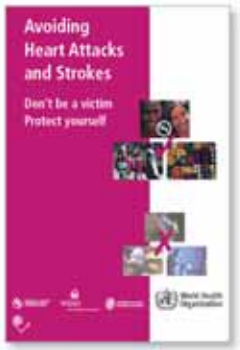
Efficient use of limited health care resources, sustainable health financing mechanisms, access to basic diagnostics and essential medicines and organized medical information and referral systems are imperative for provision of equitable care for people with and at risk of NCDs. People with NCDs require long-term care that is proactive, patient-centered, community-based and sustainable. Such care can be delivered equitably only through health systems based on primary health care. NCD services are part of the essential health services and are required in humanitarian and other crisis situations. The WHO PEN aligns with these objectives and provides a mechanism of organizing NCD service delivery with an aim of addressing UHC. The global move towards UHC offers an opportunity to explicitly prioritize NCD interventions in benefit packages for UHC.

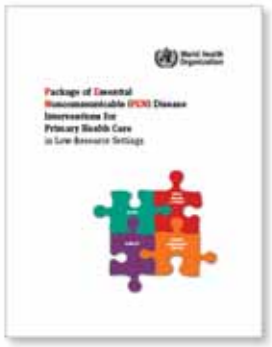
ENABLING ACTIONS

- Explore viable health-financing mechanisms and innovative economic tools supported by evidence.
- Scale-up early detection and coverage, prioritizing cost-effective, high-impact interventions.
- Train the health workforce and strengthen the capacity of health systems, particularly at the primary care level, to address the prevention and control of noncommunicable diseases.
- Improve the availability of the affordable basic technologies and essential medicines, including generics, required to treat major noncommunicable diseases, in both public and private facilities.
- Strengthen and orient health systems to address noncommunicable diseases and risk factors through people-centred health care and universal health coverage.
- Develop and implement a palliative care policy, including access to opioid analgesics for pain relief, together with palliative care training for health workers.
- Expand the use of digital technologies to increase health service access and efficacy for NCD prevention, and to reduce the costs in health care delivery.

ROADMAP OF WHO PACKAGE OF ESSENTIAL NONCOMMUNICABLE (PEN) DISEASE INTERVENTIONS FOR PRIMARY HEALTH CARE

2002 — 2005 — 2007 — 2010 — 2013






2016
2017
2018
2019
2020
HEARTS
Technical package for cardiovascular disease management in primary health care
TACKLING
NCDs
GUIDE TO CANCER
EARLY DIAGNOSIS
CANCER
HEARTS
Implementation guide
HEARTS-D
Diagnosis and Management of Type 2 Diabetes
OF DIABETES
MELLITUS
2019
HEARTS
Technical package for cardiovascular disease management in primary health care
Risk-based
CVD management
WHO PACKAGE
OF ESSENTIAL
NONCOMMUNICABLE (PEN)
DISEASE INTERVENTIONS
FOR PRIMARY HEALTH CARE
World Health
Organization

2. COMPONENTS OF WHO PEN

The WHO PEN defines a minimum set of interventions to address major NCDs in primary care. The interventions are for the detection, diagnosis, treatment and care of cardiovascular diseases, diabetes and chronic respiratory diseases. A section for cancer early diagnosis is also included. Components of healthy lifestyle, self care and palliative care also feature in the package. Sample templates and tools are also provided. These components are feasible even in low-resource settings, and can be delivered by primary care physicians and non-physician health workers. Contents of WHO PEN can be adapted to emergency and humanitarian settings. Countries can expand on the core interventions according to their needs and resources.

CARDIOVASCULAR DISEASES

2.1

- CVD risk assessment and management
- Hypertension management

DIABETES

2.2

- Management of diabetes

CHRONIC RESPIRATORY DISEASES

2.3

- Management of asthma and exacerbation
- Management of COPD, and exacerbation

CANCER EARLY DIAGNOSIS

2.4

- Early diagnosis
- Cervical cancer
- Breast cancer

HEALTHY LIFESTYLE COUNSELLING

2.5

- Health education
- Counseling on tobacco cessation

SELF CARE

2.6

- Self-care among patients with cardiovascular disease, diabetes or respiratory disease

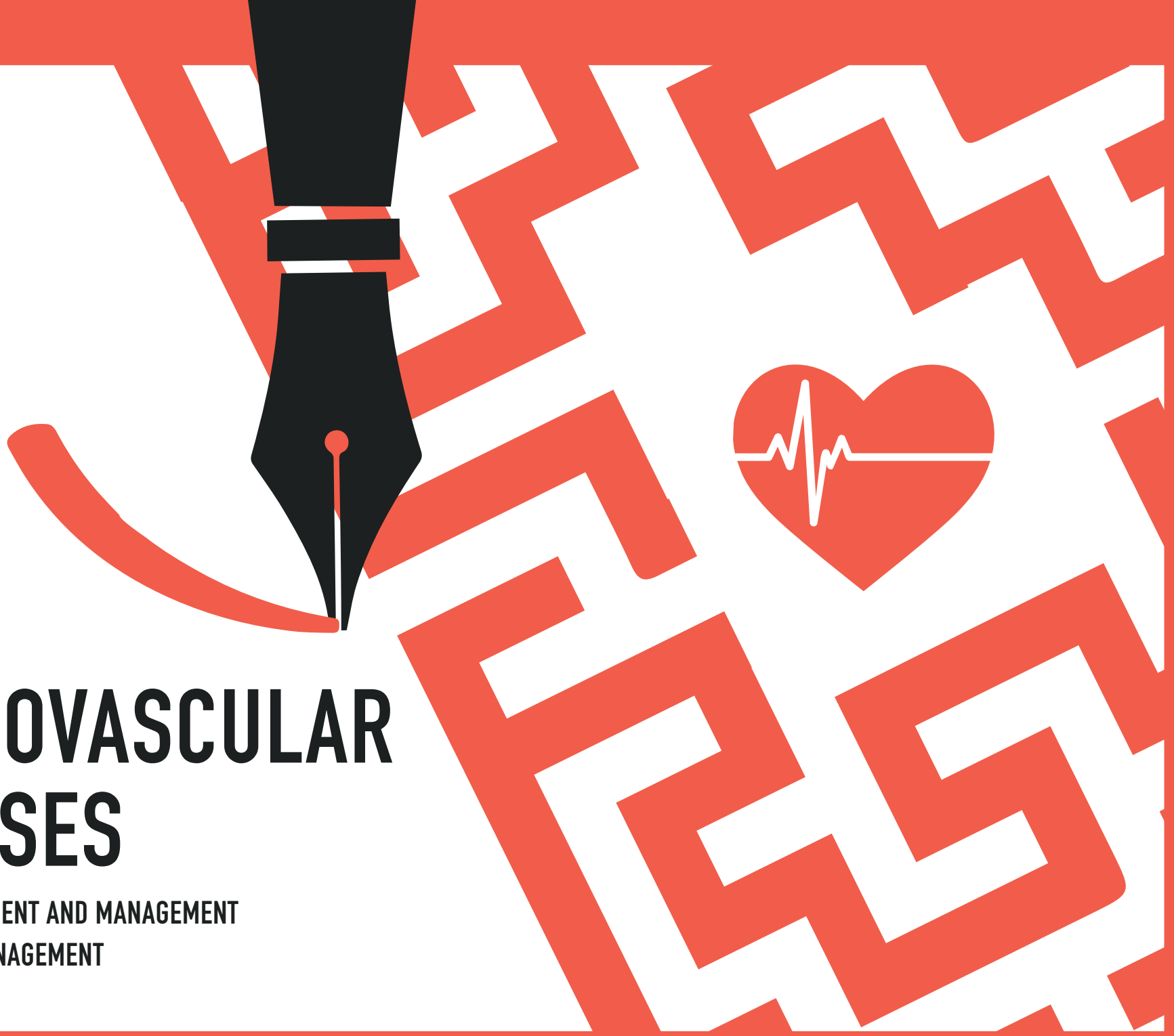
PALLIATIVE CARE

2.7

- Practice points for palliative care

ADAPTING WHO PEN

3



2.1

CARDIOVASCULAR DISEASES

CVD RISK ASSESSMENT AND MANAGEMENT
HYPERTENSION MANAGEMENT

CARDIOVASCULAR DISEASES

Cardiovascular disease risk assessment and management

HEARTS TECHNICAL PACKAGE

http://www.who.int/cardiovascular_diseases/hearts/en/

WHEN TO USE THIS PROTOCOL

- aged over 40 years
- history of tobacco use
- overweight
- known hypertension
- known diabetes mellitus (DM)
- history of premature CVD in first degree relatives
- history of DM or kidney disease in first-degree relatives

CVD RISK
ASSESSMENT & MANAGEMENT

1. Ask about

- Diagnosed heart disease, stroke, Transient Ischaemic Attack (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

2. Assess (physical exam)

- Measure blood pressure
- Look for pitting oedema
- Palpate apex beat for heaving and displacement
- Auscultate heart (rhythm and murmurs)
- Auscultate lungs (bilateral basal crepitations)
- Examine abdomen (tender liver)
- In DM patients examine feet; sensations, pulses, and ulcers

DIAGNOSE

Calculate CVD risk using a lab-based chart

HEARTS TECHNICAL PACKAGE FOR CARDIOVASCULAR DISEASE MANAGEMENT IN PRIMARY HEALTH CARE: RISK BASED CVD MANAGEMENT

https://apps.who.int/iris/bitstream/handle/10665/333221/9789240001367-eng.pdf?sequence=1&isAllowed=y

Parameters required prior to using the charts:

- age
- sex
- current smoking status
- presence or absence of diabetes*
- systolic blood pressure
- total cholesterol**

Using the WHO CVD risk (lab-based) charts

1. Select the regional chart covering your country. Countries included in each region can be found in HEARTS R MODULE.
2. Select the section of the chart as relevant for people with or without diabetes
3. Select men or women table as appropriate
4. Select smoker or non-smoker box
5. Select age group
6. Within the selected box find the cell where the individual's systolic blood pressure (SBP) and total blood cholestorol intersect
7. The colour of the cell indicates the 10-year risk of a fatal or non-fatal cardiovascular event. The value within the cell is the risk percentage. Colour coding is based on the grouping as indicated in the box

Green	< 5%
Yellow	5% – < 10%
Orange	10% – < 20%
Red	20% – < 30%
Deep red	≥ 30%

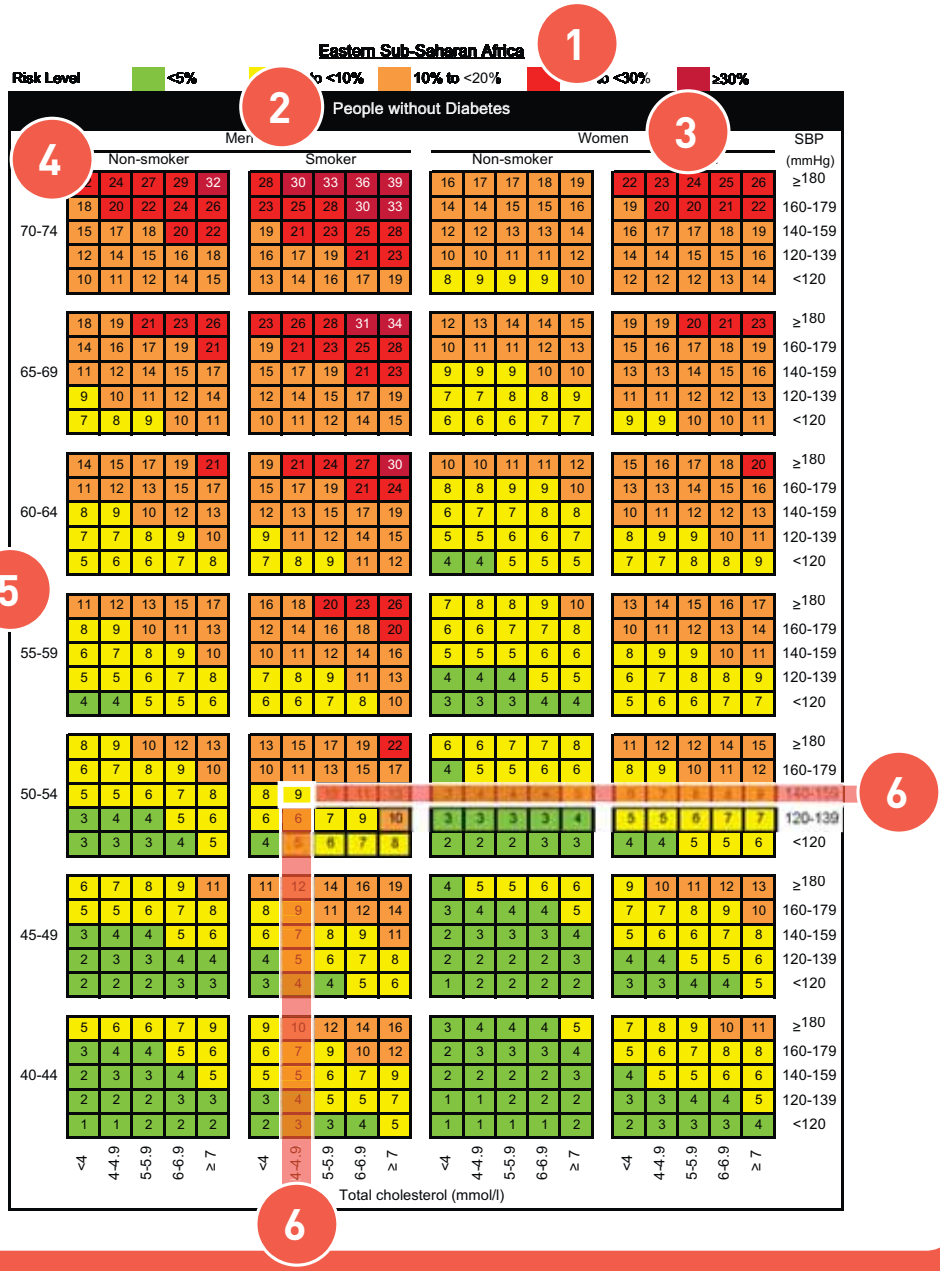
8. Counsel, treat and refer according to risk level

* Fasting plasma glucose ≥ 7.0 mmol/L (126 mg/dl),
or 2-h plasma glucose ≥ 11.1 mmol/L (200 mg/dl), or HbA1c ≥ 6.5% , or known diabetes

** Cholesterol values are to be entered in the chart as mmol/L .
To convert cholesterol mg/dl to mmol/L, multiply by 0.02586
Example: TC : 200 mg/dl x 0.02586 = 5.172 mmol/L

Eastern Sub-Saharan Africa

(Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Mozambique, Malawi, Rwanda, Somalia, United Republic of Tanzania, Uganda, Zambia)



TREAT

RISK LEVEL:	> 20%	10–20%	5–10%	< 5%

COUNSEL

- Counsel on diet (which includes lipid-lowering diet), physical activity, smoking cessation and avoiding harmful use of alcohol

TREAT

Antihypertensive drugs (CCB, Thiazide, ACEI, or ARB)

- ■ Consider drug treatment if persistent BP ≥ 130/80 mmHg
- □ Consider if persistent BP ≥140 /90 mmHg
- ■ Consider if persistent BP ≥140 /90 mmHg (consistent with national policy)

Lipid-lowering drugs (Statins)

- ■ Give a statin

FOLLOW-UP

- Follow-up every 3 months
- If there is no reduction in cardiovascular risk after 6 months of follow up refer to next level

- Follow-up every 3–6 months

- Follow up every 3 months until targets are met, then 6–9 months thereafter

- Follow up in 12 months if treatment not initiated

For additional actions for people with DM, refer to Section 2.2 Diabetes

Diagnosis and management of type 2 diabetes (HEARTS-D).
https://www.who.int/publications-detail/who-ucn-ncd-20.1

WHEN CAN TREATMENT DECISIONS BE MADE WITHOUT THE USE OF WHO CVD RISK-PREDICTION CHARTS?

Some individuals are at very high cardiovascular risk because they have already experienced a cardiovascular event or have very high levels of individual risk factors. Risk stratification is not necessary for making treatment decisions for these individuals as they belong to the high risk category; all of them need intensive lifestyle interventions and appropriate drug therapy. Risk prediction charts may tend to underestimate cardiovascular risk in such individuals, who include the following:

- patients with established angina pectoris, coronary heart disease, myocardial infarction, transient ischaemic attacks, stroke, or peripheral vascular disease, or who have had coronary revascularization or carotid endarterectomy;
- those with left ventricular hypertrophy (shown on electrocardiograph) or hypertensive retinopathy (grade III or IV);
- individuals without established CVD who have a total cholesterol ≥ 8 mmol/L (320 mg/dl) or low-density lipoprotein (LDL) cholesterol ≥ 6 mmol/L (240 mg/dl) or TC/HDL-C ratio > 8;
- individuals without established CVD who have persistent raised blood pressure (> 160–170/100–105 mmHg);
- For individuals with blood pressure above 140/90 mmHG, management may be provided as per nationally agreed protocols.
- patients with type 1 or 2 diabetes, with overt nephropathy or other significant renal disease;
- patients with known renal failure or renal impairment.

HYPERTENSION

Blood pressure measurement and control is particularly important in adults who:

- have had a prior heart attack or stroke
- have diabetes
- have chronic kidney disease (CKD)
- are obese
- use tobacco
- have a family history of heart attack or stroke

ASSESS

Measuring blood pressure

Measuring blood pressure is the only way to diagnose hypertension, as most people with raised blood pressure have no symptoms.

Effective treatment algorithms for hypertension are dependent on accurate blood pressure measurement. The following advice should be followed for measuring blood pressure:

- Use the appropriate cuff size, noting the lines on the cuff to ensure that it is positioned correctly on the arm. (If the arm circumference is > 32 cm, use large cuff.)
- Although at the initial evaluation it is preferable to measure blood pressure in both arms and use the arm with the higher reading thereafter, this may not be practical in a busy primary care environment.
- The patient should be sitting with back supported, legs uncrossed, empty bladder, relaxed for 5 minutes and not talking.
- For persons who are getting their blood pressure measured for the first time, it is preferable to take at least two readings and to use the second reading.

DIAGNOSE

In general, hypertension is diagnosed if, on two visits on different days:

- systolic blood pressure on both days is ≥ 140 mmHg ***and/or***
- diastolic blood pressure on both days is ≥ 90 mmHg

TREAT

TREATMENT GOAL

- For most patients, blood pressure is considered controlled when SBP < 140 mmHg and DBP < 90 mmHg.
- However, for patients with diabetes or a high risk of CVD, certain guidelines recommend lower targets: SBP < 130 mmHg and DBP < 80 mmHg.

NON-PHARMACOLOGICAL

- Lifestyle counselling (on healthy diet, physical activity, the harms of tobacco use, and harmful use of alcohol) is a critical component of good hypertension management and is often recommended as a first step for patients with blood pressure of SBP 130–139 mmHg and /or DBP 80–89 mmHg who do not have other CVD risk factors

PHARMACOLOGICAL

- There are four main classes of antihypertensive medications:
  1. angiotensin converting enzyme (ACE) inhibitors
  2. angiotensin receptor blockers (ARB)
  3. calcium channel blockers (CCB)
  4. thiazide and thiazide-like diuretics
- Any of these four classes of antihypertensive medication may be used unless there are specific contraindications. Proper treatment of hypertension usually requires a combination of hypertension medications.
  Sample protocols for treatment of hypertension are available in E module of the HEARTS technical package
  https://apps.who.int/iris/bitstream/handle/10665/260421/WHO-NMH-NVI-18.2-eng.pdf?sequence=1

2.2

DIABETES

TYPE 2 DIABETES MANAGEMENT

DIABETES

Diabetes is a chronic, metabolic disease characterized by elevated levels of blood glucose (or blood sugar), which leads over time to serious damage to the heart, blood vessels, eyes, kidneys, and nerves.

TREATMENT OPTIONS

- A healthy diet to achieve or maintain normal body weight and regular physical activity are the mainstay of diabetes management. All patients should be advised on avoidance of tobacco use and harmful use of alcohol.
- Management of risk factors and referral as appropriate
- Oral hypoglycaemic agents for type 2 diabetes, if glycaemic targets are not achieved with lifestyle modification
- Metformin can be used as the first-line medicine
- Other classes of antihyperglycaemic agents, added to metformin if glycemic targets are not met
- Statins are recommended for all people with type 2 diabetes older than 40 years, but only if this does not negatively impact access to glucose-lowering and blood pressure lowering medication.

MORE INFORMATION

HEARTS – D module on diagnosis and management of type 2 diabetes
https://www.who.int/publications-detail/who-ucn-ncd-20.1

PREVENTION OF COMPLICATIONS*

FOOT COMPLICATIONS:

- Regular (3–6 months) visual inspection and examination of patients' feet by trained personnel for the detection of risk factors for ulceration (assessment of foot sensation, palpation of foot pulses, inspection for any foot deformity, inspection of footwear).

PREVENTION OF ONSET AND PROGRESSION OF CHRONIC KIDNEY DISEASE:

- Optimal glycaemic control
- Angiotensin-converting enzyme inhibitor for persistent albuminuria

PREVENTION OF ONSET AND PROGRESSION OF DIABETIC RETINOPATHY:

- Screening for diabetic retinopathy and referral for laser treatment if indicated
- Optimal glycaemic control and blood pressure control

PREVENTION OF ONSET AND PROGRESSION OF NEUROPATHY:

- Optimal glycaemic control

ASSESS

RISK FACTORS

- Overweight /obesity
- Physical inactivity
- Having a first-degree relative with diabetes
- History of gestational diabetes, or preeclampsia
- History of CVD, hypertension, dyslipidaemia

Symptoms

- Polyuria (excessive passing of urine)
- Polydipsia (excessive thirst)
- Unexplained weight loss
- Polyphagia (excessive hunger)
- Vision changes
- Fatigue

Signs

- Acute metabolic deterioration and/or acute presentation of chronic complications
- Severe dehydration
- Kussmaul's respiration
- Altered level of consciousness
- Complications (acute coronary disease, stroke, kidney disease, vision loss, diabetic foot)

Test adults who are symptomatic, or aged >40 years and who are overweight (BMI > 25), or obese (BMI > 30), or follow national guidelines

DIAGNOSE

- **Fasting plasma glucose (FPG)** is the most practical test for low-resource settings, given its low cost. **HbA1c** can also be used, but is more costly.
- **Plasma glucose 2 hours after a 75 g oral glucose load (OGTT)** can also be used to screen for and diagnose diabetes, but is less practical and more costly.
- **If patient is not fasting and has symptoms, a random plasma glucose (RPG) test** can also be performed. It is the least accurate of the diagnostic tests. It is useful to confirm the diagnosis in person with symptoms; however, a negative test does not rule out the diagnosis of diabetes.

TEST	mmol/L	mg/dl
Fasting plasma glucose (FPG)[a,b]	≥ 7	≥ 126
Random plasma glucose (RPG)[b]	≥ 11.1	≥ 200
Plasma glucose 2 hours after a 75 g oral glucose load-OGTT[b]	≥ 11.1	≥ 200
	mmol/L	**%**
Haemoglobin A1c	≥ 48	≥ 6.5%

[a] Fasting: no food and only water for 8–14 hours before the test

[b] Point of care devices can be used in diagnosing diabetes if laboratory services are not available.

TREAT

See following pages for detailed management of type 2 diabetes

TREATMENT GOAL

- HbA1c < 7% is generally considered to be adequate glycaemic control
- If HbA1c is not available, fasting plasma glucose (FPG < 7.0 mmol/L or < 126 mg/dl)

PHARMACOLOGICAL

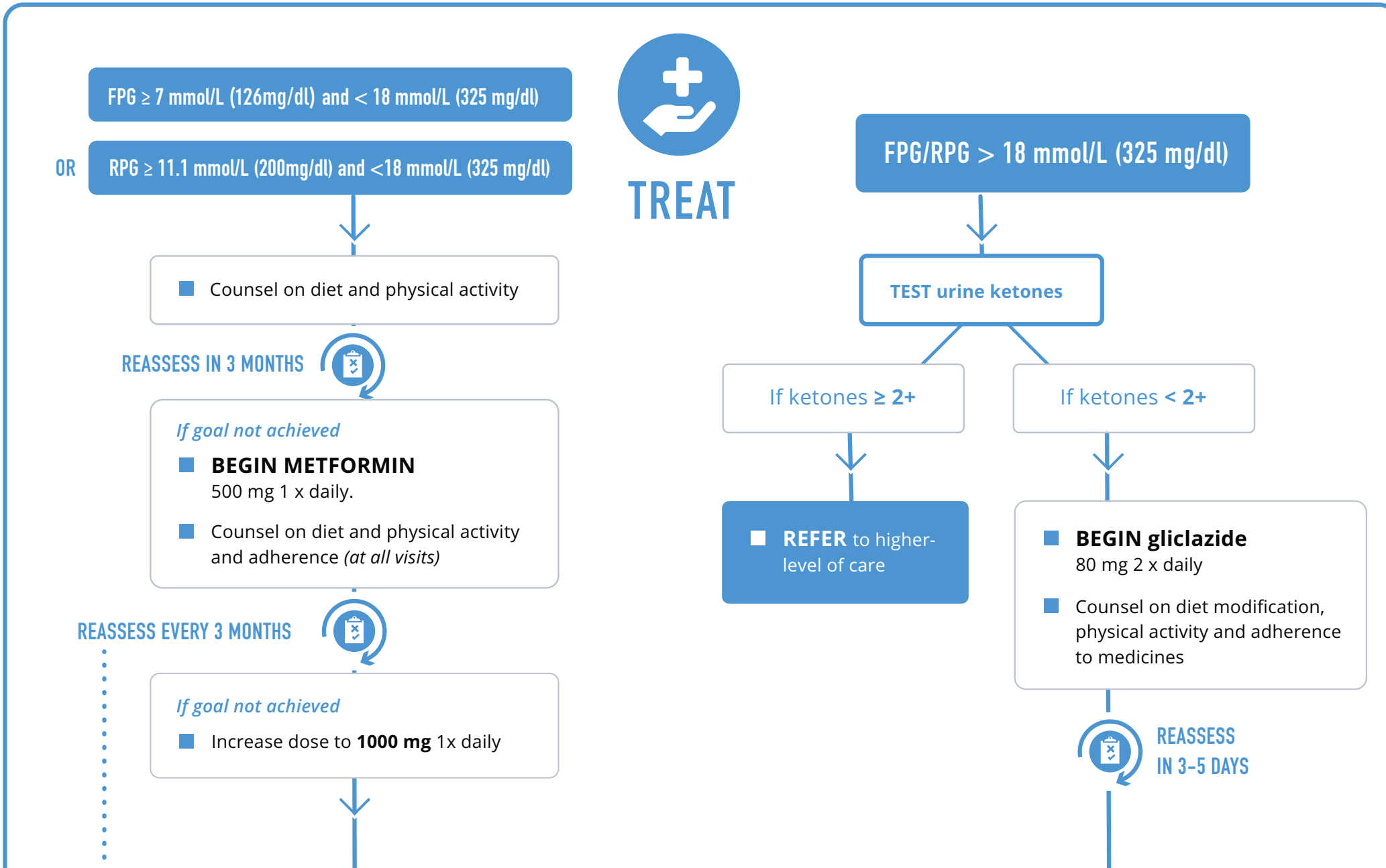
- **Metformin** is recommended as the first-line medicine in the treatment of diabetes. **Sulfonylurea (e.g. gliclazide)** is recommended as the second-line treatment, and **human insulin** as the third-line treatment.
- **Patients may require two or three medicines.** Although there are other medicine classes usually used as second- and third-line treatment, including thiazolidinediones (TZDs), DPP-4 inhibitors, SGLT2 inhibitors, and GLP-1 receptor agonists, these medicines tend to be more costly than metformin, sulfonylurea and insulin, with currently limited evidence of superior effectiveness. They may, however, be considered in the rare cases when treatment with metformin, sulfonylurea, and insulin is not possible. Insulin treatment should be introduced and monitored according to national practices.

NOTE: Hypertension treatment is indicated when SBP ≥ 130 and /or DBP ≥ 80. Statins are recommended for all people with type 2 diabetes older than 40 years, but only if this does not negatively impact access to glucose-lowering and blood pressure-lowering medication.

NON-PHARMACOLOGICAL

- Patients should receive counselling and support on lifestyle change including diet, physical activity and smoking cessation at the time of diagnosis, then annually and whenever changes in treatment occur.
- Group education is effective and less costly than individual programmes

MANAGEMENT OF TYPE 2 DIABETES



REASSESS EVERY 3 MONTHS

If goal not achieved

- Increase dose to 1000 mg **2 x daily**

If goal not achieved

- **ADD gliclazide** 80 mg 1 x daily
- Counsel on hypoglycaemia at all subsequent visits

If goal not achieved

- Increase dose to 80 mg **2 x daily**

If goal not achieved, despite adherence to medication healthy diet and physical activity

- **REFER** to higher-level health care facility for starting insulin*

NO IMPROVEMENT

- **REFER** to higher level of care

IMPROVEMENT

- Continue gliclazide, diet and physical activity

REASSESS IN 2–3 MONTHS

If goal not achieved

- **REFER** to higher-level of care

Consider less stringent glycaemic control in patients with frequent severe hypoglycaemia, complications, serious comorbidities and/or limited life expectancy

* If they are more affordable than insulin, DPP-4-inhibitors, SGLT2-inhibitors or ploglitazone can be used before insulin in cases of treatment failure with metformin and gliclazide. Introduce and titrate insulin treatment according to local practices.

** 7.0 mmol/L (126mg/dl); 11.1 mmol/L (200 mg/dl); 18 mmol/L (325 mg/dl)

COMPLICATIONS

SCREENING FOR CHRONIC COMPLICATIONS

- **Measure blood pressure** at every scheduled visit, review medication as per hypertension protocol
- **REFER for dilated-pupil retinal exam** upon diagnosis and every 2 years thereafter, or as per ophthalmologist recommendation
- **Examine feet for ulcers** at every visit
  REFER to higher level of care if ulcer present
- **Assess risk of lower limb amputation** annually
  (foot pulses, sensory neuropathy by monofilament, presence of healed or open ulcers, calluses)
  REFER to higher level of care if ulcer present or pulse absent
- **Test for proteinuria** annually – REFER to higher level of care if positive

MANAGEMENT OF ACUTE COMPLICATIONS

SEVERE HYPOGLYCAEMIA OR SIGNS

(plasma glucose < 50 mg/dl or 2.8 mmol/L)

- ***If conscious,*** give a sugar-sweetened drink
- ***If unconscious,*** give 20–50 ml of 50% glucose (dextrose) IV over 1–3 minutes

SEVERE HYPERGLYCAEMIA OR SIGNS AND SYMPTOMS

(plasma glucose > 18 mmol/L (325 mg/dl) and urine ketone 2+)

- Set up intravenous drip 0.9% NaCl 1 litre in 2 hours; continue at 1 litre every 4 hours
- REFER to hospital

FOLLOW UP

- ***When diabetes is diagnosed, monitor glycaemic control every 3 months until diabetes is controlled, then every 6 months after that.***
- HbA1c is the most accurate measurement of long-term glycaemic control and represents the average blood glucose over the previous two to three months. HbA1c < 7% is generally considered to be adequate glycaemic control. In people with frequent severe hypoglycaemia, severe complications and low life-expectancy, the goal for HbA1c could be relaxed, e.g. to <8%.
- Fasting plasma glucose (FPG <7.0mmol/l or <126 mg/dl) can also be used to monitor control when HbA1c testing is not available.

Refer to higher level of care if goal is not achieved in 3 months, if ketones are 2+, and if there is no improvement in urine ketones after pharmacological intervention, diet and exercise modification.

2.3

CHRONIC RESPIRATORY DIEASES

MANAGEMENT OF ASTHMA, MANAGEMENT OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE (COPD)

CHRONIC RESPIRATORY DISEASES

Chronic respiratory diseases (CRDs) are chronic diseases of the airways and other structures of the lung.

WHO PEN focuses particularly on bronchial asthma and chronic obstructive pulmonary disease (COPD), which are major public health problems accounting for a significant burden of morbidity and mortality in low- and middle-income countries.

IMPLEMENTATION TOOLS:
PACKAGE OF ESSENTIAL NONCOMMUNICABLE (PEN) DISEASE INTERVENTIONS FOR PRIMARY HEALTH CARE IN LOW-RESOURCE SETTINGS

https://apps.who.int/iris/bitstream/handle/10665/133525/9789241506557_eng.pdf?sequence=1

PATIENT PRESENTS WITH

cough, difficult breathing, tight chest and/or wheezing

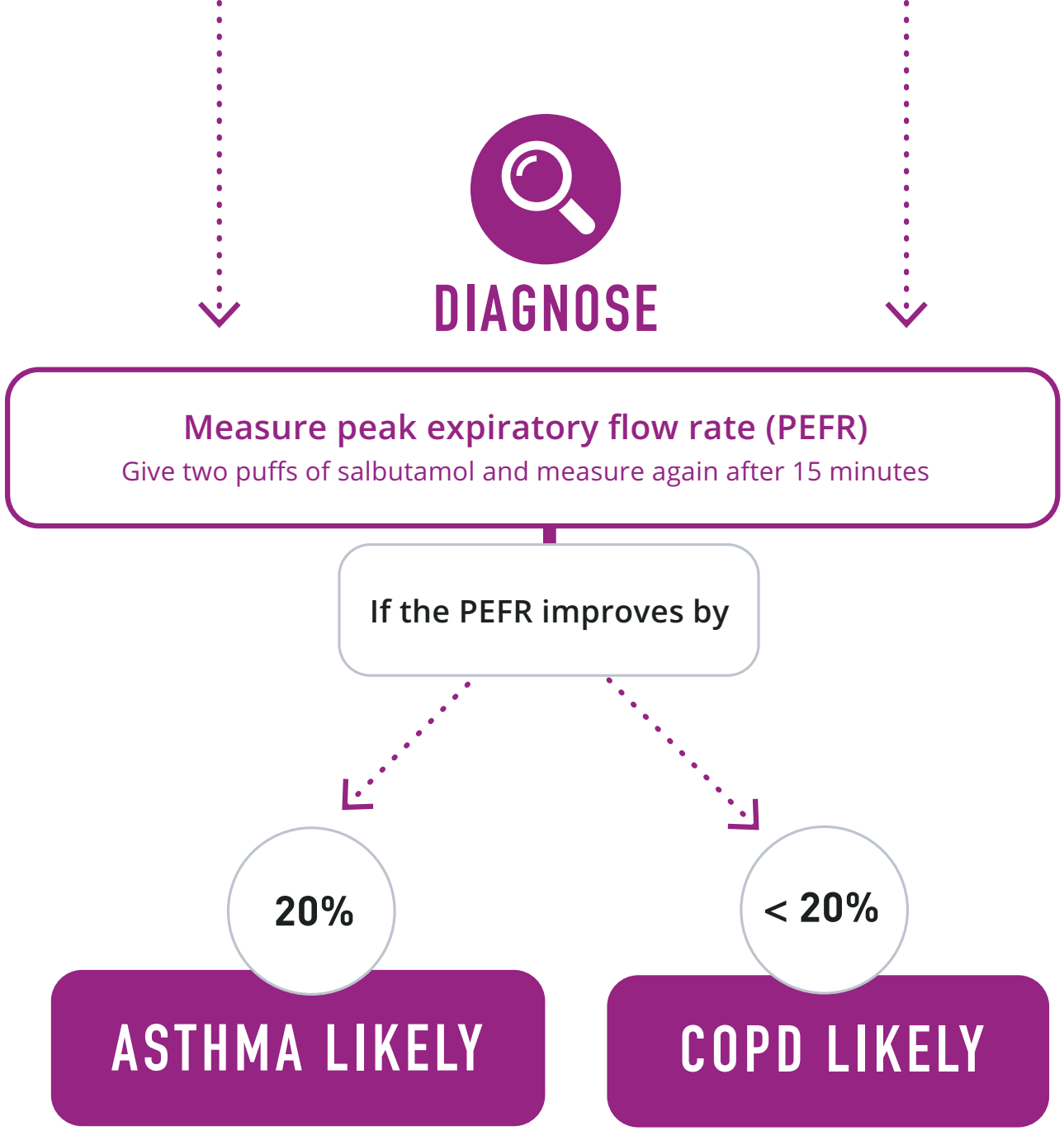
ASSESS

- Previous diagnosis of asthma
- Symptoms since childhood or early adulthood
- History of hayfever, 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
- Symptoms respond to salbutamol

DIAGNOSIS OF ASTHMA LIKELY

- Previous diagnosis of COPD
- History of heavy smoking, i.e. > 20 cigarettes 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 (after age 40)
- Symptoms worsened slowly over a long period of time
- Long history of daily or frequent cough and sputum production starting before shortness of breath
- Symptoms that are persistent with little day-to-day variation

DIAGNOSIS OF COPD LIKELY


DIAGNOSE
Measure peak expiratory flow rate (PEFR)
Give two puffs of salbutamol and measure again after 15 minutes
If the PEFR improves by
20%
< 20%
ASTHMA LIKELY
COPD LIKELY

MANAGEMENT OF ASTHMA

SYMPTOMS OF BRONCHIAL ASTHMA

- Cough
- Chest tightness
- Difficult breathing
- Wheezing

These symptoms are episodic or seasonal, vary over time and intensity and are worse during night and early morning

ASSESS

Is the asthma well controlled?

Ask if the patient exhibits ALL of the following:

- exhibits daytime asthma symptoms and uses a beta agonist one or two times a week;
- exhibits night time asthma symptoms one or two times per month
- puts no or only minimal limitations on daily activities;
- has had no severe exacerbation (i.e. requiring oral steroids or admission to hospital within a month);
- a PEFR, if available, above 80% predicted.

NO

YES

TREAT

Stepwise approach
Pharmacological approach

1 Inhaled salbutamol prn

Non pharmacological approach

This should be advised in all patients to help in better control of the disease.

Exposure prevention

- Smoking cessation and avoid exposure to passive smoke
- Avoid asthma triggers if known
- Avoid dusty and smoke-filled rooms
- Avoid drugs like NSAIDs and beta blockers

At each step, check the patient's adherence to treatment and observe their inhaler technique

2 Inhaled salbutamol prn plus low-dose inhaled beclometasone, starting with 100 µg twice daily for adults and 100 µg once or twice daily for children

3 Same as step 2, but give higher doses of inhaled beclometasone, 200 µg or 400 µg twice daily

4 Add low-dose oral theophylline to Step 3 treatment (assuming long-acting beta agonists and leukotriene antagonists are not available)

5 Add oral prednisolone, but in the lowest dose possible to control symptoms (nearly always less than 10 mg daily)

Patient and family education

Key educational messages include:

- The importance of physical activity and regular exercises
- Information on the reversible nature of the illness, and that asthma can be controlled but may need continuous therapy and regular follow up
- Rationale for inhaled drugs, different inhaler devices and inhalation techniques
- Information that inhalers are not habit-forming, and are safe and better than tablets or syrup
- Patients should to carry their device at each follow up visit
- The need for adherence to prescribed drugs to control the condition
- Advice regarding dealing with triggers/precipitants

FOLLOW UP

Review asthma control every 3–6 months and more frequently when treatment has been changed or asthma is not well controlled.

Asthma is controlled when:

- Symptoms are present only during the day (daytime asthma)
- Use of salbutamol is limited to no more than twice a week
- Night symptoms occur fewer than twice a month
- No or minimal limitation of daily activities
- No severe exacerbations within a month
- PEFR > 80% of predicted

Referral for specialist when:

- asthma remains poorly controlled
- the diagnosis of asthma is uncertain
- regular oral prednisolone is required to maintain control

MANAGEMENT OF EXACERBATION OF ASTHMA

FACTORS THAT MAY TRIGGER OR WORSEN ASTHMA

- indoor allergens (for example house dust mites in bedding, carpets and stuffed furniture, pollution and pet dander)
- outdoor allergens (such as pollens and moulds)
- tobacco smoke
- chemical irritants in the workplace
- cold air
- extreme emotional arousal such as anger or fear
- physical exercise
- certain medications, such as aspirin and other non-steroid anti-inflammatory drugs, and beta-blockers

ASSESS SEVERITY

Severe

- PEFR 33–50% best or predicted
- Respiratory rate more than 25 breaths/minute (adult)
- Heart rate ≥ 110 beats/minute (adult)
- Inability to complete sentences in one breath

Very severe

- Altered conscious level, exhaustion, arrhythmia, hypotension, cyanosis, silent chest, poor respiratory effort
- SpO2 < 92%

TREAT

First-line treatment

1. Prednisolone 30–40 mg for five days for adults and 1 mg per kg for three days for children, or longer, if necessary, until they have recovered

Reassess at intervals depending on severity

2 Salbutamol in high doses by metered dose inhaler and spacer (e.g. four puffs every 20 minutes for 1 hour) or by nebulizer

3 Oxygen, if available, and if oxygen saturation levels are low (below 90%)

IF NOT RESPONDING

Second-line treatment

Increase frequency of dosing via an metered dose inhaler 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

COUNSEL

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 the asthma gets worse
- Understands the benefit of using inhalers rather than tablets, and why adding a spacer is helpful
- Is aware that inhaled steroids take several days or even weeks to be fully effective

MANAGEMENT OF COPD

SYMPTOMS SUGGESTIVE OF COPD

- Breathlessness (or a "need for air")
- Chronic cough
- Sputum (mucous) production

* Depending on the local risk of infection with Tuberculosis, pulmonary TB should always be suspected if cough lasts more than 2 weeks.

ASSESS SEVERITY

Measure PEFR and oxygen saturation, if possible

MODERATE

- If breathless with normal activity

SEVERE

- If breathless at rest

TREAT

1. Inhaled salbutamol, two puffs as required, up to four times daily

EXACERBATION OF COPD

- Antibiotics should be given for all exacerbations with evidence of infection

2 ***If symptoms are still troublesome,*** consider low-dose oral theophylline

3 ***If ipratropium inhalers are available,*** they can be used instead of or added to salbutamol, but they are more expensive

- For severe exacerbations, give oral prednisolone 30–40 mg for around seven days
- Give high doses of inhaled salbutamol by nebulizer or metered dose inhaler with spacer (e.g. four puffs every 20 minutes for 1 hour) or by nebulizer
- Oxygen, if available, should be given through a mask that limits the concentration to 24% or 28%

COUNSEL

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
- stop 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

2.4

CANCER EARLY DIAGNOSIS

EARLY DIAGNOSIS
CERVICAL CANCER
BREAST CANCER

CANCER

EARLY DIAGNOSIS

- Identify presenting features of cancer and refer to next level for confirmation of diagnosis

- Guide to cancer early diagnosis

https://www.who.int/cancer/publications/cancer_early_diagnosis/en/

CERVICAL CANCER

Cervical cancer is the fourth most frequent cancer among women. Primary prevention through vaccination against HPV, effective screening and early diagnosis, and timely, quality treatment of invasive cancers can reduce incidence and mortality rates.

- Comprehensive cervical cancer control: A guide to essential practice

http://www.who.int/reproductivehealth/publications/cancers/cervical-cancer-guide/en/

BREAST CANCER

Breast cancer is the most frequent cancer among women. There are two early detection strategies for breast cancer: early diagnosis and screening.

- Mammography position paper

https://www.who.int/cancer/publications/mammography_screening/en/

EARLY DIAGNOSIS

ASSESS FOR

common cancer signs and symptoms

Cancer symptoms can be non-specific, yet it is important that any “red flag” symptoms are recognized by providers and investigated further.

SITE OF CANCER	COMMON SYMPTOMS*
Breast	Lump in the breast, asymmetry, skin retraction, recent nipple retraction, blood stained nipple discharge, eczematous changes in areola
Cervix	Post-coital bleeding, excessive vaginal discharge
Colon, rectum	Change in bowel habits, unexplained weight loss, anaemia, blood in the stool (rectal cancer)
Oral cavity	White lesions (leukoplakia) or red lesions (erythroplakia), growth or ulceration in mouth
Naso-pharynx	Nosebleed, permanent bocked nose, deafness, nodes in upper part of the neck
Larynx	Persistent hoarseness of voice

SITE OF CANCER	COMMON SYMPTOMS*
Stomach	Upper abdominal pain, recent onset of indigestion, weight loss
Skin melanoma	Brown lesion that is growing with irregular borders or areas of patchy colouration that may itch or bleed
Other skin cancers	Lesion or sore on skin that does not heal
Urinary bladder	Pain, frequent and uneasy urination, blood in urine
Prostate	Difficulty (long time) in urination, frequent nocturnal urination
Retinoblastoma	White spot in the pupil, convergent strabismus (in a child)
Testis	Swelling of one testicle (asymmetry)

* Common symptoms and signs that may be due to cancer. These common symptoms may be due to cancer or due to a different medical condition. People with these symptoms should seek medical attention without delay.

TREAT

Treatment for cancer is provided at tertiary and sometimes secondary health care facilities, where appropriate infrastructure is available. At the primary care level treatment is limited to treatment for precancerous lesions of the cervix. This can include cryotherapy, thermal coagulation and/or loop electrosurgical excision procedure (LEEP), according to the local context and national protocols.

COUNSEL

Primary care providers should explain to patients that symptoms may be related to cancer and that timely referral is necessary. When discussing cancer management plans, efforts should be made to include the patient's social support system and a second consultation may be required. Clear steps to the next level of care should be provided to minimize loss to follow-up. To further reduce this risk, staff could contact patients with cancer at predesignated intervals or consider a patient navigation programme. Finally, primary care providers should also counsel patients on risk reduction such as behavioural modification (e.g. smoking cessation).

FOLLOW UP

Follow-up services at the primary care level must be coordinated with providers who diagnose and treat cancer.

- Information transfer between providers (e.g. pathology unit and primary care provider) is necessary to inform decision-making in cancer management.
- A direct link between primary care facilities and higher levels of care improves timely access and patient adherence to care.

CERVICAL CANCER

ASSESS LIKELIHOOD

Where women present with <u>any</u> of the following:

Abnormal vaginal bleeding (i.e. after coitus, between menstrual periods, post menopause)

Foul-smelling discharge

Pain during vaginal intercourse

- Assess signs and symptoms (i.e. history, intensity, duration, progression)
- Identify relevant risk factors: age (aged 30 years or above)
- Speculum examination

- Differential diagnosis: abortion in pre-menopausal women, infections (e.g. chlamydia, gonorrhoea), genital ulcers, cervical inflammation, uterine polyps, dysfunctional uterus hemorrhage, endometrial or vaginal cancer

Are the above symptom(s) associated with palpable pelvic mass with persistent low-back or abdominal pain?

NO

YES

Clinically detected cervical growth or ulceration?

NO

YES

Follow obstetric and gynaecological guidelines as appropriate

If condition is not manageable at PHC, or persists or worsens

NOTE: *Detailed information regarding cervical cancer assessment, diagnosis, treatment and follow-up is provided in the WHO Comprehensive cervical cancer control: A guide to essential practice (C4GEP).*

http://www.who.int/reproductivehealth/publications/cancers/cervical-cancer-guide/en/

REFER IMMEDIATELY TO NEXT LEVEL

Referral of women with the above symptoms may lead to a diagnosis of "early invasive cervical cancer", particularly in women aged 30 years or above.

BREAST CANCER

ASSESS LIKELIHOOD

Where women present with <u>any</u> of the following:

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, peau d'orange, ulceration, unilateral nipple discharge – particularly bloody discharge, lump in the axilla) with or without palpable lump

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

< 30

Age of woman

> 30

Presenting with symptom **A**

Also presenting with relevant risk factors or symptoms **B or C** ?

NO

YES

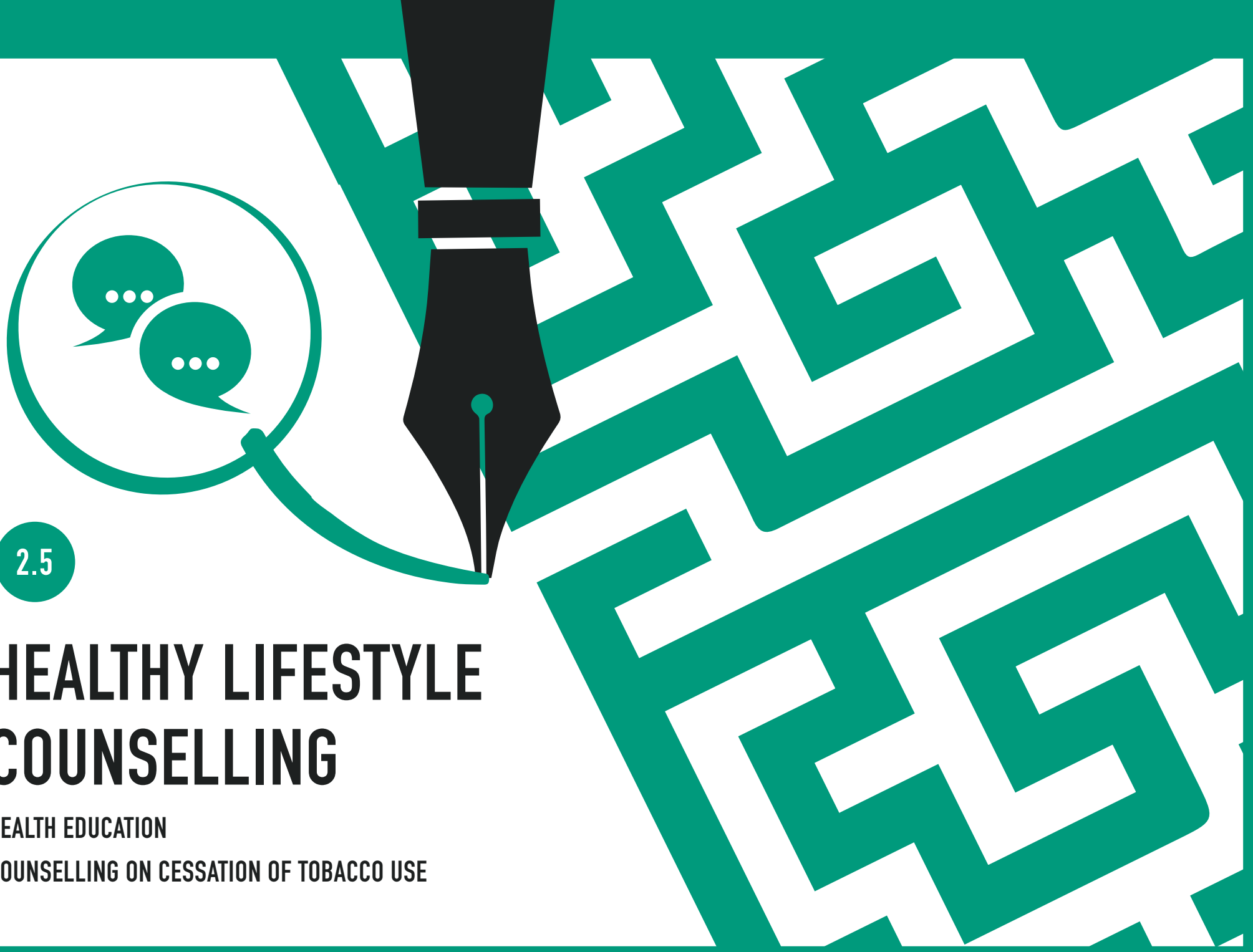
Invite for follow-up visit after menstrual period

If symptoms B or C at follow-up

REFER IMMEDIATELY TO NEXT LEVEL

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

FOR MORE INFORMATION:
GUIDE TO CANCER EARLY DIAGNOSIS
https://www.who.int/cancer/publications/cancer_early_diagnosis/en/



2.5

HEALTHY LIFESTYLE COUNSELLING

HEALTH EDUCATION

COUNSELLING ON CESSATION OF TOBACCO USE

HEALTHY LIFESTYLE COUNSELLING

Counselling for healthy lifestyles involves guiding and supporting patients in making changes in certain behaviours to reduce the risk of NCDs

TECHNICAL PACKAGE FOR CARDIOVASCULAR DISEASE MANAGEMENT IN PRIMARY HEALTH CARE: HEALTHY-LIFESTYLE COUNSELLING.

https://apps.who.int/iris/bitstream/handle/10665/260422/WHO-NMH-NVI-18.1-eng.pdf?sequence=1&isAllowed=y

A GUIDE FOR TOBACCO USERS TO QUIT

https://apps.who.int/iris/bitstream/handle/10665/112833/9789241506939_eng.pdf?sequence=1

EDUCATE YOUR PATIENT TO:

- Be physically active
- Eat a "heart healthy" diet
- Stop tobacco and avoid harmful use of alcohol
- Adhere to treatment

BE PHYSICALLY ACTIVE

- Progressively increase physical activity to moderate levels (such as brisk walking) at least 30 minutes per day on 5 days of the week
- Control body weight and avoid overweight by reducing high-calorie food and taking adequate physical activity

EAT A HEART HEALTHY DIET

- 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 g) of fruits and vegetable 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, rapeseed or safflower oil
  - Replace other meat with chicken (without skin)
- Fish
  - Eat fish at least 3 times per week, preferably oily fish such as tuna, mackerel, salmon

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 quit
- Alcohol abstinence should be reinforced.
- People should not 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
  - medical conditions made worse by alcohol
  - difficulties in controlling drinking

ADHERE TO TREATMENT

- If the patient is prescribed medication:
  - teach the patient how to take it at home
  - explain the difference between medicines for long- term control (e.g. blood pressure) and medicines for quick relief (e.g. for wheezing)
  - tell the patient the reason for prescribing the medication
- Show the patient the appropriate dose
- Explain how many times a day to take the medication
- 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 medication
  - the need to take the medication regularly as advised even if there are no symptoms

COUNSELLING ON CESSATION OF TOBACCO USE (5 As)

1. ASK

Do you use tobacco?

NO → Advise not to start tobacco use and to avoid secondhand exposure

2. ADVISE

YES →

Advise to quit in a clear, strong and personalized manner

"Tobacco use increases the risk of developing a heart attack, stroke, lung cancer and respiratory diseases. Quitting tobacco use is the one most important thing you can do to protect your heart and health, you have to quit now."

3. ASSESS

Are you willing to make a quit attempt now?

YES →

NO →

Promote motivation to quit

Provide information on health hazards of tobacco and give leaflet to the patient

4. ASSIST

Assist in preparing a quitting plan

- Set quit date
- Inform family and friends
- Ask for their support
- Remove cigarettes/tobacco
- Remove objects/articles that prompt you to smoke
- Arrange follow up visit*

5. ARRANGE

At follow-up visit

- Congratulate success and reinforce
- If patient has relapsed, consider more intensive follow-up and support from family

* Ideally a 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 counseling whenever the patient is seen.

2.6

SELF-CARE

SELF-CARE AMONG PATIENTS WITH CARDIOVASCULAR DISEASE, DIABETES OR RESPIRATORY DISEASES

SELF-CARE

All patients with NCDs can perform some level of self-care.

IMPLEMENTATION TOOLS: PACKAGE OF ESSENTIAL NONCOMMUNICABLE (PEN) DISEASE INTERVENTIONS FOR PRIMARY HEALTH CARE IN LOW-RESOURCE SETTINGS

https://apps.who.int/iris/bitstream/handle/10665/133525/9789241506557_eng.pdf?sequence=1

SELF-CARE

AMONG PATIENTS WITH CARDIOVASCULAR DISEASE, DIABETES OR RESPIRATORY DISEASE

- All patients with NCDs perform some level of self-care. Health workers can work to strengthen self-care strategies among these patients by following this protocol
- Conselling patients on self-care can be integrated into existing care structures
- All interactions with patients can be seen as opportunities to understand and improve patients' self-care strategies
- Strategies to improve adherence should form part of self-care for NCDs.
- Promoting self-care among patients with NCDs should take into account patients' beliefs and concerns about medicines and their effects on adherence
- No single strategy to improve overall adherence is recommended over another. Health workers should use their skills, resources, and patient preferences to devise plans to improve adherence
- Group education programmes, rather than individual education, may offer a cost-effective strategy to deliver education in low- and middle-income countries

FIRST VISIT

- Identify opportunities to improve self-care
- Provide written or visual educational materials and training in self-care
- For self-care recommendations that require an action plan, agree on and provide a written or visual action plan

FOLLOWING VISITS

- Check the patient's progress
- If necessary and the patient wishes it, repeat the steps from the first visit

CONDITION-SPECIFIC RECOMMENDATIONS ON SELF-CARE

CARDIOVASCULAR DISEASES

- Raised blood pressure
  - Self-measurement to monitor blood pressure is recommended for the management of hypertension in appropriate patients where the affordability of the technology has been established.
- Heart failure
  - Appropriate patients could benefit from being educated on the benefits of cardiac rehabilitation, and can be encouraged to undertake rehabilitation exercise in the home setting.
- Need for anticoagulation
  - Self-monitoring of blood coagulation and self-adjustment of dosage in patients receiving oral anticoagulation agents is recommended if affordable and according to an agreed action plan with a health professional.

DIABETES

- Diabetes Type 1 and 2
  - People with type 1 and type 2 diabetes on insulin should be offered self-monitoring of blood glucose based on individual clinical need.
- Diabetes Type 1
  - Self-monitoring and self-adjustment of dosage is recommended in type 1 diabetes according to an agreed action plan with a health professional.

RESPIRATORY DISEASES

- Asthma and chronic obstructive pulmonary disease
  - Self-monitoring in asthma and COPD and self-adjustment of dosage is recommended according to an agreed action plan with a health professional.
- Chronic obstructive pulmonary disease
  - Appropriate patients may benefit from being educated on the benefits of chronic obstructive pulmonary disease rehabilitation, and encouraged to undertake rehabilitation exercise.

2.7

PALLIATIVE CARE

PRACTICE POINTS FOR PALLIATIVE CARE

PALLIATIVE CARE

PLANNING AND IMPLEMENTING PALLIATIVE CARE SERVICES: A GUIDE FOR PROGRAMME MANAGERS.

https://apps.who.int/iris/bitstream/handle /10665/250584/9789241565417-eng.pdf?sequence=1

WHAT IS PALLIATIVE CARE

Palliative care is an approach that improves the quality of life of patients and their families facing the problem associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual.

WHO Definition of Palliative Care
https://www.who.int/cancer/palliative/definition/en/

ESTABLISHING PALLIATIVE CARE

Palliative care services can be established or expanded in a number of ways, depending on the local situation. For instance, a country may decide to begin by:

- Setting up a palliative *home-care service* or integrating palliative home care into existing homecare services
- Setting up a c*ommunity-based* palliative care service
- Setting up a *hospital-based* palliative care service

PRACTICE POINTS FOR PALLIATIVE CARE

TREAT AND REFER WHEN NECESSARY FOR:

PHYSICAL CARE NEEDS

- Pain (all types)
- Respiratory problems (dyspnoea, cough)
- Gastrointestinal problems (constipation, nausea, vomiting, dry mouth, mucositis, diarrhoea)
- Delirium
- Wounds, ulcers, skin rash and skin lesions
- Insomnia
- Fatique
- Anorexia
- Anaemia
- Drowsiness or sedation
- Sweating

PSYCHOLOGICAL, EMOTIONAL, AND SPIRITUAL CARE NEEDS

- Psychological distress
- Anxiety
- Suffering of family or caregivers
- Spiritual needs and existential distress
- Depression
- Bereavement support for family/caregivers

Integrating palliative care and symptom relief into primary health care: a WHO guide for planners, implementers and managers
https://apps.who.int/iris/bitstream/handle/10665/274559/9789241514477-eng.pdf?sequence=1&isAllowed=y

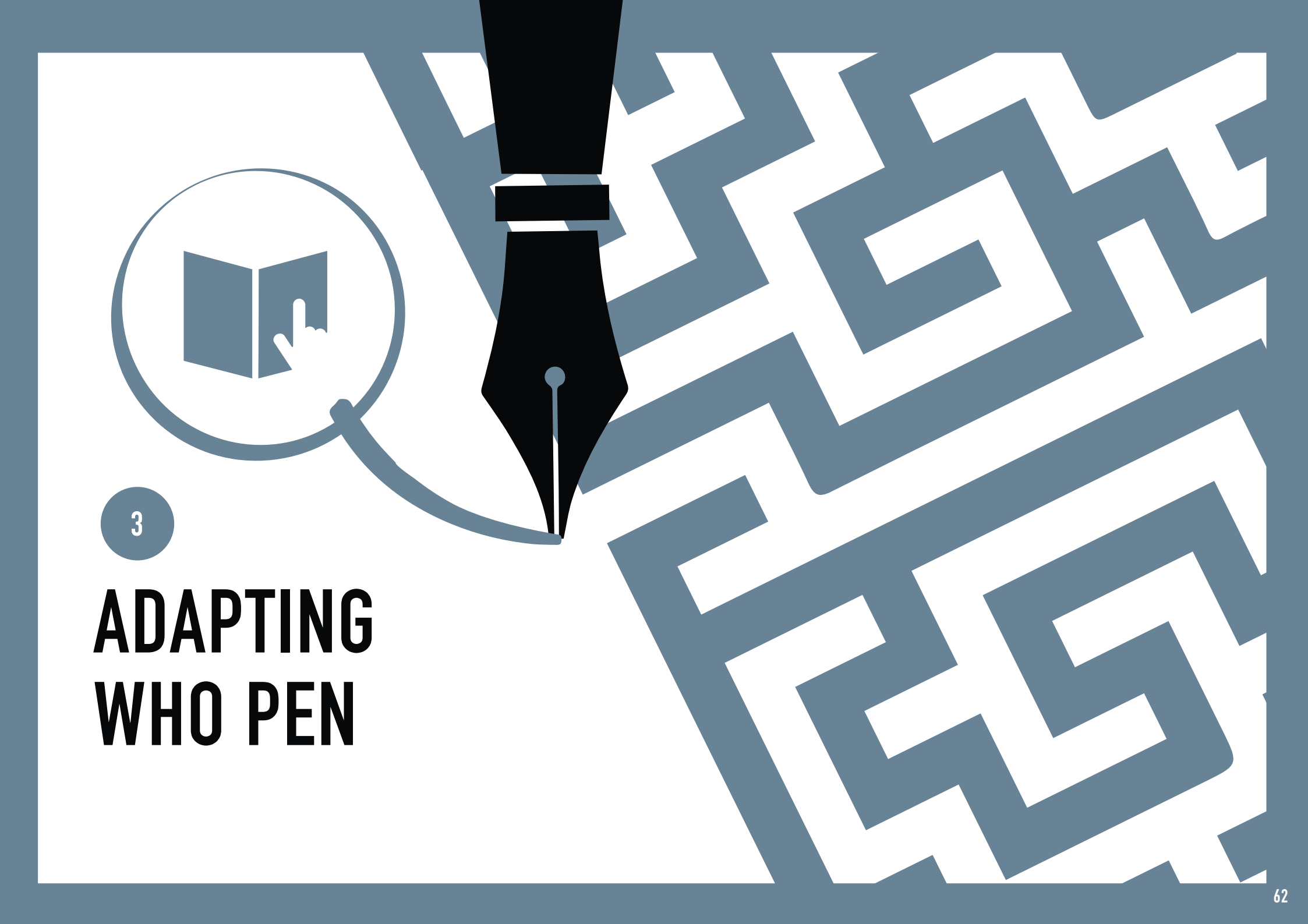
CONSIDER AND MANAGE

CARE PLANNING AND COORDINATION

- Identify support and resources available; develop and implement care plan based on patient's needs
- Provide care in the last weeks/days of life
- Facilitate the availability and access to medications (especially opioids)
- Identify the psychosocial/spiritual needs of professionals providing care (including self-care)

COMMUNICATION ISSUES

- Communicate with patient, family and caregivers about diagnosis, prognosis, treatment, symptoms and their management, and issues relating to care in the last days/weeks of life
- Identify and set priorities with patient and family/caregivers
- Provide information and guidance to patients and caregivers according to available resources



3

ADAPTING WHO PEN

3. ADAPTING WHO PEN

A stepwise approach to implementation of WHO PEN is presented below. The key advantage of a stepwise approach, whether to prevention, surveillance or management, is that it offers a framework to help countries get started and to focus on what is practical, taking into account the available human, financial and other resources.

1 ENGAGE STAKEHOLDERS

- Hold introductory meetings with stakeholders
- Obtain ministry of health endorsement
- Establish technical working group
- Identify demonstration site

2 ASSESS CURRENT STATUS OF NCDs

- Desktop review of existing plans, policies (including public policies) and guidelines that contribute to NCD control in the country
- Assess the capabilities of the primary care health infrastructure
- Review and summarize exisiting NCD services at all levels of the health system
- Conduct a strengths, weaknesses, opportunities, threats (SWOT) analysis

3 DEVELOP A SERVICE DELIVERY MODEL FOR PHC

- Develop a package of service delivery for NCDs based on WHO PEN

4 CAPACITY BUILDING

- Conduct training for healthworkers on agreed upon model and protocols
- Host ongoing inservice trainings
- Appoint mentors
- Develop supervision checklists and ensure supportive supervision is done at regular intervals

5 MONITORING AND EVALUATION

- Define indicators and existing tools for measurement
- Establish a monitoring process

6 REVIEW AND PLAN FOR SCALE UP

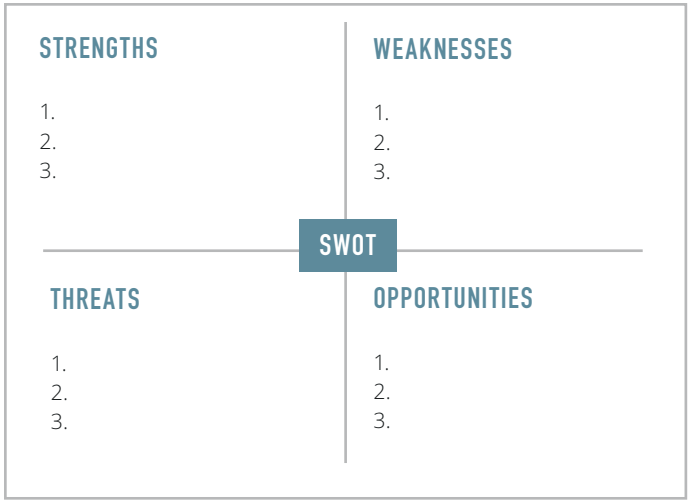
- Review and evaluate WHO PEN implementation at demonstration sites
- Cost WHO PEN package implementation
- Finalise service delivery model
- Develop a plan for phased scale up

1 ENGAGE STAKEHOLDERS

- **Identify key stakeholders invested in the current NCD health service delivery system to invite to the consultation. This is to build consensus and garner broad-based support.**
  - National-level: Ministry of Health, Ministry of Finance, Ministry of Social Welfare, political leaders at state or division-levels
  - Local/Community-level: Local political leaders, community leaders, public sector health providers, private sector health providers
  - Other sectors: NCD specialists, media, research groups or academic institutions, civic groups or health-oriented nongovernmental organizations (NGOs)
- **Obtain an agreement to adapt WHO PEN and strengthen NCD management in primary care**
- **Establish technical working group**
  - Composition: Public health and clinical staff members (including medical, nursing and pharmaceutical)
  - Role: To provide overall direction, leadership and supervision to the local adaptation of the WHO PEN and to national rollout; advise on the number of additional personnel needed, the required competencies, skills and their roles and responsibilities; and provide specific technical advice or support for the adaptation or development of the protocols
- **Identify demonstration site**
  - The recommended criteria for selection of site:
    - Geographic access and communication
    - Health centres with a referral care facility
    - Agreement from local government
    - Support from professional associations and civil society groups
  - List all primary health care centres
  - Select a sample of facilities – usually 10% of the total number of facilities in the selected site
  - Establish an agreement with demonstration site (e.g provincial agreement or district agreement) and include operational structure
- **Conduct facility assessment**
  - First create a map of the sample of health facilities at demonstration site and the referral linkages
  - Conduct a facility assessment (Annex 4.1)
  - Analyse the information collected and identify gaps in training, equipment, drugs, record keeping, and management practices
  - Determine minimum requirements of skilled staff, equipment, devices and medicines needed for implementing the package

2 ASSESS CURRENT STATUS OF NCD

- Desktop review of all related strategies, policies (including public policy measures on tobacco, alcohol, diet and physical activity) and guidelines relating to NCDs in primary health care
- Using the template to the right determine the current PHC infrastructure
- Map the current patient pathway for NCD service delivery
- Conduct a SWOT analysis of the country's NCD service delivery system using the template below



GOVERNANCE AND LEADERSHIP	• Is NCD risk management in primary health care included in the: national/district health strategy; national NCD strategy; national operational plans; basic package of services? • Is management of CVD /Hypertension /diabetes /CRD/ cancer included in national clinical guidelines for primary health care? • Do national clinical guidelines for primary health care include evidence-based protocols for risk-based CVD management? • Are there standardized systems/tools for mentoring and supervision of primary health-care staff? • What is the frequency of district management meetings? Who attends?
HEALTH FINANCING	• Is there a specific NCD budget within health financing? If yes, what is it? • In those systems with health insurance, are NCD services and medicines included in benefit packages?
ACCESS TO ESSENTIAL MEDICINES AND TECHNOLOGIES	• Are the minimum essential medicines (Annex 4.2) for NCDs included in the national essential medicines list and the minimum primary health care medicines list? • Are the essential NCD technologies and tools (Annex 4.3) included in minimum standards for primary health care facilities? • Describe the national medicines supply management system (selection, quantification, procurement, storage, distribution).
HEALTH WORKFORCE	• Are there dedicated management staff for NCD management at national and district levels? • Which staff cadres have authority to prescribe and/or authorize medication refills? • Have task-sharing approaches in primary health care been adopted or considered? • Do in-service training packages exist for management of CVD, hypertension or diabetes in primary health care? • Has any in-service training on NCD risk management occurred in last 2 years? If yes, who delivered it?
HEALTH INFORMATION SYSTEMS	• Are there mechanisms for data feedback from national, to subnational, to facility level? • Are there dedicated staff to collect data at district level? • Describe the district-level database for routine health management information system and other facility data. • Are NCD management indicators included in a national minimum indicator set? • Describe the type of individual patient record format used in public primary health-care facilities. • An sample clinical record is given (Annex 4.4)
ORGANIZATION OF SERVICE DELIVERY	• Describe the facility levels within the public health system. • Describe NCD management services available at each level of care including a healthy lifestyle counselling component. • Are catchment populations defined for primary health care? • What is the current service delivery model(s) in public primary health-care facilities? For example, general outpatient services where patients see any available provider; disease specific clinics. Are there established national and/or district-level quality improvement systems for primary health care?

3 DEVELOP A SERVICE DELIVERY PACKAGE FOR PHC

- **Develop a service delivery package relevant to the local context by adapting WHO PEN.**
  - Elements to consider when developing a service delivery package:
    - Health facility should be equipped to provide basic promotive, preventive and some curative services along with referrals and follow up
    - A matrix can be developed to map the various units of service and details under each unit as services, infrastructure, equipment and personnel
    - Once each unit matrix is ready then the final matrix can be developed by matching the matrices for common items
  - Consider urban vs rural service delivery models
  - Decide on appropriate WHO PEN protocols for implementation
  - Decide which protocol to implement based on community and health systems capacity assessments, and consideration of health priorities and the availability of human and technical resources. Adapt management protocols as required to reflect country context, availability of drugs etc

4 CAPACITY BUILDING

- **As per service model, conduct appropriate training to primary care workers to deliver integrated NCD care – to assess, diagnose, manage and refer patients appropriately. Primary care workers should be able to:**
  - Apply relevant WHO PEN protocols and tools and interpret the results
  - Understand referral thresholds
  - Be familiar with the system and information to record and track to monitor WHO PEN implementation
  - Deliver preventive health interventions and empower patients
  - Plan for improving patient adherence to follow-up visits
  - Consider incorporating the WHO PEN training into medical, nursing and allied health course curriculum, and providing continuing education courses for primary care health workers

5 MONITORING AND EVALUATION

- **Health facilities should have a system for collection of data. Sample clinical record is provided in Annexe 4.4. Data collation and analysis may be done at appropriate levels. Indicators for hypertension and diabetes are provided in Annex 4.5. They can serve as tracers for assessing the services.**
- **Establish monitoring process:**
  - Second-level facility (e.g. national, provincial or district health office) to conduct visits to first-level health facilities at least once every three months
  - Conduct periodic audits of facilities providing the services

6 REVIEW AND PLAN FOR SCALE UP

- **Review and evaluate demonstration phase**
  - Conduct an external assessment and audit of clinical practice.
  - Analyse the findings to assess the model and make necessary refinements.
- **Finalize service delivery model and requirements**
  - Agree on the service delivery model based on the feasibility and sustainability.
  - Finalize the national protocols, referral criteria, and the equipment, drugs and consumables required.
  - Agree on the human resources needed, their roles and responsibilities, and the training curriculum.
  - Finalize the requirements of the health information system and clinical recording system.
  - Agree on the monitoring and evaluation system, and the tools for auditing.
- **Develop a multi-year plan to expand services nationwide**
  - Estimate the cost for the national expansion plan. Utilize cost information from the demonstration phase and from the costing study.
  - Have a plan to ensure most cost-effective procurement and distribution of drugs and consumables. E.g. include core NCD drugs and technologies in the essential drug list; ensure transparency in the tender process; purchase cheaper quality generics and consider removing taxes and duties on essential drugs and technologies.
  - Strengthen demand forecasting and supply chain mechanisms; strengthen health information system and analyse ordering cycle at the health centre.
  - Obtain administrative order to expand services nationwide. Detail service model, roles and responsibilities, national protocols, and plan of action.
  - Secure allocation in national health budget.
  - Mobilize development partners, private sector, academia and the community to contribute to strengthening NCD management in primary health care.
  - Conduct periodic monitoring and regular evaluation. Repeat annually for short-term indicators (e.g. impact indicators) and every 3–5 years for medium-term progress indicators (e.g. outcome indicators).

ANNEX 4.1: HEALTH FACILITY ASSESSMENT

Adaptation of the WHO PEN package can start with a quick assessment of the facility. A sample format is given here. ***Please use this observation checklist as a guide and don't restrict your observations to the points below. Feel free to add more depending on your observations.***

Domain	Observation points	Comments
How are NCDs managed now? What NCDs are covered?	Flow of patients in the facility, where is BP taken, how are NCDs managed?	
Patient care services	Is there a separate NCD clinic? NCD treatment guidelines available?	
Staff	Dedicated staff for NCDs? Staff trained in NCD diagnosis and treatment?	
Equipment	BP apparatus Glucometer Weighing machine Height measuring tape	
Laboratory services	Urine for albumin, sugar, ketones Blood sugar, cholesterol	
Medicines	Are essential NCD drugs available? (metformin, amlodipine, etc.)	
Records and reports	Do patients have a unique ID number? Who prepares the reports? Is there a separate NCD register? Computerized records?	
Referral system	Nearest referral centre (approximately in kms) - Secondary - Tertiary	

SUMMARY OF HEALTH FACILITY ASSESSMENT

What works (what are the strengths)?
What doesn't work (what are the challenges)?
What should be done next (How can NCD services be improved)?

ANNEX 4.2: CORE LIST OF MEDICINES [For primary care facilities with physicians]

(for PC facilities with only non-physician health workers most of the medicines below are required for refill of prescriptions issued by physicians at a higher level of care)

- Amoxicillin
- Angiotensin inhibitor (enalapril)
- Aspirin
- Beclomethasone
- Beta-blocker (atenolol)
- Calcium channel blocker (amlodepine)
- Codeine
- Dextrose infusion
- Diazepam
- Epinephrine
- Erythromycin
- Furosemide
- Glibenclamide
- Glucose injectable solution
- Glyceryl trinitrate
- Heparin
- Hydrocortisone
- Ibuprofen
- Insulin
- Isosorbide dinitrate
- Magnesium sulphate
- Metformin
- Morphine
- Oxygen
- Paracetamol
- Prednisolone
- Promethazine
- Salbutamol
- Senna
- Sodium chloride infusion
- Spironolactone
- Statin (simvastatin)
- Thiazide diuretic

ANNEX 4.3: ESSENTIAL TECHNOLOGIES AND TOOLS

TECHNOLOGIES

- Thermometer
- Stethoscope
- Blood pressure measurement device*
- Measurement tape
- Weighing machine
- Peak flow meter**
- Spacers for inhalers
- Glucometer
- Blood glucose test strips
- Semmes-Weinstein 10 g monofilament
- Urine protein test strips
- Urine ketones test strips

Add when resources permit:

- Nebulizer
- Pulse oximeter
- Blood cholesterol assay
- Lipid profile
- Serum creatininine assay
- Troponin test strips
- Urine microalbuminuria test strips
- Tuning fork
- Electrocardiograph (if training to read and interpret electrocardiograms is available)
- Defibrillator

TOOLS

- WHO CVD risk prediction charts
- Evidence-based clinical protocols
- Flow charts with referral criteria
- Patient clinical record
- Medical information register
- Audit tools

* For facilities with nonphysician health workers a validated blood pressure measurement device with digital reading is preferable for accurate measurement of blood pressure

** Disposable mouth pieces requried. Peak flow meters with one-way flow preferable.

ANNEX 4.4: SAMPLE CLINICAL RECORD

World Health Organization

NCD clinic registry
A tool for NCD treatment and follow up

Date: | NCD ID:

PATIENT INFORMATION

Patient Name | Gender (Male / Female / Other) | Date of Birth

Age at the time of Registration | Address Line1 | Address Line 2

Contact no. | Email | Nationality

HISTORY OF NCD

H/o Hypertension (No / Yes (on treatment)/ Yes (not on treatment)) | H/o Diabetes (No / Yes (on treatment)/ Yes (not on treatment)) | H/o Asthma (Yes / No)

H/o COPD (Yes / No) | H/o Cancer (Yes / No) | H/o Coronary artery diseases (Yes / No)

H/o Stroke (Yes / No) | H/o Chonic Kidney Disease (Yes / No)

ASSESSMENT

Tobacco use - smoking (Yes / No) | Tobacco use - smokeless (Yes / No) | Alcohol use (No/Occasional/Daily/Harmful use)

Systolic Blood Pressure at Registration | Diastolic Blood Pressure at Registration

Height (in meters) | Weight (in kg) (Yes / No) | BMI

INVESTIGATIONS

Fasting blood glucose (mg/dl) | Random blood glucose (mg/dl) | HbA1C (%)

Serum potassium (mEq/L) | Serum creatinine (mg/dL) | Serum urea (mg/dL)

Total cholesterol (mg/dL) | Urine protein (Not done / Present / Absent)

Foot examination (Not done / Normal / Abnormal) | Fundus examination (Not done / Normal / Abnormal) | Cervical cancer screening (Not done / Normal / Abnormal)

DIAGNOSIS

Hypertension (Yes / No) | Diabetes (Yes / No) | Hyperlipidaemia (Yes / No)

COPD (Yes / No) | Asthma (Yes / No) | Other

CVD risk - lab based | CVD risk - non lab based

TREATMENT

Medicines for Hypertension

Name of Medicine 1	Dose	Advice

Name of Medicine 2	Dose	Advice

Name of Medicine 3	Dose	Advice

Medicine for Diabetes

Name of Medicine 1	Dose	Advice

Name of Medicine 2	Dose	Advice

Medicines for Hyperlipidaemia

Name of Medicine1	Dose	Advice

Name of Medicine 2	Dose	Advice

Medicines for COPD

Name of Medicine	Dose	Advice

Medicines for Asthma

Name of Medicine	Dose	Advice

Others

Name of Medicine	Dose	Advice

Date for follow up	Medicines dispensed

Referred - Yes / No

Reason for referral -

Signature of Doctor

World Health Organization

Follow-up Visits

NCD clinic registry
A tool for NCD treatment and follow up

Patient Name		NCD ID				
	Date	Date	Date	Date	Date
ASSESSMENT						
Systolic BP						
Diastolic BP						
Weight						
BMI						
INVESTIGATIONS						
Fasting blood glucose						
Random blood glucose						
HbA1c						
Serum potassium						
Serum Creatinine						
Serum urea						
Total cholesterol						
Urine protein						
Fundus examination	Not done / Normal / Abnormal	Not done / Normal / Abnormal	Not done / Normal / Abnormal	Not done / Normal / Abnormal	Not done / Normal / Abnormal
Foot examination	Not done / Normal / Abnormal	Not done / Normal / Abnormal	Not done / Normal / Abnormal	Not done / Normal / Abnormal	Not done / Normal / Abnormal
Cervical cancer screening	Not done / Normal / Abnormal	Not done / Normal / Abnormal	Not done / Normal / Abnormal	Not done / Normal / Abnormal	Not done / Normal / Abnormal
TREATMENT						
HTN Medicine 1						
HTN Medicine 2						
HTN Medicine 3						
DM Medicine 1						
DM Medicine 2						
Statins						
Others						
NEW COMPLICATIONS ON FOLLOW UP VISITS						
Lower limb amputation						
Renal failure						
Coronary Artery Disease						
Stroke						
Hospitalization for Asthma						
Signature						

ANNEX 4.5: INDICATORS

TABLE 1: INDICATORS FOR HYPERTENSION AND CVD

Health-facility level				
No.	**Indicator**	**Source of data**	**Reporting frequency**	**Health system considerations**
1	Six-monthly control of blood pressure among people treated for hypertension	Health facility record	Once in six months	Feasible in all settings in primary health care and a core indicator for quality of services
Subnational (district/province/state) level (aggregated from health facilities offering the services within the programme)				
No.	**Indicator**	**Source of data**	**Reporting frequency**	**Considerations in the interpretation**
2	Control of blood pressure among people with hypertension within the programme	Aggregated reports from all the health facilities reporting the hypertension indicator in a defined subnational area; estimation of hypertension prevalence	Once in 12 months	This will give estimated community control rates with the numerator coming from facilities reporting as part of the programme (in some instances patients may be receiving BP meds from private sector or other levels of care within the public system)
3	Availability of core cardiovascular disease/ diabetes drugs	Aggregated reports from all the health facilities reporting drug availability indicators in a defined subnational area	Once in 3 months	This is for the programme quality control and will assist with forecasting of medicines and improvements in supply chain management
Population level (control of hypertension, diabetes and CVD risk)				
No.	**Indicator**	**Source of data**	**Reporting frequency**	**Considerations in the interpretation**
4	Hypertension control in the population	Population-based sample survey (STEPS or similar survey)	Once in 3–5 years	Population-level survey as part of national survey or a special survey for the programme
5	Proportion of eligible persons receiving drug therapy and counselling (including glycaemic control) to prevent heart attacks and stroke *(1)*	Population-based sample survey (STEPS or similar survey)	Once in 5 years	Population-based (preferably nationally representative) survey, including behavioural parameters with physical and biochemical measurements

HEARTS Technical package for cardiovascular disease management in primary health care: systems for monitoring.
https://apps.who.int/iris/bitstream/handle/10665/260423/WHO-NMH-NVI-18.5-eng.pdf;jsessionid=519A7089AD2410B8245D0BA1EBC0C946?sequence=1

TABLE 2: INDICATORS FOR DIABETES MELLITUS

Indicator	Description
Number of patients being treated for diabetes	Number of patients and number of new patients with diabetes Frequency of reporting: monthly
Control rate among people treated for diabetes	Numerator: number of patients with diabetes with good glycaemic control at the last clinical visit in the last 6 months (HbA1c <7.0% (53 mmol/mol), or FPG <7.0 mmol/L (126mg/dL) and (if available) a postprandial PG value <9.0 mmol/L (160 mg/dL) Denominator: number of patients with diabetes in the facility during the last 6 months Frequency of reporting: every 6 months
Complications due to diabetes: • **diabetic foot** • **nephropathy** • **retinopathy** • **neuropathy** • **cardiovascular diseases**	Numerator: number of new diabetes complications in the past year Denominator: number of patients with diabetes in the past year Frequency of reporting: annually

Diagnosis and management of type 2 diabetes (HEARTS-D)
https://www.who.int/publications/i/item/who-ucn-ncd-20.1

ANNEX 4.6: ADDITIONAL READING

1. Comprehensive cervical cancer control: A guide to essential practice. Geneva: World Health Organization; 2014 (http://www.who.int/reproductivehealth/publications/cancers/cervical-cancer-guide/en/, accessed 16 July 2020).

2. Guide to cancer early diagnosis. Geneva: World Health Organization; 2017 (https://www.who.int/cancer/publications/cancer_early_diagnosis/en/, accessed 16 July 2020).

3. HEARTS-D. Diagnosis and management of type 2 diabetes. Geneva: World Health Organization; 2020 (https://www.who.int/publications/i/item/who-ucn-ncd-20.1, accessed 16 July 2020).

4. HEARTS Technical package for cardiovascular disease management in primary health care. Geneva: World Health Organization; 2018 (https://www.who.int/cardiovascular_diseases/hearts/en/, accessed 16 July 2020).

5. Implementation tools. Package of Essential Noncommunicable (PEN) disease interventions for primary health care in low-resource settings. Geneva: World Health Organization; 2013 (http://apps.who.int/iris/bitstream/handle/10665/133525/9789241506557_eng.pdf, accessed 16 July 2020).

6. Planning and implementing palliative care services: a guide for programme managers. Geneva: World Health Organization; 2016 (https://apps.who.int/iris/bitstream/handle/10665/250584/9789241565417-eng.pdf, accessed 16 July 2020).

7. Tackling NCDs. "Best buys" and other recommended interventions for the prevention and control of noncommunicable diseases. Geneva: World Health Organization; 2017 (http://apps.who.int/iris/bitstream/handle/10665/259232/WHO-NMH-NVI-17.9-eng.pdf, accessed 16 July 2020).

8. World Health Organization cardiovascular disease risk charts: revised models to estimate risk in 21 global regions. The WHO CVD Risk Chart Working Group. Lancet Glob Health. 2019;7:e1332–45 Published Online September 2, 2019 http://dx.doi.org/10.1016/ S2214-109X(19)30318–3.

9. A guide to implementation research in the prevention and control of noncommunicable diseases; 2019 (https://apps.who.int/iris/bitstream/handle/10665/252626/9789241511803-eng.pdf, accessed 16 July 2020).

10. Classification of diabetes mellitus. Geneva: World Health Organization; 2019. (https://apps.who.int/iris/bitstream/handle/10665/66040/WHO_NCD_NCS_99.2.pdf?sequence=1\, accessed 16 July 2020).

11. Integrating palliative care and symptom relief into primary health care: a WHO guide for planners, implementers and managers.; 2018 (https://apps.who.int/iris/bitstream/handle/10665/274559/9789241514477-eng.pdf?sequence=1&isAllowed=y, accessed 16 July 2020).

12. Guide to cancer early diagnosis; 2017 (https://www.who.int/cancer/publications/cancer_early_diagnosis/en/, accessed 16 July 2020).

13. NCD in emergencies; 2016 (https://apps.who.int/iris/bitstream/handle/10665/204627/WHO_NMH_NVI_16.2_eng.pdf?sequence=1&isAllowed=y, accessed 16 July 2020)

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