Solomon Islands guidelines

for the management of major non-communicable diseases (NCDs) in primary health care


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Contents

Foreword

Introduction

1. Cardiovascular risk assessment and diabetes screening 1
- When to start cardiovascular disease (CVD) risk assessment 1
- How to measure risk factors 5

2. Cardiovascular risk factor management 6
- Who should be referred 6
- Recommended interventions, goals and follow-up based on CVD risk assessment 7
- General lifestyle advice for people with 10-year CVD risk under 10% 8
- Blood pressure lowering 9

3. Management of type 2 diabetes 10
- Setting treatment targets 10
- Management of high capillary blood glucose 11

4. Weight management 13

5. Gout 14

6. Stroke and transient ischaemic attack (TIA) 16

7. Heart failure 17
- Management of patients with suspected heart failure 17
- Management of patients with known chronic heart failure 17

Foreword

Non-communicable diseases (NCDs) are a global epidemic and Ministers of Health have declared that Pacific Island countries and areas are in an NCD crisis. NCDs are also the leading cause of mortality in Solomon Islands, with 60% of all deaths caused by cardiovascular disease, cancer, chronic respiratory disease, diabetes and other NCDs. The burden of these diseases, including the loss of productive workforce and the high cost associated with long-term hospital admissions, has negative impacts on our limited economy. The devastating effect on individuals and their families who care for them is also significant.

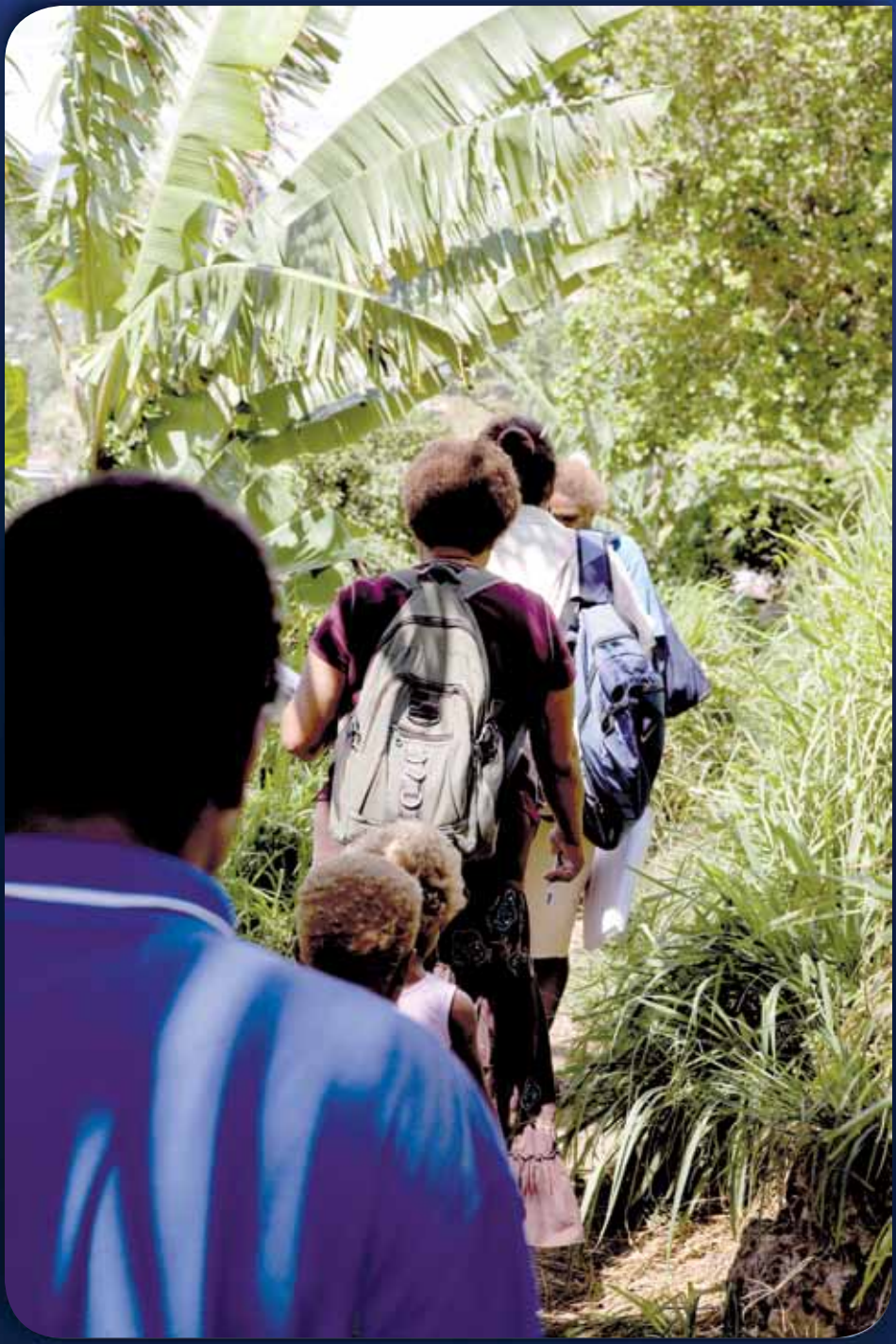
Effective management of NCDs at the primary health care level will have a considerable impact on prevention of NCDs and decreasing complications. These guidelines recognise the need for early, evidence-based interventions and are a major step towards tackling the NCD crisis.

I hope that through training and use of early diagnostic tools, risk stratification and referral to these guidelines, health workers will be confident and equipped to provide optimal NCD care at the first point of contact.

I would like to acknowledge every person who has contributed to the development of the first *Solomon Islands guidelines for the management of major non-communicable diseases in primary health care*. These include national staff at the Ministry of Health and Medical Services, provincial health directors, doctors, nurses, nurse-aids and allied health workers. I also thank the World Health Organization in Solomon Islands and the Secretariat of the Pacific Community for their technical guidance and support with the preparation and printing of these guidelines.

Hon. Charles Sigoto

Minister for Health and Medical Services
Solomon Islands



Introduction

Guidelines are an important tool for evidence-based practice. They represent best practice based on the latest available evidence, expert consensus and contributions from clinical leaders working in primary health care (PHC) in Solomon Islands and elsewhere. They are not intended to replace the health practitioner's judgement in each individual case.

Care decisions should consider the following:

- the individual's clinical state, age and health condition (co-morbidities)
- personal and family preferences
- current best practice
- resource availability

The guidelines are designed primarily to be used by registered nurses working in Area and Rural Health Centres (A/RHCs) as a tool to assist the implementation of the World Health Organization (WHO) Package of Essential Non-communicable (PEN) Disease Interventions for Primary Health Care in Low-Resource Settings. It assumes that AHCs and RHCs are equipped with the WHO recommended equipment and essential medicines. (See WHO PEN Framework for Solomon Islands.) No guidelines can ever substitute for direct consultation with an experienced colleague at the Provincial Hospital or National Referral Hospital.

The guidelines have been developed with health professionals working in A/RHCs, Helena Goldie Hospital and Gizo Provincial Hospital in the Western Province of Solomon Islands. Guidelines have incorporated the recommendations from WHO PEN Protocols 1 and 2. Relevant recommendations from the 'DIABETES Standard Diagnosis, Treatment and Management Guidelines 2007' are also included, as are the recommendations from the Solomon Islands Standard Treatment Manual for Adults (2011) for the diagnosis and management of type 2 diabetes, heart failure, hypertension and stroke.

1. Cardiovascular risk assessment and diabetes screening

All treatment decisions should be based on the individual's 10-year absolute cardiovascular risk (the likelihood of a cardiovascular event over 10 years) based on the WHO/International Society of Hypertension (ISH) Risk Assessment Tool. This replaces decision-making based on individual risk factor levels.

The overall goal is to reduce the 10-year cardiovascular risk to < 10%.

When to start cardiovascular disease (CVD) risk assessment

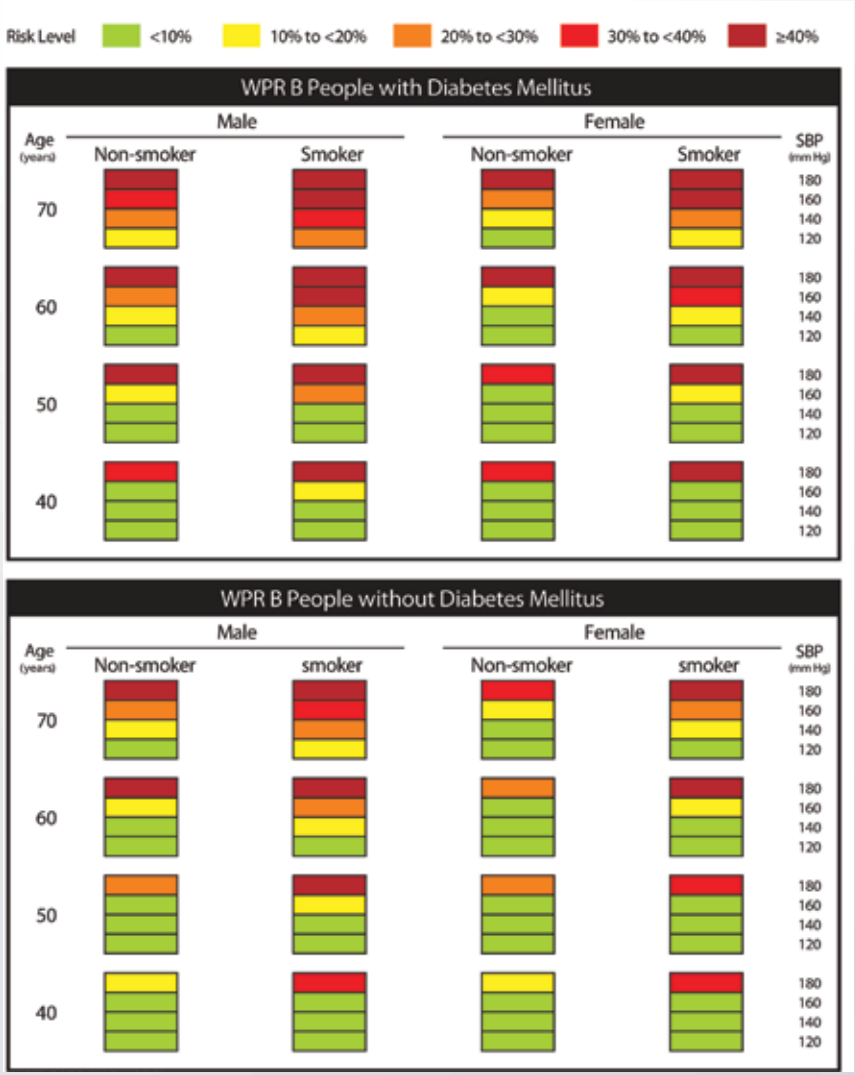
GROUP	MEN	WOMEN
Asymptomatic people WITHOUT known risk factors	Age 35 years	Age 35 years
People with known cardiovascular risk factors or high risk of developing diabetes: – Family history of diabetes (diabetes in first degree relative – brother, sister, parent) – Personal history of risk factors (smoker, diabetes in pregnancy, BMI > 30)	Age 30 years	Age 30 years
People with diabetes or high blood pressure	Annually from time of diagnosis	Annually from time of diagnosis

Use this chart where cholesterol test results are **NOT** available

WHO/ISH Risk prediction charts

for 14 WHO epidemiological sub-regions

WHO/ISH risk prediction chart for WPR B. 10-year risk of a fatal or non-fatal cardiovascular event by gender, age, systolic blood pressure, smoking status and presence or absence of diabetes mellitus.



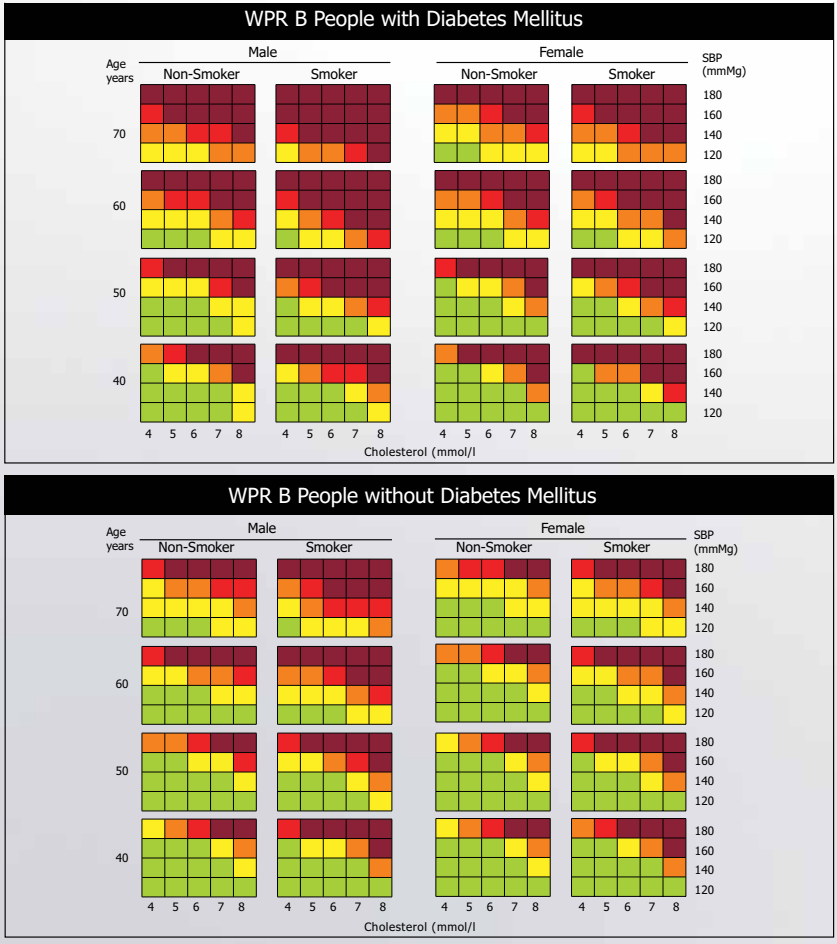
Use this chart where cholesterol test results **ARE** available

WHO/ISH Risk prediction charts

for 14 epidemiological sub-regions

WHO/ISH risk prediction chart for WPR B. 10-year risk of a fatal or non-fatal cardiovascular event by gender, age, systolic blood pressure, total blood cholesterol, smoking status and presence or absence of diabetes mellitus.

Risk Level <10% 10% to <20% 20% to <30% 30% to <40% ≥ 40%



What to measure and record for CVD risk assessment and diabetes screening

Everyone	History	• Age • Sex • Smoking status • Alcohol consumption: frequency and amount • Occupation/job • Physical activity level
	Family history	• Coronary heart disease or stroke, peripheral vascular disease (PVD) in first degree relative < 55 years • Type 2 diabetes
	Medical history	• History of CVD, diabetes, transient ischaemic attack (TIA), stroke and PVD • Kidney disease • Medicines the patient is taking
	Measure	• Blood pressure • Pulse • Weight, height, BMI • Fasting capillary blood glucose (FCBG) • Total cholesterol
Diabetes	History and examination	• Date of diagnosis • Type of diabetes • Record of capillary blood glucose
Estimate 10-year CVD risk	Use WHO/ ISH risk charts	Use age, gender, smoking status, systolic blood pressure, diabetes status (and total cholesterol if available).

Risk level			Follow-up schedule
	<10%	-	5 months
	10% to <20%	-	4 months
	20% to <30%	-	3 months
	30% to <40%	-	2 months
	≥40%	-	1 month

How to measure risk factors

Blood pressure

The average of two seated BP measurements is recommended for the initial risk assessment. This should be repeated on three separate occasions to obtain a baseline prior to the initiation of intensive lifestyle modification and/or drug treatment.

Smoking history

Current and past smoking habits should be recorded. For the purposes of CVD risk assessment, a non-smoker is defined as someone who has never smoked or who has given up smoking and not smoked for 12 months or more.

Measures of weight and obesity

Measure weight, height and calculate BMI (kg/m^2)

$$\text{BMI} = \frac{\text{weight (kg)}}{(\text{height})^2 \text{ (m)}}$$

BMI is not a direct measure of body fat.

People of smaller stature with a BMI < 25 kg/m^2, but with a large waist (indicating abdominal fatness) may still benefit from weight loss advice.

BMI
18.5 – 24.9 : normal weight
25.0 – 29.9 : overweight
>30.0 : obese

2. Cardiovascular risk factor management

The goal for everyone is to reduce 10-year cardiovascular risk.

- CVD risk > 10% reduce 10-year cardiovascular risk to < 10%
- CVD risk < 10% reduce risk with lifestyle interventions

CVD risk goals can be more easily achieved by reducing several risk factors at the same time.

Recalculate the risk at each review.

Targets for people with known CVD, diabetes or CVD risk > 10%:

- BP < 130/80 mmHg
- Fasting capillary blood glucose (FCBG) of <= 6.0 mmol/L
- Total cholesterol < 4.0 mmol/L

Who should be referred?

- CVD risk > 20%
- BP > 200/120 mmHg (urgent)
- BP > 140 or >90 mmHg in people < 40 years
- Known heart disease, stroke, TIA, kidney disease
- New chest pain or change in symptoms
- Target organ damage (angina, heart failure etc.)
- Heart murmurs
- BP > 140/90 mmHg in spite of treatment
- Protein in the urine (if tests available)
- Total cholesterol > 8 mmol/L
- Diabetes with poor control despite maximum metformin with/without sulphonylurea
- Diabetes with infection and/or foot ulcers
- Diabetes with recent deterioration of vision or no eye exam for 2 years

Recommended interventions, goals and follow-up based on CVD risk assessment

CVD RISK	LIFESTYLE	DRUG THERAPY	TREATMENT GOALS	FOLLOW-UP
> 20% risk calculated or CVD symptomatic	Intensive lifestyle advice on a healthy (cardioprotective) dietary pattern, physical activity and drug treatment	Aspirin Beta blocker Statin ACE inhibitor Smoking cessation	Efforts made to reach optimum risk factor levels	CVD risk assessment annually Risk factor monitoring every 3–6 months
CVD risk calculated > 20%	Intensive lifestyle advice on a healthy (cardioprotective) dietary pattern, physical activity and drug treatment	Aspirin and drug treatment of all risk factors – BP lowering, lipid modification, blood glucose control and support for smoking cessation	Risk factors treated to a level that will lower 10-year CVD risk to < 10% (on recalculating risk)	CVD risk assessment at least annually Risk factor monitoring every 3–6 months
10–20%	Specific individualised lifestyle advice on a healthy (cardioprotective) dietary pattern and physical activity Lifestyle advice should be given by PHC team for 3–6 months prior to initiating treatment	Aspirin and drug treatment of all risk factors – BP lowering, lipid modification, glycaemic control Support for smoking cessation Drug therapy indicated simultaneously with lifestyle advice for people with isolated risk factor levels*	Risk factors treated to a level that will lower 10-year CVD risk to < 10% (on recalculating risk)	CVD risk assessment at least annually Risk factor monitoring every 3–6 months
< 10%	General lifestyle advice on a healthy (cardioprotective) dietary pattern, and physical activity	Support for smoking cessation Non-pharmacological approach to treating multiple risk factors	Lifestyle advice aimed at reducing CVD risk	Further CVD risk assessment in 5 or 10 years

* People with isolated risk-factor levels (either total cholesterol > 8 mmol/L or blood pressure > 170/100 mmHg) should have these risk factors treated and their risk reassessed.

General lifestyle advice for people with 10-year CVD risk <10%

9 steps to a healthy heart	1. Enjoy three meals/day, include plant foods and fish; avoid fat, meat fat and deep fried foods 2. Choose fruits and/or vegetables often 3. Choose whole grains, peanuts, ngali nuts 4. Include fish, legumes (beans, soy), skinned chicken daily 5. Choose skim (low fat) milk 6. Use small amounts of oil, margarine, coconut cream 7. Drink plenty of water, limit soft drinks 8. Use small amounts of salt, sugar and oils when cooking 9. Avoid butter, deep-fried and fatty foods
Physical activity	A minimum of 30 minutes of moderately intense physical activity (e.g. brisk walking or swimming) most days of the week; do more if you can
Healthy weight	• BMI < 25
Quit smoking	Quitting smoking has major and immediate health benefits; follow the ABC approach: • A is for asking all people if they smoke • B is for giving brief advice to stop smoking • C is for cessation support Or follow WHO PEN Protocol 2 – Ask, Advise, Assess, Assist, Arrange
Limit alcohol consumption	MEN - not to exceed 3 standard* drinks per day WOMEN - not to exceed 2 standard* drinks per day *1 standard drink = 10 grams of alcohol Approximately 1 bottle /can of beer (4.8%) or 1 glass of wine (approx. 100 ml)

Blood pressure lowering

Within the BP range of 115/70 and 170/100 mmHg, all decisions to treat should be based on the individual's CVD risk.

Everyone with a BP > 170/100 mmHg should receive drug treatment and specific lifestyle advice to lower risk factor levels. If they smoke, they should be strongly advised to stop and offered smoking cessation support.

Most of the treatment benefit is achieved by reaching the following BP levels:

- < 140/85 mmHg in people without clinical CVD
- < 130/80 mmHg in people with diabetes or CVD and chronic kidney disease

Limit alcohol and salt consumption and recommend a healthy (cardioprotective) dietary pattern as an integral part of BP management. Aim for BMI of < 25, at least 30 minutes of moderately vigorous physical activity most days, reduction in alcohol consumption and reduction in salt consumption to < 5 gm/day.

Choice of blood pressure lowering medication

- A low dose thiazide diuretic is an acceptable option for first-line therapy in many people without contraindications.
- More than one drug is frequently required to lower BP to optimum levels.
- The conventional antihypertensive medications have similar efficacy in lowering BP, with the exception of beta blockers, which appear to be less effective.
- Low dose combination therapies can maximise effectiveness and help minimise side effects.

After myocardial infarction

- Beta blockers reduce total mortality, CVD mortality and morbidity.
- Treat ALL people post-MI with a beta blocker; consider adding an ACE inhibitor long term (regardless of BP level), especially if any left ventricular impairment.
- Give intensive lifestyle advice, and other medication such as aspirin and a statin.

After stroke and transient ischaemic attack

- All patients after a stroke or TIA, whether normotensive or hypertensive, should receive new BP lowering therapy for secondary prevention. The most direct evidence of benefit is for the use of an ACE inhibitor (alone or in combination with a diuretic).

3. Management of type 2 diabetes

(Refer to Solomon Islands Standard Treatment Manual for Adults 2011.)
Screening and diagnosis of type 2 diabetes

RESULT	ACTION	WHY
Symptomatic		
Fasting capillary blood glucose (FCBG) = > 7.0 mmol/L Random capillary blood glucose (RCBG) = > 11.1 mmol/L	No further tests required	Diabetes is confirmed
No symptoms		
FCBG = > 7.0 mmol/L Or RCBG = > 11.1 mmol/L And HbA1c > 7.0%	Repeat fasting plasma glucose	Two results above diagnostic cutoffs, on two separate occasions, are required for diagnosis of diabetes
FCBG 6.1–6.9 mmol/L	Advise on diet and lifestyle modification; if > 35 years, complete CVD risk assessment; repeat tests after 6–12 months	Results indicate 'prediabetes' or impaired fasting glucose
FCBG < 6.0 mmol/L	Retest at next CVD risk assessment interval	Normal result

Setting treatment targets

Setting treatment targets is an important component of diabetes management for all patients. Targets should be evidence-based but appropriate for individual patients.

The following are ideal targets:

- Fasting capillary blood glucose of <= 6.0 mmol/L.
- BP < 130/80 mmHg.
- Lipids: total cholesterol < 4.0 mmol/L.

Management of high capillary blood glucose

Target FCBG of <= 6.0 mmol/L.

LIFESTYLE MODIFICATION, food, physical activity and behavioural strategies (if treatment target not achieved in 3 months, drug therapy should be considered).

FIRST LINE DRUG THERAPY: Metformin – if metformin not tolerated or contraindicated ---> sulphonylurea (warn person about risk of hypoglycaemia).

(NOTE: Solomon Islands Adult Treatment Guidelines currently recommend metformin followed by glibenclamide in obese patients and glibenclamide followed by metformin in normal weight patients.)

Review medication adherence and dose optimisation.

If above target for > 3 months, start second line drug therapy.

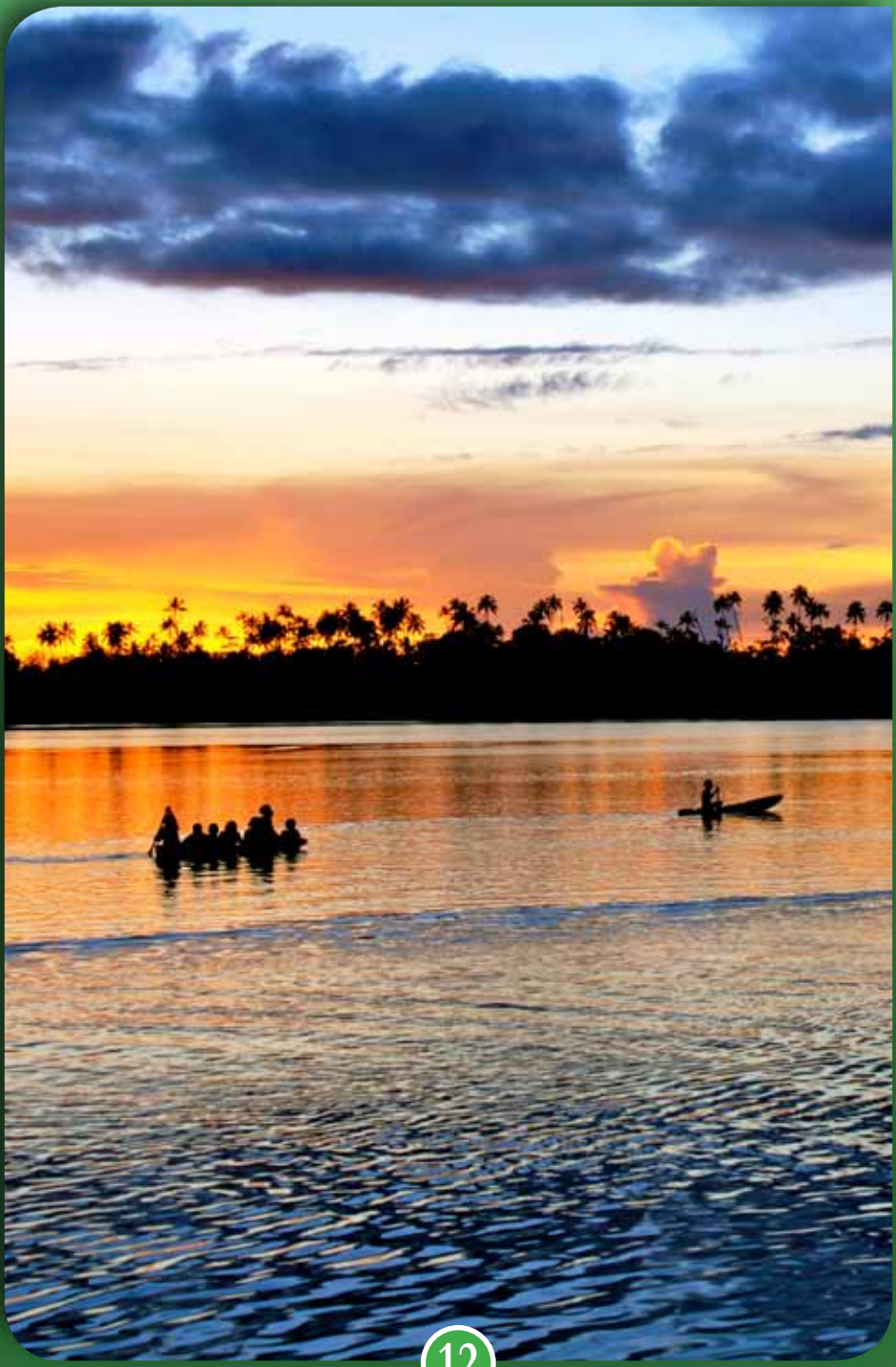
SECOND LINE DRUG THERAPY: Add sulphonylurea.

If metformin and sulphonylurea not tolerated or contraindicated, refer for medical assessment.

Review medication adherence and drug optimisation.

If above target for > 3 months –

THIRD LINE DRUG THERAPY: Refer for insulin.



4. Weight management

Overweight and obesity increase the risk of mortality and morbidity – particularly from CVD, some cancers, and type 2 diabetes – as well as other disorders.

Reducing the risks of excess weight is largely about changing lifestyle and behaviour.

STEP 1. Engage with the person and raise awareness.
Measure the BMI (refer to page 5) as part of routine practice for estimating CVD risk.

STEP 2. Identify needs and context for action.
If the person is in a high risk category, assess the person's reality and clinical needs.
Consider the person's family, culture, work, community, beliefs and values, weight-related concerns, age, sex, BP and lipid profile, co-morbidities and psychiatric history.
Discuss risks and motivations for action.

STEP 3. Determine options for action.
The most effective approach to weight loss uses three key interventions in combination, called the 'FAB approach':

- Changes to food/diet
- Increased physical activity
- Behavioural strategies

A realistic target for weight loss varies by individual. Benefits start to accrue when 5–10% of initial body weight is lost. Aim for a modest weekly weight loss.
Consider referral to a dietician, if available.

STEP 4. Arrange ongoing contact and support (once goal weight reached):

- Make arrangements to reinforce lifestyle changes through regular brief contact.
- Encourage person to do at least 60 minutes of vigorous physical activity per day.
- Encourage person to have strategies for managing weight regain.

5. Gout

Acute gout is common.

Most cases of acute gout are diagnosed and treated clinically.

Moderate lifestyle interventions may reduce the incidence of recurrent gout.

The risks and benefits of gout treatments should be carefully considered before starting drug treatment. Discuss these with an experienced clinician at the Provincial Hospital.

American College of Rheumatology preliminary criteria for the clinical diagnosis of gout

Six or more of these criteria are needed to make a diagnosis:

- More than one attack of acute arthritis
- Maximum inflammation developed within one day
- Attack of monoarthritis (single joint affected)
- Redness over joints
- Painful or swollen first metatarsophalangeal joint (big toe)
- Unilateral attack on first metatarsophalangeal joint (big toe)
- Unilateral attack on tarsal (foot) joint
- Tophus (proved or suspected)
- Hyperuricaemia (blood test is required)
- Asymmetric swelling within a joint on x-ray
- Subcortical cysts without erosions on x-ray
- Joint fluid culture negative for organisms during attack

Treatment of acute gout

Patients presenting with acute gouty arthritis who do not have significant renal impairment or peptic ulcer disease should be treated with one of the following:

- A non-steroidal anti-inflammatory drug (which ones available in AHCs)
- Adrenocorticotrophic hormone or steroids (in hospital)
- Colchicine

Prevention of recurrent gout

- Patients with gout who are obese (BMI > 28), or who have one or more alcoholic drinks per day, should be advised to lose weight or decrease their alcohol consumption, or both.
- When starting allopurinol in patients with major renal impairment, initially use a low dose (< 300 mg/day).
- When starting a urate lowering drug in patients with gout who do not have major renal impairment (see definition above) or peptic ulcer disease, coprescribe a non-steroidal anti-inflammatory drug or colchicine to reduce the incidence of rebound gout attacks.
- Patients with asymptomatic hyperuricaemia do not need treatment.
- Uricosuric drugs should not be used in patients with significant renal impairment (see definition above) or a history of renal stones.
- Patients with gout and either tophaceous deposits, gouty erosive changes on radiographs, or more than two attacks per year should be offered urate lowering treatment.
- Patients taking long-term preventive (prophylactic) oral colchicine who have major kidney impairment (see definition above) should have a full blood count and creatine kinase checked at least once every six months.

Lifestyle changes

Adherence to traditional low purine diets is poor and they are not usually recommended. Data from the health professionals study, however, suggest that the following relatively simple changes may have an impact on incidence of recurrent gout:

- Lose weight
- Eat one less portion of meat or fish a day
- Drink a glass of skimmed milk a day

6. Stroke and transient ischaemic attack (TIA)

Transient ischaemic attack is a medical emergency – people with a TIA are at high risk of early stroke.

TIA warrants urgent attention

- Risk of stroke can be as high as 12% at 7 days and 20% at 90 days.
- Half of the strokes will occur within 48 hours after TIA.
- 85% of strokes that follow TIA are fatal or disabling.

The ABCDD tool can identify people with TIA at greatest risk – usually those with unilateral weakness and/or speech disturbance, especially if symptoms last > 60 minutes.

Urgent assessment and intervention reduces the risk of stroke after TIA.

- Aspirin should be started immediately: 300mg stat and 75–150 mg daily.
- All people with suspected TIA should be assessed for their risk of stroke, including their ABCDD.*
- People at high risk include those with ABCDD scores of 4 or more. They require urgent specialist assessment and should be referred to hospital.

ABCDD tool: assessment of stroke risk after TIA

	ABCDD items (score 0–7)	Points
A	Age > 60 years	1
B	Blood pressure	1
C	Clinical features: Unilateral weakness, or Speech impairment without weakness	 2 1
D	Duration of symptoms: 60 minutes or more, or 10–59 minutes	 2 1
D	Diabetes (on medication)	1

Immediate secondary prevention measures are needed as soon as the diagnosis is confirmed. These measures should be initiated at the first point of health care contact to reduce risk of early stroke:

- Antiplatelet agent(s) – aspirin
- Blood pressure lowering agent
- Statin
- Smoking cessation

7. Heart failure

Congestive cardiac failure or heart failure is a syndrome, not a complete diagnosis. Common underlying causes of heart failure are:

- Valvular heart disease, usually as a result of rheumatic fever in childhood
- Ischaemic heart disease

Once heart failure has been diagnosed, the goal of treatment is to improve symptoms and signs and avoid or reduce hospital admissions. In the majority of patients with symptomatic heart failure, a diuretic is used first-line to reduce fluid overload. An ACE inhibitor and beta-blocker are then added, followed by spironolactone if the patient is still symptomatic. Other drugs such as digoxin can be added as required. Drug therapy for patients with heart failure will usually be initiated in hospital.

Management of patients with suspected heart failure

Patients who present with an acute onset of significant symptoms suggestive of a new diagnosis of heart failure usually require referral for hospital admission, especially if the patient has a history of ischaemic heart disease (IHD). Some people may present with a more gradual onset of symptoms and the findings from the history and examination will help guide the need for community or hospital management.

Management of patients with known chronic heart failure

Patients with known heart failure who present with symptoms reflecting a gradual deterioration of a previously stable situation are generally able to be managed in the community. Repeated hospitalisations in a patient with heart failure are associated with a poorer prognosis.

1. Start with a diuretic

In the majority of patients with symptomatic heart failure, the first-line medicine used is a diuretic, which will work to reduce fluid overload to improve the patient's symptoms.

A loop diuretic such as furosemide is recommended, as these are usually more effective than thiazide diuretics. A reasonable starting dose of oral furosemide for a patient in a community setting is 20–40 mg, once daily. The recommended starting dose for oedema is 0.5–1 mg, once daily.

2. Add an ACE inhibitor and beta blocker

The next step after the use of a diuretic is the addition of an ACE inhibitor (or an angiotensin-II receptor blocker – ARB) to reduce symptoms and a beta blocker to improve ventricular function.

Patients needing additional medication should be referred for assessment and treatment.

3. Non-pharmacological aspects of management of heart failure

Patient education and self-management are important aspects in the management of heart failure. Educate patients to be aware of their symptoms and how to manage them if their condition deteriorates. Many patients will be comfortable with modifying their doses of diuretic. Patients may also be able to gradually increase the dose of other medicines such as beta blockers, e.g. by increasing the dose by half a tablet at night and then waiting for a few weeks. A heart failure action plan can assist patients with self-management.

Encourage patients to:

- Weigh themselves daily, if possible.
- Participate in regular exercise, and if appropriate, suggest dietary measures to assist with fat weight loss (as opposed to fluid weight loss).
- Avoid an excessive intake of salt and alcohol.
- Monitor their fluid intake – fluid should be restricted to between 1.5 and 2 L/day in patients with moderate or more severe symptoms of fluid overload.
- Maximise adherence to medicines.

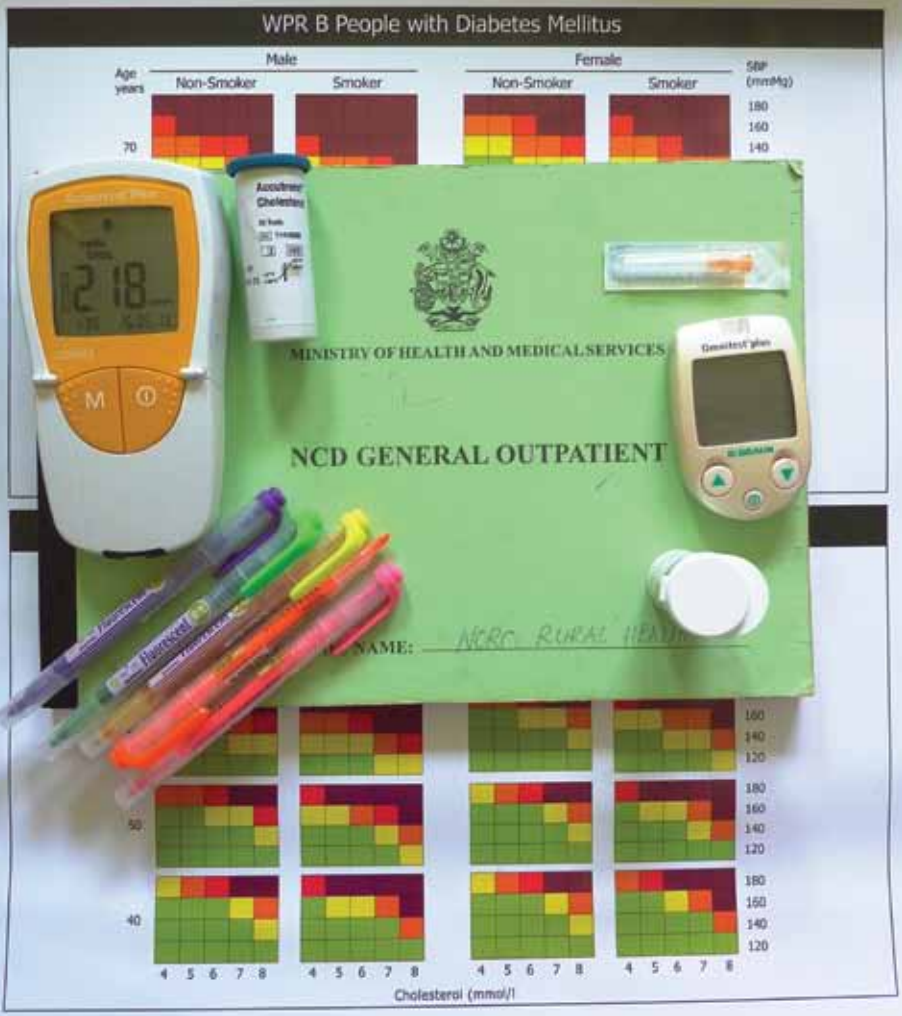
4. Review regularly

All patients with heart failure require regular review. If medicine doses are being gradually increased, monthly review is recommended. For patients who are stable on optimal doses of medicines, six-monthly review may be appropriate.

WHO/ISH Risk prediction charts

for 14 epidemiological sub-regions

Figure 26. WHO/ISH risk prediction chart for WPR B. 10-year risk of a fatal or non-fatal cardiovascular event by gender, age, systolic blood pressure, total blood cholesterol, smoking status and presence or absence of diabetes mellitus.



This chart can only be used for countries of the WHO Region of Western Pacific, sub region B, in settings where blood cholesterol can be measured (Cambodia, China, Cook Islands, Democratic People's Republic of Korea, Fiji, Kiribati, Lao People's Democratic Republic, Malaysia, Marshall Islands, Micronesia (Federated States of) Mongolia, Nauru, Niue, Palau, Papua New Guinea, Philippines, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu, Vietnam).

World Health Organization
Western Pacific Region