

Cardiovascular disease, Type 2 diabetes and hypertension in adults

CASE MANAGEMENT DESK GUIDE

Low income settings

Version 2. November 2013

COMDIS-HSD and partners

Use this guide for any adult patient in a health centre or in hospital out-patient department (non-referred), who has:

- **symptoms of cardiovascular disease (CVD) or hypertension**
Current symptoms need URGENT referral
- **symptoms of diabetes:** Passing more urine than usual, increased thirst, or recurrent infections (consider HIV first)
- **> 40 years old and looks overweight:** conduct opportunistic screening
- **a history of CVD:** either attending for a follow-up appointment or previously diagnosed but stopped treatment
- **a history of cardiovascular risk factors (see page 6)**

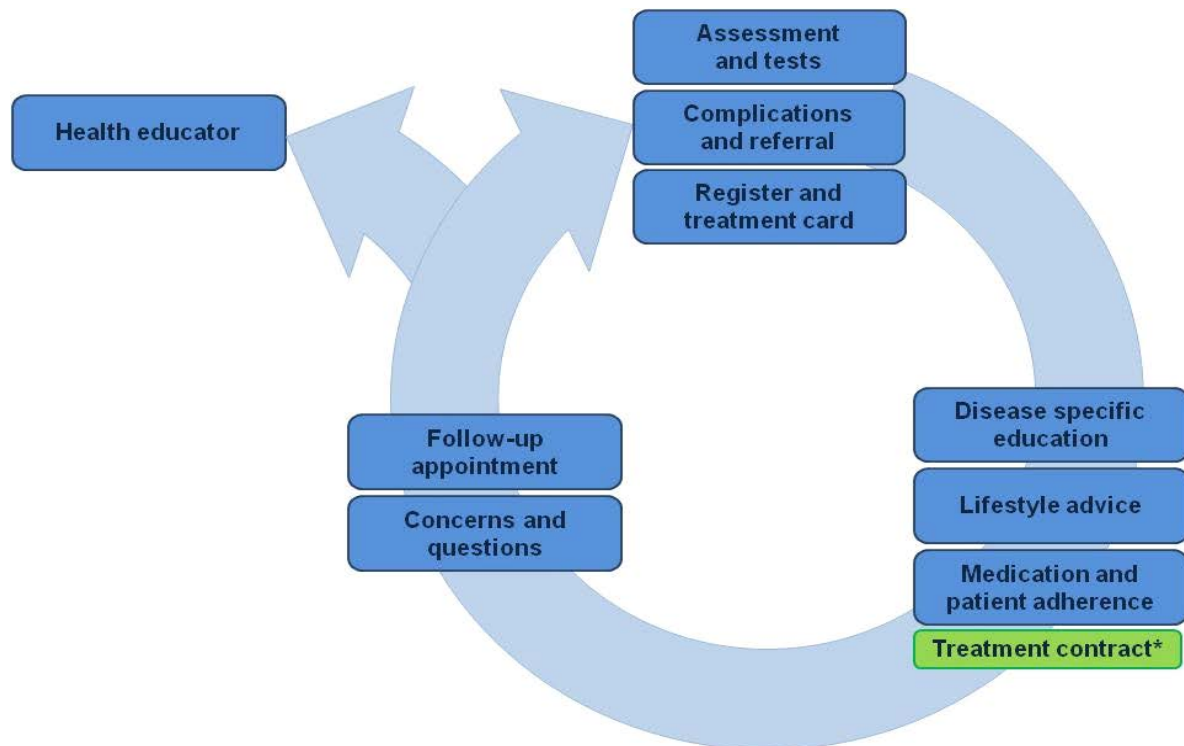
THE CHRONIC CARE MODEL

Each consultation for a patient with a chronic condition should follow the model as below.

The model has 4 parts:

1. consultation: this involves assessing and testing the patient, referring them where necessary and completing a register and treatment card
2. lifestyle advice: this involves disease specific education, lifestyle advice, support for medication adherence and setting up a treatment contract (on the first consultation only)
3. follow-up: this involves assessing the patient at a follow-up appointment and addressing their concerns and questions
4. counsel: send to a health educator/ counsellor if available, [or counsel yourself](#) at each of the initial consultations, then less frequently depending on progress.

We recommend that you complete each of the 4 parts as outlined. The first stage takes longer in the initial consultations.



Introduction

This is a Case Management Desk Guide for managing CVD, diabetes and hypertension in adults in low income settings.

These guidelines have been developed by COMDIS-HSD and adapted to many countries using a Technical Working Group (TWG) process. It will need further editing/adaptation in-country according to available resources: staff, drugs, basic equipment, tests (and units) before piloting, evaluation and scale-up of this guide in-country.

This desk guide is a concise 'quick reference' for doctors, clinical officers, medical assistants and nurses when providing routine care and health education to all patients. The initial assessment pages (p6-10) are designed to use with any adult who presents at a primary care facility e.g. health centre or district hospital outpatient department. The objective is to enable effective opportunistic screening, diagnosis and treatment of patients with CVD, type 2 diabetes mellitus, hypertension and underlying risk factors. The desk guide indicates when to use other guidelines, such as national treatment/clinical guidelines or WHO Integrated Management of Adolescent-Adult Illness (IMAI), to manage diseases that are not within the scope of this guide.

It provides a systematic approach to the monitoring patients with these diseases and preventing and identifying complications. It clearly indicates when to refer patients to a district hospital/ doctor. Non-complex cases can be referred back to continue routine care at the nearest health unit (and referral back if necessary).

It will help to educate patients about lifestyle measures and specific treatments so individuals can take responsibility for their own care. This Case Management Desk Guide only includes brief lifestyle education messages and is accompanied by a Health Educator's Desk Guide, for use by the health educator/clinician, training modules, a facilitator's guide, and a generic leaflet, NCD register and treatment card. [See http://comdis-hsd.dfid.gov.uk/](http://comdis-hsd.dfid.gov.uk/) to download the complete CVD Care Package.

This desk guide incorporates recommendations from WHO's Package of Essential Non-communicable Disease Interventions (PEN) for Primary Health Care (WHO, 2010b), WHO's CVD-Risk Management Package for low and medium resource settings, and IDF's Global Guidelines for Type 2 Diabetes (IDF, 2005). It has been produced by thoroughly reviewing current guidelines, systematic reviews and other relevant literature. [The text in blue highlights points which are likely to need adapting to the country or local-facility context.](#)

This desk guide was drafted by Professor John Walley, Drs Kirti Kain, Rachel Beanland, Kirstie Graham and Jessica Searle of LIHS/Nuffield Centre for International Health and Development, COMDIS-HSD, University of Leeds, UK. Contributions included from Professor Andrew Swai (MOHSW, Tanzania); Dr Kaushik Ramaiya (IDF/TDA); Professor Anthony Harries (IUATLD), Drs Slima Slim (Tunisia), Akan Otu (Nigeria), Ekta Elston and Sister Sweetness N (Swaziland); Professor Andrew Swai, Drs Auson Rwehumbiza, Shadrack Buswelu and Kaushik Ramaiya (IDF/ Tanzania); Silver Bahendeka, Ann R Akiteng and Gerald Mutungi (Uganda), Helen Yiffer (Ethiopia); Ntaganda Everist and Keberuka Vedaste (Rwanda); Jeanine Ayinkamiye and Melino Ndayizigiye (Burundi); Jemima Kamano and Jackari Ndegwa (Kenya), Malick Ajuma. Comments are welcome to Prof. John Walley at: j.walley@leeds.ac.uk

Acronyms

ACEi	Angiotensin converting enzyme inhibitors
ADA	American Diabetes Association
ARB	Angiotensin receptor blocker
BD	Twice a day
BG	Blood glucose
BP	Blood pressure
bpm	Beats per minute
CCB	Ca-Channel blocker
CHW	Community health worker
CVD	Cardiovascular disease
eGFR	Estimated glomerular filtration rate (kidney function)
FBC	Full blood count
FBG	Fasting blood glucose
GTT	Glucose tolerance test
HbA _{1c}	Glycosylated haemoglobin (measures previous 3 months control)
IDF	International Diabetes Federation
IGT	Impaired glucose tolerance test
IM	Intramuscularly
IMAI	Integrated management of adult and adolescent illness
IV	Intravenously
K	Potassium
Max	Maximum
MI	Myocardial infarction
NICE	National Institute of Clinical Excellence
NGO	Non-governmental organisation
OD	Once a day
OGTT	Oral glucose tolerance test
QDS	Four times a day
RBG	Random blood glucose
TB	Tuberculosis
TDS	Three times a day
TIA	Transient ischaemic attack
WHO	World Health Organisation
Yrs	Years

Contents

Introduction.....	3
Acronyms.....	4
Assessing general outpatients for CVD, diabetes and hypertension.....	6
Examine the adult patient.....	7
Diagnosing hypertension.....	8
Type 2 diabetes and hypertension	9
Managing hypertension.....	10
Anti-hypertensive drugs.....	10
Special circumstances.....	11
Managing the patient.....	12
Documenting	12
Lifestyle advice for all patients.....	12
Education for all patients	13
Diabetes type 2.....	14
Diagnosing type 2 diabetes	14
Oral hypoglycaemic drugs	16
Insulin (refer to doctor to initiate)	18
Things to tell your patients taking insulin	18
Diabetes Foot care	19
Foot care education.....	19
Diabetes patient education	19
Lifestyle advice.....	20
Hypoglycaemia.....	21
Treatment supporter	22
Appointment reminders	23
Example lifestyle education leaflet	24
Treatment card and contract	26
Diabetes annual review card.....	27
CHRONIC CARE: Diabetes/Hypertension/CVD/Epilepsy/ Mental D/o COPD/Sickle cell/ Cancer register	28
Referral form.....	29
Drugs for hypertension.....	30
Drug contraindications	31
Major side effects.....	32
Useful resources.....	33

Assessing general outpatients for CVD, diabetes and hypertension

*Cardiovascular disease (CVD) = angina, heart attack, TIA, stroke, peripheral vascular disease.

Ask the patient about the:

- presenting problem – allow them to describe it in their own words
- in addition to the symptoms and signs relevant to the presenting problem,

Also ask about:

- past history: including of CVD, diabetes, kidney disease, high cholesterol
- lifestyle risk factors: smoking, obese, age > 40 (or if pregnant, refer)
- family history of CVD, hypertension or diabetes in a first degree relative < 50 years
- current medications

If suspected CVD disease, hypertension or diabetes, also ask if they have had:

- any pain/pressure/heaviness in their chest, which
 - lasted more than 30 minutes (heart attack)
 - is brought on by walking/exercising
 - goes away after stopping exercise/resting (angina)
- one-sided: vision loss, or weakness or numbness of the arm/leg (TIA/Stroke)
- breathing difficulty and/or ankle swelling (heart failure)
- pain in the legs when walking, relieved with rest (peripheral vascular disease)

Refer urgently to the hospital if there are any symptoms now

If any symptoms **previously**, or is a known diagnosis of CVD, refer to a doctor for initial assessment.

Test for HIV and diabetes (see p19) if patient has any:

- thirst and frequency of urine (and dipstick urine if available)
- feeling weak, tired all the time
- recurrent infections; vaginal/underarm thrush, skin boils
- vision loss
- “pins and needles” in the feet

If patient has symptoms like **cough, fever, diarrhoea**:

- <2 weeks: consult national treatment guidelines or WHO IMAI
- >2 weeks: send 2 sputum samples to the lab for TB microscopy, and consider
- COPD, asthma (if wheeze) see national clinical guidelines

Examine the adult patient

If they **look very ill**, check signs of severe illness, and if any signs as below, **refer urgently** to hospital:

- respiratory rate >20/min, or
- pulse >100 bpm
- shock e.g. BP <90mmHg systolic
- very high BP >200mmHg systolic or >120mmHg diastolic
- fever >39°C, abdominal pain and guarding, chest pain, shortness of breath, altered consciousness with too low/ high glucose (<4mmol/l or >20mmol/l)

If **no signs** of severe illness examine as relevant to the presenting problem and possible causes of these,

Take BP - especially if >40 years, and if any risk factor or headache.

If **overweight** check waist circumference. If waist > 102cm (m) or > 88cm (w), explain about obesity risks, and refer to health educator.

Check random plasma blood glucose if:

- thirst and frequency passing urine (also do dipstick urine for white cells and nitrite)
- > 40 and family history of diabetes or CVD
- BP > 140/90
- personal history CVD, renal disease or TB
- lifestyle risk factors: age > 40 **and** if overweight/ obese or risk factor
- is pregnant (if FBG raised refer)

Diagnosing hypertension

If BP > 140/90 recheck after sitting for 5 minutes

Advise lifestyle changes for all patients with hypertension (page 12)

Follow up all patients each month until BP target reached, more frequently if severe or have complications

Once BP stable, follow up 3-6 monthly

BP < 140/90: No hypertension

- Give brief lifestyle advice
- Review in 1 year

BP 140-159/ 90-99: Stage 1 hypertension

- If a history of CVD, risk factors* or organ damage** start drug treatment immediately

*Risk factors:

- lifestyle risk factors: obese, age > 50 and smoker or high cholesterol or
- diabetes
- family history of CVD or diabetes (in a first degree relative < 50 years old)
- pregnant, refer

** Organ damage:

Large left ventricle of the heart on ECG
hypertensive retinopathy,
Kidney disease (raised creatinine or protein in urine)

- If **no** CVD, organ damage or risk factors – advise lifestyle changes (page 12) and review BP in 3 months, if BP is still high start drug treatment

BP 160-179/ 100-109: Stage 2 hypertension

- Advise lifestyle style change, and start drug treatment immediately.

BP > 180/ 110: Severe hypertension

- start drug treatment immediately and/or
- refer to next level (hospital/ doctor)

Type 2 diabetes and hypertension

BP >140/80:

- Start anti-hypertensive's (see next page)
- Offer a statin (if available or can afford)
- Offer aspirin 75 mg daily, once BP < 145/90 if:
 - >50 years, or
 - < 50 years and significant cardiovascular risk factors*

Target

Hypertension only < 140/90
Hypertension + Diabetes < 140/80mmHg

Age < 40 and BP >140/80:

- Refer for investigation of secondary causes of hypertension

Managing hypertension

Anti-hypertensive drugs

- If possible, offer drugs to take only once per day
- Start with lowest dose
- Increase doses step by step to maximum **tolerated** dose to achieve BP control
- See monthly until stable, then every 3-6 months; re-check BP and lifestyle changes
- Monitor potential side effects, if occur lower the dose or change the drug
- If on maximum, or highest tolerated dose, and BP not controlled, then add another drug

Step 1: Add thiazide diuretic

e.g. Hydrochlorothiazide 12.5mg (starting dose) [or bendrofluazide 2.5- 5mg] once daily

If BP not controlled, increase Hydrochlorothiazide dose to 25mg once daily (maximum dose)

If BP still not controlled go to step 2

Step 2: Add either an ACE inhibitor or a calcium channel blocker, as available

If BP still high increase dose step by step to maximum tolerated dose

if BP still not controlled go to step 3

Step 3: Add a third drug if maximum dose of two drugs, add whichever not used in step 2

Refer to hospital if:

- BP > 200/120
- Pregnant
- Symptomatic of CVD
- Urine dipstick positive (kidney disease)
 - microscopic haematuria or casts
 - proteinuria on 2 or more occasions
- BP still >140/90mmHg despite 3 drugs and lifestyle advice

Special circumstances

Renal disease, microalbuminuria

Adding drugs step by step

Step 1: **ACE inhibitor** AND either **thiazide diuretic** or **CCB**

Note, for Non- African patients: ACE inhibitor

If BP not controlled, titrate up dose in step by step

Step 2: Add either **thiazide diuretic** or **CCB**

If BP remains uncontrolled, increase dose step by step,

If is still not controlled

Step 3: Add whichever drug class not used in step 2

Other special circumstances

- Protein in urine, or known kidney disease, refer (or manage as above)
- Previous heart attack (MI) – ACEi and beta blocker
- Angina – beta blocker or CCB
- Heart failure – diuretics, beta blocker and ACEi
- Pregnancy – refer, for methyldopa or CCB (not ACEi)

Monitoring

- Monitor for side effects
- If on a thiazide diuretic, and is feasible, check urea, creatinine and electrolytes every 6 months
- If feasible, check urea, creatinine and electrolytes 2 weeks after starting an ACE inhibitor or increasing the dose, and with each annual check-up

Managing the patient

Give patient education including:

- Lifestyle advice
- Medication adherence
- Disease specific advice

Encourage them to use their treatment supporter

Documenting

- Document results and management on treatment card and patient notes
- Make follow up appointment and document
- Set annual review date at hospital and document
- Add to [NCD](#) register if new patient

Lifestyle advice for all patients

Give all patients a lifestyle education leaflet

Discuss the following with each patient:

Weight:

Advise all overweight patients to lose weight by increasing physical activity and healthy eating. [Aim for waist circumference <102cm in men and <88cm in women.](#)

Healthy eating:

Encourage individuals to eat less fat and salt and to increase their intake of fruit and vegetables, and if available fish each week.

Physical Activity:

Encourage existing activity and advise 30 minutes/day of physical activity

Alcohol:

Avoid or reduce alcohol; women one drink and men maximum two *drinks*, e.g. two small bottles of regular beer (have two days alcohol free per week).

Smoking (if applicable):

Encourage all patients who smoke to give up smoking. Advise patients that quitting smoking is the single most important thing they can do to protect their heart and health.

Encourage all non-smokers not to start smoking.

Education for all patients

Reinforce messages at all appointments.

Add additional information as required e.g. change in medication.

Use local, simple and clear language.

Give the patient an education leaflet.

Ask patient to repeat key points and ask if they have any questions.

Send to see the [health educator/ counsellor or expert patient](#)

Remind patient:

- name and dosage of each tablet
- to take tablets as prescribed, at the same time each day
- not to take someone else's tablets
- if they forget to take a tablet, not to take an extra dose next time
- only change tablets when the health worker advises them
- of side effects ([see p32](#)) and to tell the health worker if they experience any

Patient adherence

Explain to the patient the importance of attending clinic appointments and taking prescribed medication.

Discuss and ask them to sign the treatment contract.

Explain the importance of a treatment supporter.

Tell the patient that if they miss an appointment a reminder will be sent or an attempt to contact them will be made.

Give the patient an education leaflet.

Send the patient to the [health educator/ counsellor or expert patient](#).

Hypertension patient education

Inform patients:

- Hypertension is a life-long condition, but [treatable/controllable](#) with lifestyle changes and medication.
- Diabetes and hypertension are linked diseases - patients with diabetes can develop hypertension and the other way around.
- A healthy diet, increased physical activity, no smoking, and less alcohol are essential.
- Without treatment, there is increased risk of stroke, heart attack, vision problems, disease of your blood vessels, kidney failure and death.
- Cannot give hypertension to another person, (though relatives/ children are at increased risk).

Encourage patients to share the message about healthy eating and increased activity with their relatives, to reduce their risk of hypertension and other chronic diseases.

Diabetes type 2

Diagnosing type 2 diabetes

Check blood glucose (BG) – either random blood glucose (RBG) or fasting blood glucose (FBG).

If blood glucose not available, test urine glucose.

No diabetes:

- if RBG < 7.8 mmol/l (140mg/dl)
- if FBG < 5.6mmol/L (100mg/dl),

Give lifestyle advice (see p12) and do not follow up patient unless other reason.

Diagnose diabetes if:

- RBG \geq 11 mmol/L (200mg/dl) (in the presence of classical symptoms)
 - Confirm the diagnosis with a FBG, especially if not classical symptoms
- FBG \geq 7 mmol/l (126mg/dl)
- two tests e.g. an RBG and then FBG, or 2 x FBG, must be high to diagnose diabetes

if RBG is between 7.8 - 11 mmol/l (140 - 200mg/dl)

- do **FBG the next morning.**

Diagnose “impaired fasting glucose” (“pre-diabetes”) if FBG is between 5.6 - 6.9 mmol/L (100 - 125mg/dl)

- Inform patient they may develop diabetes in future
- Advise lifestyle changes (p12)
- Check blood glucose every year (or every 6 months if they have CVD)

If pregnant:

Diagnose gestational diabetes if FBG > 5.1 mmol/l (92 mg/dl), refer to hospital/ doctor

Managing diabetes

At every appointment, for all patients with diabetes:

- Ask to come fasting, on arrival do FBG, then can eat and await consultation if not fasting do RBG (preferably about 2 hours after eating)
- Check BP if > 140/80 (see p 9)
- Perform HbA_{1c} at diagnosis and 2-6 monthly (normal HbA_{1c} <6.5) if available/ affordable

Monitoring before the next appointment

At home or nearby clinic, test before breakfast and 2 hours after a meal once per week
- or say to do more often if poor control (above target), or is on insulin

Ask patients to write in an exercise book

As can afford, test either:

- Buy a glucometer and strips - and do their own blood glucose, or
- Attend a nearby clinic, for a glucose test, or
- Do urine dipstick before breakfast; for glucose, ketones and/or protein

Each consultation

- Advise lifestyle changes (see p12)
- Give patient education (see p13)

At diagnosis of diabetes

Start with lifestyle change, and medication – however, *if* glucose is not too high **and** the patient is committed, then try lifestyle change alone for the first few months.

Decide target level for blood glucose reduction (a higher target level if elderly, end organ damage or unacceptable hypoglycaemia as a side effect)

	Normal	Target, range mmol/l
HbA_{1c} (if available)	< 5.7% (42mmol/l)	<7.0% (53 mmol/l)
Fasting blood glucose	5.5 (100 mg/dl)	5 - 7 (90-130 mg/dl)
Random, ie, post meal blood glucose	7.8 (140 mg/dl)	8 - 10 (140-180 mg/dl)

Give education about lifestyle changes

Oral hypoglycaemic drugs

- Start with lowest dose and increase in step by step to achieve control **of the** blood glucose (BG) level
- Check contraindications (p31)
- Monitor possible side effects (see p32).
- If BG not controlled increase up to the max dose, but if side effects, go back to the tolerated dose, and
- add the next step drug, and so on until control of BG.

Step 1: Add Metformin (500mg tablet) once daily after dinner, review after 2 weeks

If tolerated add one 500mg tablet with breakfast, increase by a tablet every two weeks, up to a maximum of 1g twice a day.

Recheck fasting glucose each visit [or HbA1c after 3 months](#).

If BG not controlled add step 2 drug.

Step 2: Add a Sulphonylurea, such as Glibenclamide (also use as step 1 if metformin contraindicated or not tolerated):

Glibenclamide 5mg (2.5mg elderly) once daily 30 minutes before breakfast for 2 weeks

If well tolerated add a 5mg tablet (2.5mg elderly) before dinner, and increase by one tablet every 2 weeks - up to a max 10mg twice a day (30 mins before food)

Recheck BG every visit

If at the max tolerated dose, and not at target – refer to hospital/ doctor to consider insulin

[Other sulphonylurea options for step 2:](#)

[Gliclazide 40-80mg once daily \(max 320mg daily in divided dose\)](#)

[Glimperide 1mg once daily \(max 8mg\)](#)

[Glipizide 2.5-5mg once daily \(max 40mg\)](#)

[Tolbutamide 0.5g daily \(max 2g\)](#)

[If above drugs not tolerated, use Acarbose 50mg daily \(max 200mg TDS\)](#)

Step 3: If BG not controlled, refer to hospital/doctor to consider insulin.

Follow up

- Check FBG (or if not fasted then RBG), BP and urine dipstick at each appointment
- If BG at target level, follow up [3 monthly](#)
- If BG not at target level: review adherence, side effects, adjust dose and follow up monthly; consider referral if still not at target.

Also:

- Ask if any new or worsening symptoms
Ask about symptoms e.g. vision change, pins and needles or numbness, foot problems if a symptom, examine.
- Ask type of contraception and whether planning pregnancy.

- Reinforce the lifestyle, disease and adherence (see p12-13), refer to counsellor/ educator

At 1 year in addition to the list above:

- Ask about change to vision/vision loss; [use vision chart, look for cataract, examine retina, refer to ophthalmologist if available.](#)
- Ask about any foot problems and assess the condition of the feet; [check sensations, foot pulses and footwear.](#)
- Ask about pins and needles, numbness in legs and poor erections; [check for peripheral sensation loss.](#)
- Ask type of contraception and whether planning pregnancy.
- Discuss knowledge and beliefs of diabetes, foot care, glucose monitoring.
- Discuss progress with lifestyle changes.

Send to the counsellor/ educator [or expert patient](#), as available.

Refer to hospital any patient (at any visit) with:

- Pregnancy (for review and likely switch to insulin)
- leg ulcers and/or infection
- vision loss (retinopathy, cataract)
- pins and needles/numbness in hands and feet (neuropathy).
- urine dipstick +ve
 - proteinuria on 2 or more occasions
 - ketones ++
- [creatinine >1.4mg/dl \(160 µmoles/L\) or rise of more than 10% from previous level or low or falling eGFR < 45mls/min/1.73m² \(severe kidney disease\), stop metformin and refer](#)
- any child diagnosed with diabetes

Insulin (refer to doctor to initiate)

Insulin is started when not controlled on oral drugs. When adding insulin metformin can be continued, but sulphonylurea is phased out.

When initiating insulin review after 3 days, weekly, then monthly, then when controlled 3 monthly. Do a FBG at every visit, also checking use of insulin etc.

When monitoring, if available ask/ ring the doctor for advice.
If problems, and feasible for the patient to go, refer to hospital.

Before starting insulin consider:

- Is patient/treatment supporter willing and capable to start insulin? Do they have good vision, use of hands to use appropriate device?
- Can insulin be stored at home? (Cool dry place/fridge away from heat sources)
- Is glucose monitoring available at clinic or home?
 - If no, use long acting insulin once a day.
 - If yes, use in the following order until BG controlled:
 - long acting OD
 - mix of short/intermediate acting BD
 - short acting TDS
 - short acting TDS and long acting OD

Insulin dosage and frequency depends on:

- their job, meal and sleep times, weekend activities, etc.
 - If regular meals and activity give insulin twice a day (BD)
 - If not, insulin TDS or even QDS may be needed
- Weight – heavier people need more insulin
- Duration/phase of diabetes – more insulin if advanced diabetes
- Sites for injection (as preferred by patient):
 - subcutaneous injection into stomach; or
 - outer part of thighs,
 - upper arm (deltoid area),
 - upper outer buttocks
 - rotate injection sites to reduce insulin injection site damage

Any site: inject at 90 degree angle (or at 45 degrees if patient is thin)
- Increased physical activity – reduce the insulin
- Infections/ illnesses – increase insulin (but reduce insulin if reduced food intake eg as reduced appetite)
- Other treatments (beta blockers etc)

Things to tell your patients taking insulin

- The sites they may choose to inject (as above).
- Patients are more likely to gain weight.
- Patients are more likely to get low glucose (hypos) with insulin.
- Patients may get swollen ankles.
- It is important to take insulin even if unwell or not eating, but the dose may need to be altered.

Diabetes Foot care

At **diagnosis and annual review** or frequently where known problem:

- Inspect both feet for any ulcers or deformity
- Test foot sensation with [monofilament and tuning fork/gross sensation](#)
- Palpate for foot pulses
- Inspect footwear

If any ulcer or new foot deformity, refer to [hospital/doctor](#).

Patients with reduced sensation or absent foot pulses are high risk of acquiring foot disease.

Foot care education

- Do not walk with bare feet
- Make sure shoes fit properly and do not cause shoe bites. Advise to buy footwear in the evening when foot size is biggest
- Wash and dry your feet regularly
- Check your feet regularly for any broken skin. If any new broken skin, go [to health facility](#) to be seen, even if painless
- Do not cut calluses or corns – go to the clinic for treatment
- If you have numbness in feet, be careful near fires and hot water

Diabetes patient education

Inform patient:

Diabetes is when the body cannot properly use the foods we eat, especially sugar due to lack of insulin.

- Treatment is life-long.
- A person cannot give diabetes to another person. However, relatives, particularly their children, are at increased risk and they must take preventive measures, as advised to the patient.
- Blood sugar control, a healthy diet and enough physical activity are essential.
- If blood glucose is not controlled, it can cause blindness, kidney failure, heart disease, strokes, diseases of your blood vessels, impotence, and leg ulcers.
- Diabetes and hypertension are linked diseases.
- Patients with diabetes can develop hypertension and the other way round, especially if overweight.
- High blood sugars in pregnancy can damage unborn babies.
- Patients with diabetes have a high risk of infection, including TB, and any cough of more than 2 weeks **must be** investigated.

Lifestyle advice

Give lifestyle advice, as page 12.

Including to encourage patient to:

- reduce weight, if overweight
- eat a healthy balanced diet,
- take regular physical activity (30 minutes per day)
- stop smoking.

Hypoglycaemia

Risk of hypoglycaemia (too low blood sugar) if:

- on insulin and sulphonylureas
- drinking alcohol
- missed, small or delayed meals
- vigorous activity.

Symptoms of hypoglycaemia

- headache
- dizziness
- anxiety
- weakness
- shakiness
- fast heartbeat
- hunger
- irritability
- cold sweat (moist skin)
- confusion
- loss of consciousness

If alert:

- Drink a sugary drink, eat a sweet or a tablespoon of sugar/honey (placed under the tongue), and then a snack e.g. bread

If not alert/unconscious:

- If available give hypertonic glucose IV
- **Urgently refer to hospital.**

Hyperglycaemia

Check BG if poor glucose control, and/or they become ill, or a recurrence of diabetes symptoms, such as thirst.

If BG ≥ 18 mmol/l (**300 mg/dl**) refer urgently to hospital. Before they leave:

If possible, give IV drip quickly, 1 litre of normal (0.9%) saline over 30 mins - 1 hour.

Encourage them to drink water, as much as possible, on the way

Treatment supporter

Explain to patient why a treatment supporter is important:

- Treatment is life-long, support is essential.
- It can be difficult to remember to take tablets regularly, but it is vital to continue treatment.
- A treatment supporter is someone they can talk to easily and who will encourage them to continue with treatment.
- It is their choice who will be their treatment supporter. The treatment supporter will be called if they cannot be contacted or if there is a problem.

Discuss who would be the best treatment supporter. It must be someone concerned, trusted and committed to providing support.

Help the patient choose someone e.g. family member, friend or community volunteer. If patient cannot decide, suggest someone.

Record name, address and mobile phone number of patient and treatment supporter on the patient's treatment card (see below).

Ask the patient to bring treatment supporter with them for all clinic visits, to learn about the illness, treatment and their role.

Advise treatment supporter to:

- meet with the patient often, try to make this an enjoyable time. If possible, meet at the time the patient takes their tablets to see them taking the tablets as prescribed.
- look at tablet pack to check the patient is taking tablets correctly.
- inform health worker if the patient stops taking the tablets.
- encourage the patient to be active, eat healthily, stop smoking as needed and attend appointments.

Appointment reminders

If an individual fails to attend a review appointment, **take action**.

- **Phone** patient and encourage them to return.
- **Phone** treatment supporter and ask them to remind patient.
- **Ask** someone e.g. CHW to home visit if patient does not return.

If patient is not adhering to treatment or attending appointments:

- do not criticise
- discuss any concerns or difficulties
- encourage the patient and treatment supporter to continue with support and attending appointments
- remind patient of treatment contract and the importance of continued medication

If patient has stopped medication:

Check BP (see p8) and do lab tests as appropriate.

If results are high, review and start again as if new patient (see p6)

Example lifestyle education leaflet

If you have hypertension, diabetes and cardiovascular disease improving your health is still important.

Hypertension is when your blood is at a higher pressure than normal.

You cannot give hypertension to someone else.

It is a lifelong condition that can be treated with medication and lifestyle changes.

If it is not treated, it can cause stroke, heart attack, kidney failure and death.

Type 2 Diabetes is when the body cannot use the food you eat, especially sugar.

You cannot give diabetes to someone else.

It is a lifelong condition that can be treated with medication and lifestyle changes.

If it is not controlled, it can cause blindness, kidney failure, heart disease, disease of your blood vessels, poor erections and leg ulcers.

High blood sugars in pregnancy can damage your unborn baby.

Patients with diabetes can develop hypertension and the other way round, especially if overweight.

Attending the clinic and taking medication

It is important that you attend your appointments at the health clinic to see the doctor and the health educator.

Take a friend or family member (treatment supporter) with you to all your appointments.

It is important that you take your medication as given by the doctor, even if you feel well.

Do not miss doses of your tablets.

If you miss a dose do not take a double dose.

Do not share your tablets with other people.

If you think you are experiencing side effects, contact the health clinic.

If you have any questions about how to improve the way you live or the illnesses in this leaflet, please contact your local health facility.

Address:

Telephone no.:

Doctor/Health educator:

Date of preparation: Jan 2012

How to live a healthy life

A healthy diet, increased physical activity, not smoking and less alcohol are essential to improve your health and to prevent diseases like hypertension and diabetes

There are many ways that you can improve your health

Stopping smoking

Giving up smoking is the most important thing you can do to protect your heart and health.

If you smoke, you are more likely to have heart attacks, strokes, kidney disease, peripheral vascular disease and poor erections.

Other forms of tobacco are also bad for your health.

Smoking in the home can be harmful to your family.

If you want to quit smoking, it is important that you have support from your doctor and family.

Eating healthy food

Improving your diet can improve your health.

Eating unhealthy food can cause heart disease and strokes.

Try to:

- Eat locally available healthy food.
- Eat 3 regularly spaced meals per day.
- Drink water instead of tea or sugary drinks.
- Eat less fat i.e ghee.

- Use vegetable oil for cooking <1 tablespoon/day.
- Grill or boil food; avoid fried food.
- Eat fish and chicken rather than red meat, remove visible fat.
- Eat at least 5 fruit or vegetables every day.
- Add less salt when cooking.
- Avoid ready made or street food, home cooked is better.

Being active

Increasing physical activity will help keep your heart healthy.

A lack of physical activity increases your chance of having a stroke, heart attack and dying.

Try to do 30 mins/day of activity that makes you out of breath:

- Manual work e.g. farming
- Fast walking
- Cycling
- Use stairs rather than the lift
- Sports

Reducing alcohol intake

Reducing the amount of alcohol you drink will reduce the chance of developing heart disease.

Long term alcohol intake will cause heart disease, stroke and liver disease.

It is important to try to drink less than 3 units each day (1.5 pints of beer, 1 large glass of wine, 75ml of spirits).

If you have diabetes, alcohol can make you very ill with low blood sugar (especially if you are on insulin or sulphonylurea tablets).

If you want to change any of the behaviours discussed then please talk to your doctor.

Treatment card and contract

CVD/Hypertension/Diabetes CARE CARD			
NAME:	SEX:	DOB:	Date first visit:
Village:	Unique number:		Treatment Supporter:
Ward:	Phone:		Relationship:
District:	Nearest dispensary:		Telephone:
Treatment contract: <i>I understand that I have I agree to attend all appointments, take my medications, be active, eat healthily and stop smoking.</i>			
Patient's signature:		Health worker's signature:	Date:

Date	SYMPTOMS Complications	Waist: ≤102cm (M) ≤88cm (W)	Blood Pressure ≤130/80 mmHg	Urine Dipstick (proteins/ketones/glucose)	Random blood Glucose ≤11mmol/l	Fasting blood Glucose ≤8mmol/l	Additional tests (i.e. HbA1c, chol, creatinine)	Disease education given?	Brief lifestyle advice given?	Education leaflet given?	Referred to health educator?	TREATMENT New drugs started, drugs stopped, side effects, advice	Date of next appointment	LIFESTYLE ADVICE Lifestyle to be addressed. Notes on progress.

Diabetes annual review card

DIABETES ANNUAL REVIEW CARD			
NAME:	SEX:	DOB:	Date of diagnosis:
Village:	Unique number:		Treatment Supporter:
Ward:	Phone:		Relationship:
District:	Nearest dispensary:		Telephone:

Date	Vision loss/change Y/N /	Visual acuity e.g. 6/6	Fundus Normal? Y/N	Erectile problems Y/N	Planning pregnancy?	Feet examination Normal? Y/N			HbA1c <7%	Creatinine <100umol/l	Total cholesterol <5.2mol/l	Triglycerides <1.7mol/l	COMMENTS symptoms, examination, tests to do, advice given
						Touch	Vibration	Pulses					

CHRONIC CARE: Diabetes/Hypertension/CVD/Epilepsy/ Mental D/o COPD/Sickle cell/ Cancer register

Entry Type (N/T/F)	Unique Number	Name	DOB	Sex	Address		Diagnosis		Date registered
					Telephone number		Primary	Other	
N	XXXXX	PETER MBARUKU	01/09/58	M					

Name of Health facility: _____ District: _____ Ward: _____

ATTENDANCES (Enter date for each appointment attended)											
Indicate if visit is to the health educator (HE) for lifestyle interventions. If appt with health worker and health educator occur on the same day, add 2 entries. Add codes LOST lost to follow up, DEAD, died, TOUT, transferred out.											

Note for Entry: N = New Patient; T = Transfer from another facility; F = Re-entry when a previous row is full (after 12 attendances)
 Primary diagnosis – initial diagnosis i.e. hypertension, diabetes or pre-diabetes
 Other diagnosis – hypertension, diabetes, CVD (include specific condition i.e. heart failure)

Note: These two pages will be printed side by side, one patient one row.
 The number of attendances in one row (12) is sufficient for three years, assuming one visit every three months.
 When the row is full, a follow up entry should be added at the next available row in the register, with an entry type of "F".
 The number of rows per page will depend on the length of the book chosen. **Ensure rows are properly aligned.**

Referral form

Transfer to				Transfer from			
Name of health facility				Name of health facility			
District				District			
Date of transfer				Clinician			
Patient details				Treatment supporter			
Patient identifier				Relationship to patient			
Name				Name			
DOB				Contact details			
Sex							
Contact details							
Patient history							
Date first attended							
Primary diagnosis							
Secondary diagnosis							
Complications							
Current medications							
Recent clinical notes							
BP							
Wt							
BG							
Urine dip							
Other							
Reason for transfer							

Drugs for hypertension

ACE inhibitors (ACEi)

Enalapril 5mg OD (max 40mg OD)

Angiotensin receptor antagonist (ARB)

Losartan 50mg OD (max 100mg OD)

Alternatives: Candesartan 8mg (max 32mg OD)
Irbesartan 150mg (max 300mg OD)
Valsartan 80mg OD (max 320mg OD)

Calcium channel blocker (CCB)

Amlodipine 5mg OD (max 10mg OD) or
Nifedipine retard 20mg daily (max 80mg)

Diuretics

Hydrochlorothiazide 12.5mg daily (max 25mg daily)

If heart failure, use Furosemide. 20mg daily (max 80mg).

If K <4.5mmol/l and optimum eGFR add Spironolactone 25mg daily.

Beta Blockers (BB)

If history of angina/MI add Atenolol 2nd line 25mg daily (max 100mg)

If pregnant, Methyldopa 250mg BD/TDS (max 3g/daily)

Drug contraindications

Drugs	Contraindications
Thiazide diuretic	gout
Beta blockers (BB)	asthma chronic obstructive airways disease second/third degree heart block bradycardia <50/min Raynaud's
ACE-inhibitor (ACEi)	pregnancy hyperkalaemia bilateral renal artery stenosis angioedema
Ca-Channel blocker (CCB)	congestive heart failure severe left ventricular dysfunction aortic stenosis second/third degree heart block
Aspirin	peptic ulcer (and caution if dyspepsia)
Metformin	severe renal damage (eGFR <30) hepatic disease cardiac failure chronic hypoxic lung disease (severe COPD)
Sulphonylureas	[Glibenclamide OK] others pregnancy or breast feeding cautious use in elderly due to risk of hypoglycaemia

Major side effects

Drugs	Major side effects
Thiazide diuretic	muscle weakness (low potassium) increased serum cholesterol impaired glucose tolerance/diabetes impotence fatigue
Beta blockers (BB)	worsening of congestive heart failure swelling of face, mouth, hands or feet difficulty breathing (COPD and asthma) worsening calf pain (peripheral vascular disease) hypoglycaemia (can be masked in diabetes) weight gain depression impotence worsening dyslipidaemia in diabetes
ACE-inhibitor (ACEi) (especially with first dose)	cough difficulty in swallowing or breathing allergic reaction (sneezing, nasal congestion, itching or skin rashes) abdominal pain or swelling fainting, drowsiness, weakness or fatigue fast heartbeat headache nausea or vomiting diarrhoea abdominal cramps , pain or distension joint and chest pain foetal abnormalities high blood potassium hypoglycaemia
Ca-Channel blocker (CCB)	ankle swelling constipation fluid retention heartburn stomach pain
Aspirin	heartburn nausea and vomiting gastrointestinal tract complications, bleeding and ulcers haemorrhagic stroke aspirin-induced asthma diarrhoea
Metformin	weight loss fast and deep breathing (lactic acidosis) hypoglycaemia
Sulphonylureas	weight gain water retention foetal abnormalities miscarriage

Useful resources

WHO Model Formulary 2008

www.who.int/selection_medicines/list/WMF2008.pdf

British National Formulary

<http://www.bnf.org/bnf/>

WHO Integrated Management of Adolescent and Adult Illness (IMAI)

- Acute care:

www.who.int/hiv/pub/imai/en/IMAIAcuteCareRev2.pdf

- General principles of good chronic care: www.who.int/hiv/pub/ [HYPERLINK](#)

["http://www.who.int/hiv/pub/imai/generalprinciples082004.pdf"](http://www.who.int/hiv/pub/imai/generalprinciples082004.pdf) [HYPERLINK](#)

["http://www.who.int/hiv/pub/imai/generalprinciples082004.pdf/"](http://www.who.int/hiv/pub/imai/generalprinciples082004.pdf/) [HYPERLINK](#)

["http://www.who.int/hiv/pub/imai/generalprinciples082004.pdf"](http://www.who.int/hiv/pub/imai/generalprinciples082004.pdf) [HYPERLINK](#)

["http://www.who.int/hiv/pub/imai/generalprinciples082004.pdf"](http://www.who.int/hiv/pub/imai/generalprinciples082004.pdf) [HYPERLINK](#)

Other IMAI publications

www.who.int/hiv/pub/imai/en/index.html