



United Republic of Tanzania
Ministry of Health and Social Welfare

Chronic Non Communicable Diseases

**Cardiovascular Disease,
Type 2 Diabetes, Cancer
and COPD in adults**

Case Management Desk Guide



Tanzania Diabetes Association



World Diabetes Foundation

Desemba 2013



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FOREWORD

Non-communicable Diseases especially cancer, cardiovascular, chronic respiratory diseases and diabetes continue to be the leading and increasing causes of morbidity and mortality worldwide. In 2011 the United Nations urged member states to mount control program against Non-communicable Diseases and subsequently the World Health Organization has elaborated voluntary targets for countries to adopt.

The Non-communicable Diseases situation in Tanzania shows rapidly raising rates of diabetes from around 1% - 3% in the 1980s to around 9% in 2012 and of hypertension from around 5% - 10% to 27%. This is alongside the heavy burden of communicable diseases due to HIV/AIDS, malaria, tuberculosis, etc. The Ministry of Health and Social Welfare together with partners are committed to take all the necessary measures within our reach to minimize the burden through a comprehensive integrated approach including the promotion of healthy lifestyles.

This manual includes tested measures, both curative and preventive, and has been adapted for use by our primary care workers in the Tanzanian environment. It should thus facilitate prevention, early detection and quality clinical care for people with Non-communicable Diseases at the primary care level.

It is therefore hoped that this guideline will provide a much-needed impetus to the Health Care Providers in addressing the challenges associated with proper management of patients at the points of care.



DR DONAN W MMBANDO
CHIEF MEDICAL OFFICER

ACKNOWLEDGMENTS

This guideline is a collaborative effort of Ministry of Health and Social Welfare and the Tanzania Diabetes Association with funding from the World Diabetes Foundation under the National Diabetes Program.

The Ministry of Health and Social Welfare would like to acknowledge and express its sincere gratitude to the technical staff of the Ministry of Health and Social Welfare specifically the Non-communicable Diseases Unit under Dr Ayoub Magimba and the Health Education Unit under Ms Helen Semu for their dedication and diligence in developing this guideline that fits into our local context.

The Ministry would also like to recognize the unwavering support from Prof. Andrew Swai and Dr. Kaushik Ramaiya of the Tanzania Diabetes Association who took care of all the editorial aspects.

Many people contributed to this production. CONSENUTH provided valuable inputs into the aspects of nutrition and many individuals (participants and facilitators) contributed through their comments in an earlier version of this production used in a pilot training in the Lake Zone. We thank them all.

A generic version of this manual was produced in collaboration with Leeds University, UK, and we acknowledge the leadership of Prof John Walley and Dr. Kirti Kain towards that initial output.

Special thanks and gratitude to the World Diabetes Foundation for funding this work and for their entire support to the National Diabetes Program.



DR MARGARETH E MHANDO
DIRECTOR OF CURATIVE SERVICES

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Introduction

The Goals and Objective of this desk guide is to screen; early detect and manage initially patients with cancers, chronic respiratory disease and linked asymptomatic conditions of type 2 diabetes mellitus, hypertension, obesity and hyperlipidaemia, alcoholism and smokers in a local health unit in primary care or the district hospital OPD. It is to educate patients about lifestyle measures and specific treatments so that they can take responsibility for their own care. It is a concise “quick reference” guide for doctors, clinical officers, nurses, nurse assistants and counsellors providing routine care and health education. There is provision for monitoring and evaluation of management to prevent complications and untimely death. It clearly indicates when referral to district hospital and assessment by a more senior clinician is appropriate. However once stable, they may then be referred back with a care plan for follow-up at the nearest health unit.

They are based on WHO and International Diabetes Federation (IDF) guidelines. In particular refer to IDF “Type 2 Diabetes Clinical Practice Guidelines for SSA”, WHO “Package of Essential Non Communicable Disease Interventions (PEN) for Primary Health Care, WHO hypertension Guidelines and Tanzania National Treatment Guidelines.

They have been adapted to Tanzania by an expert group, for the local health service context, the availability of trained staff, drugs, basic equipment, tests (and units) and to conform to the Tanzania National Treatment Guidelines, using a generic version authored by Dr Kirti Kain, Senior Lecturer in Community Diabetes, LIGHT and Professor John Walley, Professor of International Public Health, Nuffield/LIHS, University of Leeds UK. The Tanzania adaptation was by a working group of the Ministry of Health & Tanzania Diabetes Association. The flowchart format is thanks to the NCD Unit of the Ministry of Health, Zanzibar.

These interim guidelines will be revised based on early implementation experience. Please send comments to: Tanzania Diabetic Association, P.O. Box 65201, Dar es Salaam; email: tdassociation@gmail.com.

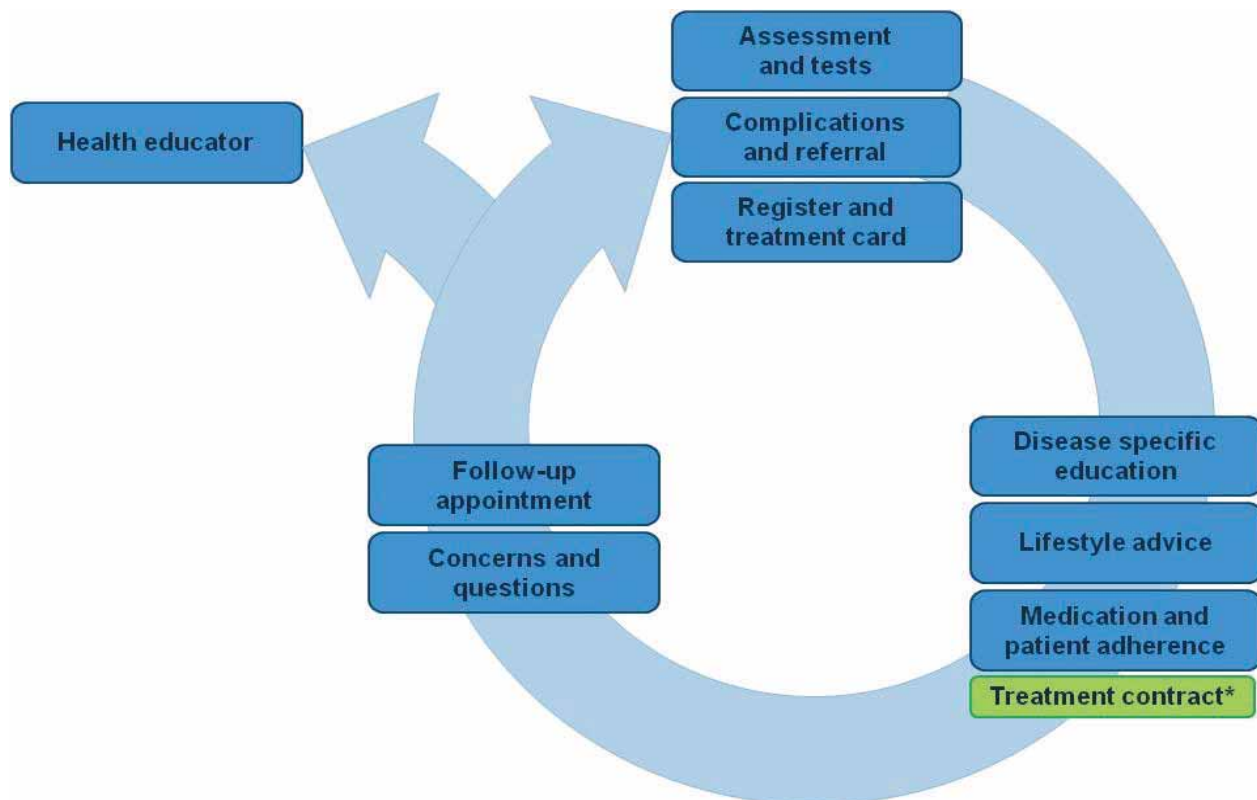
The Chronic Care Model

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/ counselor if available, or counsel yourself: at each of the initial consultations, then less frequently depending on progress.

It is recommended that you complete each of the 4 parts as outlined. The first stage takes longer in the initial consultations.



FOR ALL CONSULTATIONS

Take Medical History

Enquire about the current:

Complaints
Symptoms
Duration
Frequency
Intensity

Be sure to include a past medical history.

Ask about other chronic disease(s)

Examine the Patient

Use thermometer, stethoscope, blood pressure and blood glucose machine where relevant

Inform Patient About Your Tentative Diagnosis

Severely Ill Patients

If patient looks severely ill and/or shows the features below refer urgent to hospital.

Rapid pulse >125/minute

If lips are "blue"

Breathing >30/minute

If confused

Low BP <90/60 mmHg

Severe abdominal pain/vomiting

Very high BP >200/120 mmHg

Chest pain radiating to left arm or shoulder

Fever>39°C

Shortness of breath

Immediately refer unconscious patients.

▶ 29 for what to do while arranging transfer and first aid

For All Not Acutely ill Patients

Offer to assess Cardiovascular Disease risk ▶ 16

SUMMARY

Risk Factors for Chronic Non-Communicable Diseases



Unhealthy Diet



Tobacco



Alcohol



Raised Blood Pressure



Overweight



Physical Inactivity

Symptoms for Chronic Diseases:

Symptoms often present > 2 weeks Recurring symptoms No acute onset Gradual / slow onset

Non Communicable Diseases can be 'silent' or symptoms can be vague/unspecific.

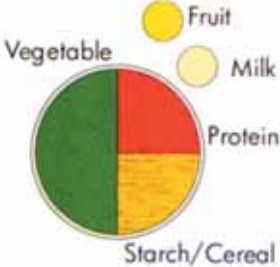
Consider the corresponding disease if the following symptoms are present:






<ul style="list-style-type: none"> <input type="checkbox"/> Chest pain (with exercise/when cold) <input type="checkbox"/> Awareness of heartbeat <input type="checkbox"/> Prominent neck vessels <input type="checkbox"/> Abdominal swelling <input type="checkbox"/> Breathlessness (if < 2 weeks, in the presence of cough, consider pneumonia, >2 weeks do TB sputum smears) <input type="checkbox"/> Ankle swelling in both legs <input type="checkbox"/> Pain in the back of the legs (calf muscles) on walking <input type="checkbox"/> Slurred speech, one-sided/deviation of the mouth 	Cardiovascular Disease	<ul style="list-style-type: none"> <input type="checkbox"/> Chronic cough (more than 2 weeks) +/- sputum production <input type="checkbox"/> Gradually worsening breathlessness <input type="checkbox"/> Worsening with physical exercise <input type="checkbox"/> Recurrent chest infections <input type="checkbox"/> Have been smoking or exposed to biomass fuels for years 	Chronic Lung Disease (COPD)
<ul style="list-style-type: none"> <input type="checkbox"/> Unexplained weight loss (counsel and test for HIV, TB and Diabetes) <input type="checkbox"/> Worsening fatigue (tiredness) <input type="checkbox"/> Persistent low-grade fever <input type="checkbox"/> Unexplained pain <input type="checkbox"/> Lumps of more than 3 weeks (neck, armpit, abdomen, skin or breast) <input type="checkbox"/> Change in bowel habits <input type="checkbox"/> Excessive vaginal discharge <input type="checkbox"/> Abnormal bleeding (e.g. in stool, urine, sputum, nose bleed, or in women post-coital, outside regular cycles, or after the menopause) <input type="checkbox"/> Difficulty in swallowing <input type="checkbox"/> Persistent cough/hoarse voice > 3 weeks <input type="checkbox"/> Skin changes/ a non healing sore <input type="checkbox"/> Change in urine frequency, flow, hesitancy <input type="checkbox"/> Change in breasts: appearance, size, shape, feel, nipple discharge 	Cancer	<ul style="list-style-type: none"> <input type="checkbox"/> Lethargy <input type="checkbox"/> Thirst <input type="checkbox"/> Frequent micturation <input type="checkbox"/> Recurrent infections (e.g. Urine, skin, thrush) <input type="checkbox"/> Sensory disturbances <input type="checkbox"/> Blurred vision <input type="checkbox"/> Un-healing wound <input type="checkbox"/> Foot ulcer 	Diabetes
<p>Remember not only to manage patients' symptoms but also chronic disease risk factors through health education and practical advices (see coming pages)</p>			

WEIGHT LOSS

Weight Loss Requiring Urgent Attention				
Check if the client has intentionally lost weight, compare current weight with previous records and ask if their clothes still fit. Unintentional weight loss of >5% of body weight is significant and must be investigated				
First Check for TB, HIV, and Diabetes				
Exclude TB Start workup for TB At the same time, test for HIV and Diabetes. ► 22 Consider other causes below.	Test for HIV If status is unknown, test for HIV The HIV client with weight loss >10% and diarrhoea or fever >1 month needs ART. Refer to CTC		Check for Diabetes Check random finger-prick blood glucose To interpret result see ► 22	
Ask About Symptoms of Common Cancers				
Abnormal vaginal discharge/ bleeding	Breast lumps or nipple discharge	Urinary symptoms in men	Change in bowel habit	cough > 2 weeks, blood-stained sputum, long smoking history
↓	↓	↓	↓	↓
Consider cervical cancer. Do a speculum examination	Consider breast cancer. Examine breasts/ axillae for lumps	Consider prostate cancer. Hard and nodular prostate on rectal examination	Consider bowel cancer. Mass on abdominal or rectal examination. Occult blood positive.	Consider lung cancer. Do a chest X-Ray.
If Food Intake Inadequate, Look for a Cause				
Nausea and/or vomiting	Loss of appetite	Ask 'Are you stressed?'	Improper Diet	Sore mouth or difficulty swallowing
↓	↓	↓	↓	↓
Referral for Investigation ► 29	Eat small frequent meals. Drink high energy drinks (milk, sweetened fruit juice). Increase energy value of food by adding sugar, milk powder, peanut butter or oil.	If yes, counsel patient or refer	Refer to nutrition scheme	Oral/oesophageal thrush likely Treat with medication, investigate cause
Check thyroid (TSH) if none of the above and client has: pulse >80, tremor, irritability, dislike of hot weather or thyroid enlargement		Refer within 1 month for further investigation the client with persistent documented weight loss and no obvious cause		

UNHEALTHY DIET

Unhealthy Diet	Balanced Diet	Diabetic Diet
<p>Excessive carbohydrates</p> <p>Excessive sugar</p> <p>Excessive fats & oils</p> <p>Excessive animal fats</p> <p>Excessive salt</p> <p>Excessive red meat</p>		<p>Avoid sugar and sodas</p> <p>No need for special diabetes food, nutritional supplements products or artificial sweeteners</p> <p>Be careful with alcohol which can make you very ill because it lowers blood sugar levels (if on insulin or sulphonylurea tablets).</p>

Portion Size Matters				
Carbohydrates	Proteins	Vegetables	Fats	Fruit
				
Equivalent to two fists	Size of palm and thickness of little finger	Enough to fill both hands	Size of the tip of your thumb	Equivalent of a fist

Content of Diet, Specific Advices

Eat breakfast, lunch and evening meal - evenly distributed throughout the day.

Eat fish and chicken rather than red meat, remove visible fat.

Drink enough safe/clean water, approximately 2 litres per day Drink little or no alcohol (<2 units/day for men, < 1 unit/day for women)

Use unrefined food/cereals, (whole grain)

Reduce fats - especially animal fat.

Replace coconut milk or palm oil with olive, soya, or sunflower oil.

Use < 2 tablespoon of oil per person per day for cooking.









Add only a little salt when cooking, but not at the table (maximum 5 g/day per person = 1 teaspoonful/day).

Eat as a family - healthy eating is good for all family members!




Avoid ready-made (processed) or street food, as is unhealthy with a lot of fat and salt, home cooked is better


Avoid fried food: grill, boil or steam food for shortest necessary time.





Eat fresh fruits and vegetables every day, at least 6 servings in total. See below for examples of servings

Avocado	Mchicha	Papaya	Watermelon	Banana	Small Mango	Balungi (grapefruit)	Orange
							
½ piece	1 cup	¼ piece	1 large	1 piece	1 piece	¼ piece	1 piece

PHYSICAL INACTIVITY

The Need for Physical Activity	
	<p>Cut down sitting for more than 30 minutes at a time</p>
	<p>Carry out activity which you enjoy and which you can do every day for at least half an hour. Examples of daily activity are:</p> <ul style="list-style-type: none"> Fast walks Football or basketball Dance Swim Jog or run Field work Use jumping rope
	
<p>The required intensity of the activity is equivalent to walking 100 steps per minute. This should be double regular speed and should be hard enough to make you out of breath or sweat</p>	

Suggestions	
<p>Suggest types of physical activity that is suitable for the specific patient considering age, gender, fitness and opportunities. Examples:</p>	
<ul style="list-style-type: none"> <input type="checkbox"/> Joining an exercise and fitness group (obama group, kitambi noma) <input type="checkbox"/> Designate a walking route to walk with a friend every day <input type="checkbox"/> Types of physical activity suitable for the specific patient <input type="checkbox"/> Make an exercise schedule <input type="checkbox"/> Exercise with spouse, friends, or kids 	

<p>Leisure Activities & Strength Activities</p> <p>2-3 Times per week</p>		<p>Golf Gardening Stretching Lifting weights Bowling</p>	
<p>Aerobic Exercise & Recreational</p> <p>3-5 Times per week Accumulate a total of 30 minute</p>		<p>Cycling Swimming Football Tennis Basketball Dancing Hiking Rowing</p>	
<p>Take Extra Steps</p> <p>Everyday</p>	<p>Use stairs instead of a lift Mow the lawn Walk the longest route Parking further away from home</p>		

Note
Take and record blood pressure before doing exercise

TOBACCO

Tobacco Usage
Smoking
Chewing
Sniffing

- Ask all Patients: "Do you smoke/sniff/chew?"
- Recommend to *stop* using tobacco
- Do *not* be judgemental - be *supportive!*

Advise the Patient

If you continue to use tobacco, you are more likely to have cancer, impotence (men), strokes, kidney disease, heart attacks and peripheral vascular disease.

Smoking worsens asthmas, it is also a cause of bronchitis and COPD

Giving up tobacco is the most important thing to do to protect heart and health.

If it is difficult to stop tobacco it is best to ask non-using family and friends to help you.

Avoid the company of smokers, and say a big NO if people offer you a cigarette.

Passive smoking is bad for your health, avoid being a second-hand smoker.

- Ask: "Have you thought of *stopping?*"
- If the patient is motivated: Assist them in preparing a quitting plan*







Quitting plan

The Patient Should:

- Set a quit date
- Inform family and friends
- Ask for their support
- Remove cigarettes/tobacco
- Remove objects/articles that prompt you to smoke
- Find an alternative to smoking (chewing gum, chewing nuts, etc)

ALCOHOL

- It is recommended to abstain *from* alcohol
- People* should not be *advised* to start taking *alcohol* for health reasons
- Men who take *more than 2 units per day* and women who take *more than 1 unit per day* should be *advised to reduce their intake*.
- Alcohol* should not be *consumed everyday*




Measuring Alcohol						
One unit of alcoholic drink is defined as the equivalence of 10-12 g alcohol (One unit is one of the following: one small bottle of beer/lager (5% alcohol); one small glass of wine (10% alcohol), one tot of spirits (40% alcohol))						
Examples of Units of Alcohol						
Kiroba	Glass Wine	Shot Alcohol	Export Beer	Local Beer	Gongo	
						
3 Units	1 Unit	1 Unit	1 Unit	2 Units	4 Units	

Facts
<p>Long term intake of >3 units of alcohol a day is associated with adverse side effects such as hypertension, stroke etc</p> <p>Advise patients not to use alcohol when additional risks are present, such as:</p> <ul style="list-style-type: none"> Driving or operating machinery Pregnant or breast feeding Taking medications that interact with alcohol Having medical conditions made worse by alcohol Having difficulties in controlling amount or frequency of drinking.

If having a drinking problem:	
1) Explore if the patient is motivated to stop drinking	
2) suggest patient to be referred to:	Substance Abuse Program, Alcoholic Anonymous Counselor
3) Follow up weekly	

OVERWEIGHT AND OBESITY

Measurement	Overweight		Obesity	
	Men	Women	Men	Women
Body Mass Index (BMI)	>25 kg/m ²	>25 kg/m ²	>30 kg/m ²	>30 kg/m ²
Waist Circumference (WC)	>102 cm	>88 cm		
Waist-Hip Ratio (WHR)	>0.9	>0.82		

BMI	WC	WHR
		
BMI = $\frac{\text{Weight}}{\text{Height} \times \text{Height}}$	WC = Waist in cm	WHR = $\frac{\text{Waist}}{\text{Hip}}$

Help patient to set a (weight) goal and encourage changes
 Inform the patient that in the beginning weight can be lost quickly, but to keep losing and maintaining a healthy weight can be a challenge
 Increase daily physical activity ► 7
 Encourage the whole family to start more healthy eating habits:
 Eat plenty of vegetables.
 Cut out all sugary drinks
 Reduce meal sizes
 Follow a balanced diet and other advises ► 6

		Body Mass Index (BMI)															
		Weight in Kilograms					Healthy	Overweight	Obese								
		45	50	54	58	63	68	73	77	82	86	91	95	100	104	109	113
Height in Meters	1.46	22	25	26	29	31	34	36	38	40	43	45	47	49	52	54	56
	1.47	22	24	26	28	30	33	35	37	39	41	43	45	48	50	52	54
	1.49	21	23	25	27	29	31	34	36	38	40	42	44	46	48	50	52
	1.50	20	22	24	26	28	30	32	34	36	38	40	42	44	45	49	51
	1.52	20	22	23	25	27	29	31	33	35	37	39	41	43	45	47	49
	1.55	19	21	23	25	26	28	30	32	34	36	38	40	42	44	45	47
	1.57	18	20	22	24	26	27	29	31	33	35	37	38	40	42	44	46
	1.60	18	20	21	23	25	27	28	30	32	34	35	37	39	41	43	44
	1.63		19	21	22	24	26	28	29	31	33	34	36	38	40	41	43
	1.65		18	20	22	23	25	27	28	30	32	33	35	37	38	40	42
	1.67		18	19	21	23	24	26	27	29	31	32	34	36	37	39	40
	1.70			19	20	22	24	25	27	28	30	31	33	35	36	38	39
	1.73			18	20	21	23	24	26	27	29	30	32	34	35	37	38
	1.75			18	19	21	22	24	25	27	28	30	31	33	34	35	37
	1.78				19	20	22	23	24	26	27	29	30	32	33	35	36
	1.80				18	20	21	22	24	25	27	28	29	31	32	34	35
	1.83			16	18	19	20	22	23	24	26	27	28	30	31	33	34
1.85			16		19	20	21	22	24	25	26	28	29	30	32	33	

COPD & ASTHMA – SYMPTOMS

Recognizing patients with cough and/or difficulty breathing needing urgent attention:
 The client with cough and/or difficult breathing and 1 or more of the following has respiratory distress:
 agitation or confusion
 breathlessness at rest or while talking
 BP <90/60
 respiratory rate \geq 30 breaths per minute
 prominent use of breathing muscles
 coughing up \geq 1 tablespoon of fresh blood

Management: if available, give oxygen		
Temperature \geq 38°C	and/or	Wheeze and difficulty breathing, no leg swelling, if 1st episode of wheeze client <50 years
Give single doses of benzyl penicillin 2MU IV Refer same day to hospital	and/or	Treat wheeze
Difficult breathing worse on lying flat especially with leg swelling or 1st episode of wheeze in client >50 years		
Heart failure likely Refer same day to the hospital		

Cough < 3 weeks		Cough > 3 weeks or recurrent	
Wheezing, No leg swelling		Consider TB	
Sputum, Chest-pain and Fever	Leg Swelling, Age >50 years	HIV Positive	Leg Swelling or first episode of wheeze in client >50 years
Treat for chest infection: rest and sufficient fluid intake. Treat with antibiotic, e.g. Amoxicillin 500mg 6 hourly	Consider Heart Failure Refer	Consider PCP Refer to CTC	Recent infection with no difficulties in breathing
	COPD Likely in ex Smokers, Age >50 yrs \blacktriangleright 15	Weight loss	Post infectious cough likely. Reassure client that the cough should resolve in 8 weeks
	Asthma likely Intermittent symptoms, not smoking, age <50 years \blacktriangleright 13	Productive Cough most days of at least 3 months for 2 or more years Or difficulties in breathing on exercise	Likely heart failure Refer
		Consider Lung Cancer Refer	
		Consider COPD \blacktriangleright 12	

If above working diagnosis excluded, consider Asthma or COPD \blacktriangleright 12

Wheezes and Tight Chest	With Fever	Treat as Pneumonia
	Without Fever	Treat as Asthma/COPD

COPD & ASTHMA – DIAGNOSIS

- The client with *chronic* cough may have more than *one* disease
- In the client with *chronic cough*, first exclude TB, PCP, lung cancer, *chronic* bronchitis, *heart failure* and post *infectious* cough
- Then consider asthma or *chronic obstructive pulmonary disease (COPD)* which both *present with* cough, *difficult breathing*, *tight chest* or *wheezing*
- If the cause of wheezing is not known, *distinguish COPD and asthma* as follows:

Consider Asthma if:
<input type="checkbox"/> Previous diagnosis of asthma <input type="checkbox"/> Symptoms since childhood or early adulthood <input type="checkbox"/> History of hay fever, eczema <input type="checkbox"/> Intermittent symptoms with asymptomatic periods in between <input type="checkbox"/> Symptoms worse at night or early morning <input type="checkbox"/> Symptoms triggered by respiratory infection, exercise, weather changes or stress <input type="checkbox"/> Symptoms respond to Salbutamol

Consider COPD if:
<input type="checkbox"/> Previous diagnosis of COPD <input type="checkbox"/> History of heavy smoking, i.e. >20 cigarettes per day for >15 years <input type="checkbox"/> History of heavy and prolonged exposure to burning fossil fuels in an enclosed space. <input type="checkbox"/> Symptoms started in middle age or later (usually after age 40) <input type="checkbox"/> Symptoms worsened slowly over a long period of time <input type="checkbox"/> Long history of daily or frequent cough and sputum production often starting before shortness of breath <input type="checkbox"/> Symptoms that are persistent with little day-to-day variation

Diagnose Asthma
<input type="checkbox"/> Some of the above symptoms and no other cause found. <input type="checkbox"/> If improvement in PEF after inhalation of Salbutamol

Diagnose COPD
<input type="checkbox"/> Chronic Sputum production and bronchitis For at least three months in two successive years and also had one or more of the below: Might be intermittent Worse with exercise
<input type="checkbox"/> Chronic Cough Difficulties in breathing, Tight chest, wheezes

Measuring PEF before and 15 minutes after two puffs of Salbutamol. If the PEF improves by 20%, a diagnosis of asthma is very probable. However, in practice, most patients with asthma have a smaller response to Salbutamol

ASTHMA - TREATMENT AND FOLLOW UP 1

Advise the Patient:		How to live with Asthma
Explain what asthma is, what can trigger an attack and how to live with asthma	Ensure they understand the need for treatment	<input type="checkbox"/> It may help to eliminate cockroaches from the house (when the patient is away) and shake and expose mattresses, pillows, blankets, etc. to sunlight. <input type="checkbox"/> Regarding treatment, ensure that the patient or parent is aware that inhaled steroids take several days or even weeks to be fully effective <input type="checkbox"/> Avoid dusty and smoke-filled rooms
See that the patient is using spray/inhaler correctly	Beta - agonist for quick symptom relief Steroid for reducing underlying causes (inflammation)	
Go for check-ups every 3-6 months (more frequent if asthma is not well controlled)	Understands the benefit from using inhalers rather than tablets, and why adding a spacer is helpful. Knows what to do if asthma deteriorates	

Assess asthma control

Asthma is considered to be well controlled if the patient has:

No more than two occasions a week when asthma symptoms occur and require a beta-agonist	No or minimal limitation of daily activities
No severe exacerbation (i.e. requiring oral steroids or admission to hospital) within a month	A PEF, if available, above 80% predicted
If any of these markers is exceeded, the patient is considered to have uncontrolled asthma, and medication needs to be adjusted	Asthma symptoms on no more than two nights a month

If well controlled:








Remain with current treatment for 6 months	After 6 months, gradually reduce dosage of medication to minimum levels	Never abruptly stop using inhaled steroids
--	---	--

Stepwise Treatment

Use the guide and increase treatment if symptoms are not well controlled

Step 1 Inhaled beta agonist (Salbutamol) as required (prn)	Step 2 Continue inhaled Salbutamol prn and add inhaled Beclometasone 100ug or 200ug twice daily, or 100ug once or twice daily in children	Step 3 Continue inhaled Salbutamol prn and increase the dose of Beclometasone to 200ug to 400ug twice daily	Step 4 Add low-dose theophylline, or long-acting beta agonists, or increase dose of inhaled Beclometasone	Step 5 Add oral prednisolone in the lowest dose possible to control symptoms while referring patient to lung clinic
If Salbutamol inhaler is not available, use tabs - Dose tablet Salbutamol 4mg tds				
Do not use <i>Prednisolone tablets</i> in routine care, only for exacerbations				

ASTHMA - TREATMENT AND FOLLOW UP 2

Using Inhalers and Spacers						
						
Shake inhaler	Remove inhaler cap	Fit inhaler into spacer, check the seal is tight	Exhale first and then form a seal with lips around mouthpiece	Press pump and take a deep breath from the spacer. Only pump once per breath	Hold that breath and count to 10	Breathe out

Asthma Attacks	1 - Assess Severity
	Mild Breathless at rest or while talking but can finish a sentence
	Moderate Respiration rate around 25/min. heart rate > 100/min. cannot finish a sentence
Severe Confused or exhausted, respiration rate >30/min. heart rate > 120/min START TREATMENT AND REFER URGENTLY TO HOSPITAL	
	2- Treatment
	Salbutamol inhaler 4 puff every 20 min AND Oxygen AND Prednisolon tabs 40 mg
	Observe treatment and assess patient every 30 min to see if symptoms are improving
	If improving, continue observing (include PEF) for some hours before discharging. If deteriorating while observed or after discharge, repeat treatment and continue prednisolone 40 mg daily for 5 days, and consider referring to hospital.
	If inadequate response and severe life threatening asthma attack: Add Aminophylline injection. 250 mg SLOWLY over 20 min while organizing FAST referral to hospital Increase Salbutamol inhalation

COPD - TREATMENT AND FOLLOW UP

Advise the Patient:	How to Live with COPD
<p>Explain what COPD is; chronic lung damage, perhaps treatable, but not curable</p> <p>Stop Smoking</p> <p>Physical exercise</p> <p>Medication for symptoms</p>	<p>Ensure the patient understands that smoking and indoor air pollution are the major risk factors for COPD. Patients with COPD must stop smoking and avoid dust and tobacco smoke</p> <p>Keep the area where meals are cooked well ventilated by opening windows and doors;</p> <p>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;</p> <p>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.</p>

Stepwise Treatment

Use the guide and increase treatment if symptoms are not well controlled

Mild	Moderate	Severe
<p>Inhaled Salbutamol, two puffs as required, up to four times daily</p>	<p>If symptoms are still troublesome, consider 200 mg theophylline twice daily</p>	<p>If Ipratropium inhalers are available, they can be used instead of, or added to, Salbutamol, but they are more expensive.</p>

Exacerbations (worse than usual)

If more sputum, changed to more yellow/green coloured, and/or breathlessness, temp >38°C and rapid breathing ("bronchitis"), then:
 Treat with antibiotic e.g. Amoxicillin 500mg 3 times a day for 10days
 Oral prednisolone 30 mg OD for 7 days
 Give High doses of inhaled Salbutamol
 Give Oxygen if possible
 Assess and consider referring to hospital if condition is poor or deteriorating.

Refer urgently to hospital/ doctor if (in adults):

Rapid pulse (>100/minute) or
 Breathing (>30/minute) or
 Low BP (<90/60mmHg), or
 If lips are "blue" (central cyanosis), or
 If confused. ▶ 29

CARDIOVASCULAR DISEASE (CVD)

Discuss CVD Risk
Explore the client's understanding of his risk of developing cardiovascular disease and the need for change in lifestyle
Invite client to address one lifestyle CVD Risk factor at a time
Help the client to plan how to fit the new lifestyle change into the routine of his/her day. Explore the factors that might hinder or support a change in lifestyle Together set reasonable target(s) for the next visit. Record the target(s) in the notes.

Diet	Physical Inactivity	Alcohol	Manage Stress
Eat a variety of foods in moderation, reduce portion sizes Increase fruit, vegetables and low fat dairy products. Reduce fatty foods: cut off visible animal fat, reduce quantities of cooking oil, avoid margarine. Reduce salty and processed foods including chips and crisps Reduce sugar in food ▶ 6	Aim for at least 30 minutes of exercise like brisk walks at least 3 days per week. Increase activities of daily living like walking instead of taking the bus, gardening, housework. Suggest exercise with arms if unable to use legs ▶ 7	Limit alcohol intake to a maximum of 2 drinks per day (men) and 1 drink per day (women). If client exceeds these limits, explain the hazards of drinking and explore readiness to change. ▶ 9	Take time to perform a relaxing breathing exercise every day Find a creative or fun activity to do. Find somebody who you can confide with.
	Smoking	Weight	
	Urge clients to stop smoking ▶ 8	Aim for BMI < 25, and waist circumference <88cm (woman) and <102cm (man). Any weight reduction is beneficial, even if targets are not met	

Estimate the patient's 10 year risk of getting a CVD
Advise on lifestyle changes If risk > 30% also treat with antihypertensive medication.



HYPERTENSION - DIAGNOSIS AND TREATMENT

<p>Diagnosis Procedure</p>	<ol style="list-style-type: none"> 1. Exclude other causes of raised blood pressure. (Stress, Pain, Fever, Fear...) 2. Patient has been resting at least 5 minutes before taking blood pressure 3. Arm in height of heart, and cuff matches size of arm 4. Take 2-3 measurements with 2 minutes in between 5. Record only the lowest result 6. If blood pressure >140/90 THEN Patient has to return on 2 more occasions to repeat 1-5. If constant > 140/90 mmHg, Diagnose HTN 		
<p>Education, Diet, and Physical Activity</p>	<p>Make sure the patient understands what hypertension is and why it is important to treat with lifestyle modification and drugs (to prevent complications like strokes, etc.)</p> <p>A healthy diet, increased physical activity, no smoking, less alcohol and less salt are essential.</p> <p>Lifelong treatment is required</p> <p>Need regular check up of blood pressure and blood and urine tests.</p>	<p>Hypertension is a chronic condition that can be treated with lifestyle changes and medication. Most of the time there are no clear symptoms</p> <p>If not treated HTN can cause stroke, heart attack, heart failure, vision defects and kidney failure.</p> <p>Take the correct tablets regularly.</p> <p>Always take medication as normal before checking BP</p>	
<p>Decision to Treat</p>	<p>Mild</p>	<p>Moderate/Severe</p>	<p>Malignant</p>
<p>>140 systolic and/or >90 diastolic with no other significant risk factors</p>	<p>>170 systolic and/or >110 diastolic or mild hypertension plus significant cardiovascular risk factors (e.g. diabetes mellitus, known ischaemic heart disease, previous CVA/ITA, strong family history, gross obesity)</p>	<p>>220 systolic and/or >130 diastolic</p>	<p>Admit as previous</p>
<p>Lifestyle advice and monitor in OPD in 2 months, then 6 monthly</p>	<p>Commence treatment as per algorithm</p>		

HYPERTENSION – MEDICATION

<p>Anti-hypertensive drugs</p>	<p>Assess CVD risk and treat with medication if 10 year risk is > 30%. Remember that it is more important to lower the BP than using a specific drug and prescription should follow what is available. If BP still too high, increase dose (to the maximum recommended), then add other drugs as recommended, preferably Nifedipine as second line/drug.</p>	<p>A maximum dose of 4 or more drugs may be required to get to or near to normal values. BP control is critical, especially in subjects with diabetes! Add one drug at a time, starting at the lower dose, if BP still raised increase step by step if required to the maximum prescribable dose or maximum tolerated dose.</p>
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	Step 1	Step 2	Step 3	Step 4
<p>Non Diabetic</p>	<p>Thiazide Diuretic Bendroflumethiazide (Aprinox) 2.5mg od (max 5mg od) or Hydrochlorothiazide 12.5mg od (max 50mg od) or Chlorthalidone 12.5mg od or Indapamide 1.5 – 2.5mg od Encourage potassium intake, example banana.</p>	<p>Add CCB Nifedipine 20mg od/ Nifedipine retard 20mg od (max 80mg) or Amlodipine 5mg od (max 10mg od)</p>	<p>Add ACE inhibitor Captopril 12.5mg bd (max 50mg bd) or Enalapril 5mg od (max 40mg od) or Ramipril 2.5mg od (max 10mg od) or Lisinopril 5-10mg od (max 20mg od) Creatinine should be checked prior to treatment and 2-4 weeks after commencing ACEi.</p>	<p>Add beta- or Alpha –blockers Beta Blocker: Atenolol 50mg od (max 100mg) once daily, Alpha blocker: Doxazosin 4mg od (max 8mg)</p>
<p>Diabetic</p>	<p>Add ACE inhibitor Captopril 12.5mg od Creatinine should be checked prior to treatment and 2-4 weeks after commencing.</p>	<p>Thiazide Diuretic Bendroflumethiazide (Aprinox) 2.5mg od (there is no benefit and increased risk of hypokalaemia from using the 5mg).</p>	<p>Add CCB Nifedipine MR 20mg od Review monthly until reaches^ BP target.</p>	<p>Add beta-blocker Atenolol 50mg once daily.</p>
<p>Special Circumstances</p>	<p>If pregnant Methidopa 250mg bd/tods (max 3g daily) or Reserpine 0.1mg od (max 0.25mg) ARBs and ACEs are contraindicated.</p>	<p>Previous Heart Attack ACEI and beta blocker Angina Beta blocker or CCB</p>	<p>Renal Disease Step 1: ACEI and either thiazide diuretic or CCB Step 2: add either thiazide diuretic or CCB Step 3: Add which drug class not use in step 2</p>	<p>Heart failure Use frusemide 20 mg OD (max 80mg), beta blocker and ACEI</p>

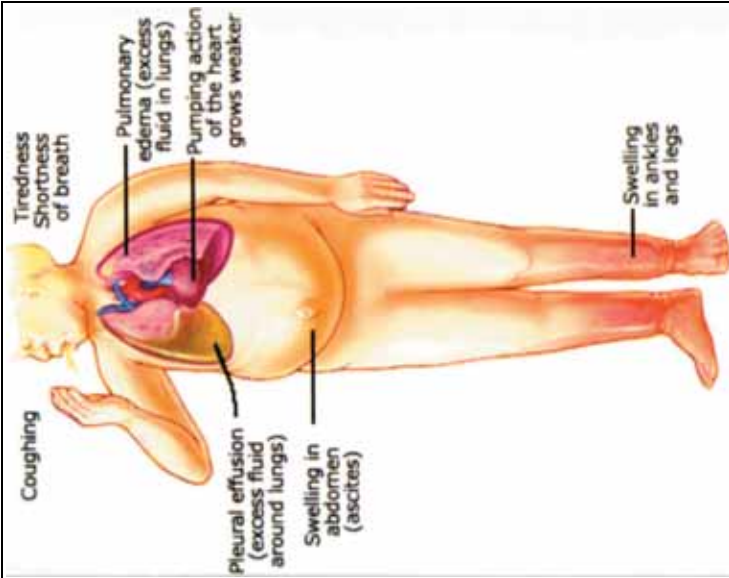
HYPERTENSION - FOLLOW-UP

Refer To Hospital	Urgent	BP 220/120 mmHg and symptoms: Headache, blurred vision, nausea, weakness of limbs, paraesthesia, etc
	Normal Referral	BP > 160/100 mmHg after 6 months of treatment Make sure patient is adhering to treatment, and BP is measured correctly when in rest and after having taken anti-HTN medication. Make sure anti-HTN medication is in correct dosages and tablets (use at least 2 different medications), and that the therapy has been tried for several months

What to do Every Visit	ASK	<p>How are you feeling? (in general +specific symptoms)</p> <p>How have your BP measurements been since last control (ask for patients notebook)</p> <p>Lifestyle regarding tobacco, physical activity, diet (fruits/vegetables, salt, cooking oil)</p> <p>Have you been able to follow the advices given regarding lifestyle changes?</p> <p>Do you take medication as prescribed?</p> <p>When did you last take your medicine(s)?</p> <p>Have you noticed any side effects to the treatment?</p> <p>Are there any things in particular you find difficult regarding following advice given/do you not feel comfortable doing? (Assess compliance to treatment) Do you have any questions to your condition or the treatment recommended?</p>
		<p>If BP in general is <140/90 mmHg, continue treatment as usual, also if BP in the clinic is higher.</p> <p>If prescribed treatment is not followed investigate this instead of adding/continuing prescription. Address the underlying reasons for poor adherence to treatment</p> <p>If patient has stopped medication some days before clinic appointment it is expected that BP is high, and you cannot evaluate the effect on medical treatment that was prescribed at previous visit. Educate the patient on why not to stop medication before coming to clinic, and to do BP measurements regularly and record in notebook</p> <p>If side-effects of drugs is disturbing, change to another drug.</p> <p>If BP is continually high despite following to treatment, add anti-HTN drug/increase dosage. (Rather to add a second medicine than increase one to maximum dosage)</p> <p>Remind patient to take medication every day, also on the morning of clinic appointment.</p> <p>Ask patient to check BP regularly at a nearby health facility (e.g. Once a week, and record in his/her notebook until next clinic appointment in approximately one month)</p> <p>If continuing BP > 160/100 mmHg despite lifestyle changes, adherence to antihypertensive drug therapy and good quality BP monitoring (many BP recordings done correctly) refer to HTN clinic in hospital</p>

HEART FAILURE

Definition:		
Failure of the heart to pump blood forward at sufficient rate to meet body needs.		
Low cardiac output: Fatigue Weakness Exercise intolerance Anorexia	Congestion of the lungs: Dyspnoea Paroxysmal nocturnal dyspnoea Orthopnoea Examination may show: Distension of the jugular veins in the neck Pitting oedema of the legs Enlarged tender liver Crepitations of the lungs Ascites	Congestion of peripheral tissues: Peripheral oedema (legs) Right upper quadrant discomfort (liver)
Pulmonary disease and congestive heart failure share many signs and symptoms and sometimes it is difficult to differentiate the two disease states. If in doubt: refer patient		



Patients in acute heart failure should immediately be referred to hospital for further management and give Lasix 40 mg. The patient should be propped up or seated to reduce the congestion of the lungs and decrease the breathlessness. If available consider oxygen supplementation.

ADVISE TO THE PATIENT

Patients with chronic heart failure need to take medication every day as prescribed by specialists.
 Encourage the patient to be physically active according to ability, e.g. Walking, cycling.
 Encourage regular checkups even when on medication
 Always take medicine as prescribed before going to clinic

STROKE

Usually acute events!!

Due to a blockage that prevents blood from flowing to the brain:

- A build-up of fatty deposits on the inner walls of the blood vessels
- Bleeding from a blood vessel in the brain
- Foreign bodies from other parts of the body (e.g. blood clots)

- Weakness of the face, arm, or leg, most often on one side of the body
- Numbness of the face, arm, or leg, especially on one side of the body
- Confusion

Common symptoms include sudden onset of:

- Difficulty speaking or understanding speech
- Difficulty seeing with one or both eyes
- Difficulty walking, dizziness, loss of balance or coordination
- Severe headache with no known cause
- Fainting or unconsciousness.

People experiencing these symptoms should be referred to hospital immediately

LIPID CONTROL

Check lipids:

At the beginning in patients with CVD

At three months in patients with diabetes but without CVD and Yearly thereafter.

High is:

- Total cholesterol > 5.2 mmol/l
- LDLc > 2.6 mmol/l or
- HDLc < 1.1 mol/l
- Triglycerides > 1.7 mmol/l

Lipid lowering drugs

- If lipids cholesterol (LDL) remain high after 3 months, then refer/treat.
- Give a statin e.g. Atorvastatin or Simvastatin 20mg daily (max 40mg).
- If fasting triglycerides > 1.7mmol/l, add fenofibrate or clofibrate. Or
- If only triglyceride raised then fibrate alone (without a statin)

Education, diet and activity

Educate and counsel on healthy eating and daily activity, as above for diabetes and high BP, then reassess after three months, repeat lipids.

DIABETES - DIAGNOSIS 1

<p>Consider Screening for DM if:</p> <p>Age > 40 years Obese or larger waist History of diabetes in the family Known hypertension History of IHD (angina or MI) or Stroke</p>	<p>Consider DM if One or More of the Following:</p> <p>Frequency of urination, even at night, Sore vagina, discharge, thrush, penis itchy Infections, recurrent e.g.: Boils, sties, abscess, unhealed wounds Abnormal sensation of the feet (pins and needles, tingling, burning sensation)</p>	<p>Thirst, wanting to drink Progressive visual loss Athletes feet, itchy rash in flexures (intertrigo) Unintentional, unexplained weight loss despite good appetite</p>
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<p>NOTE</p> <p>If blood glucose test not available, test urine glucose If negative for sugar and having classical symptoms: Advise to go and check fasting blood sugar elsewhere If positive for sugar (in blood) and classical symptoms diagnose DM Give lifestyle advice and refer to DM clinic for checkup in two months (earlier if symptoms are severe). Do not diagnose DM in acutely ill patients without classical symptoms Which results should result in referral to DM clinic?</p>	<p>Diagnose DM if:</p>
<p>Urine dipsticks +ve Ketones ++ Microscopic haematuria (once infection excluded) or casts Proteinuria on 2 or more occasions Pregnancy BP > 220/120 mmHg untreated, or BP > 130/80 mmHg despite maximum treatment Pain in the calf when walking (suspect peripheral vascular disease) History of chest pain on exertion (suspect Angina pectoris) Uncompensated heart failure Vision loss (suspect retinopathy, cataract) FBG > 13 mmol/L</p>	

DIABETES - DIAGNOSIS 2

<p>IFG</p>	<p>Explain that if IFG is a predictor of DM but it is NOT DM</p> <p>Inform patient they may develop diabetes in future but this can be delayed / avoided by healthy behavior.</p> <p><i>Dietary advises:</i></p> <p>At least 6 pieces of vegetable/fruit a day, reduce use of salt, sugar and cooking oil, eat whole grain, advise on a balanced plate and portion size)</p> <p><i>Physical activity</i> daily (at least half an hour a day)</p>	<p>Assess patients risk factor profile</p> <p>Check FBG once a year to monitor progress</p> <p>Advise lifestyle changes (▶ 5 onward)</p> <p><i>Weight control</i> (weight loss if BMI > 25 or waist circumference above 88 cm (women) or 102 cm (men))</p> <p><i>Moderation if drinking alcohol</i> (max 1-2 units/day)</p> <p>if pregnant refer to hospital.</p>	<p>Assess patient's risk factor profile and advice</p> <p>Advise life style changes</p> <p>Provide dietary counseling (▶ 6)</p> <p>Assess for complications:</p> <p>Ask about change to vision/vision loss: use vision chart,</p> <p>Look for cataract and refer for retina examination.</p> <p>Assess the feet (ask about numbness, pins and needles and check for sensations, foot pulses, and footwear)</p> <p>Inquire about loss of libido, poor erections and incontinence of urine or stool.</p>
<p>DM Patient Education</p>	<p>Reinforce messages at all appointments.</p> <p>Use local, simple and clear language.</p> <p>Ask patient to repeat key points and ask if they have any questions.</p> <p>Inform patient:</p> <p>Diabetes is when the body cannot properly use the foods we eat, especially sugar due to lack of insulin.</p> <p>Treatment is life-long and need adjustment from time to time</p> <p>A person cannot give diabetes to another person.</p> <p>Blood sugar control, a healthy diet and increased physical activity are essential.</p> <p>Patients with diabetes can develop hypertension and the other way round, especially if overweight.</p> <p>High blood sugars in pregnancy can damage unborn baby.</p>	<p>Add additional information as required e.g. change in medication.</p> <p>Give the patient an education leaflet.</p> <p>Refer to health educator if available.</p> <p>If blood glucose is not controlled, it can cause blindness, kidney failure, heart disease, strokes, disease of blood vessels, impotence, leg ulcers.</p> <p>Treatment includes diet, exercise, regular clinic visits</p> <p>Each diabetic case is individual and medication cannot be shared</p> <p>Diabetes and hypertension are linked diseases.</p> <p>If considering becoming pregnant it is important to see a specialist before conception</p>	

DIABETES – TREATMENT AND FOLLOW UP 1

Diagnosed with DM
Health education (foot care, hypoglycemia, hyperglycemia) Lifestyle advises (diet, exercise, tobacco and alcohol use) Review in 1 month ▶ 25

Treatment goals are as follows
FBG < 7.0 mmol/l RBG < 7.8 mmol/l HBA1C < 6.5% Few or no hypoglycaemic episodes

NOTE
If pregnant refer immediately. If FBG > 12.0 go directly to step 2

Step 1	Check FBG + BP Ask about lifestyle, motivation and support Review in 1 month	↓	↓	↓
FBG < 6.1	FBG > 6.1 but lower than at diagnosis	↓	↓	FBG > 13
Explain that FBG = non diabetic, but importance of: Non-sugar diet Continue lifestyle Review in 6 months with FBG	Continue lifestyle Assess problem areas and offer help Review in 3 months with FBG	↓	↓	Proceed to Step 2

Step 2	Explain the need for medication together with lifestyle modification Metformin 250mg BD (Maximum 750mg BD) Review in 1 month	↓	↓	↓
If no improvement: Increase to 500mg BD Review in 1 month	FBG	↓	↓	If Improved FBG: Continue medication Review in 3 months
Not improved: Add Glibenclamide (Daonil) 2.5 mg BD (Maximum dose 10mg BD) Review in 1 month	↓	↓	↓	If no improvement Refer to DM clinic for consideration of insulin

DIABETES - FOLLOW UP AND REFERRAL

<p>At Every Visit to Clinic:</p> <p>Ask about general wellbeing, symptoms and adherence to treatment</p> <p>Ask about any problems related to treatment (lifestyle or medicines)</p> <p>Test FBG</p> <p>Measure weight, height and waist circumferences</p> <p>Check blood pressure</p> <p>Dietary counselling</p> <p>Advise lifestyle changes</p> <p>Discuss knowledge and beliefs of diabetes, foot care, glucose monitoring</p> <p>Provide counselling about contraception and provide preconception advice</p>	<p>Once every two years:</p> <p>Eye examination at referral level (according to new WHO guidelines)</p> <p>FAQ</p> <p>How much should FBG improve in between visits?</p> <p>Usually it depends on clinical improvement and 2-3 mmol/l will do</p> <p>If FBG has not improved to which cut-off within 6 months should medication be started?</p> <p>Start medication on the basis of decreasing the weight, worsening or no change on symptoms, or FBS more than 10 mmol/l</p> <p>If already started on Metformin at diagnosis but lifestyle modifications are successful, weight reduces and FBG is improving, should Metformin be reduced or discontinued?</p> <p>It can be reduced stepwise, then discontinue</p>
<p>Once per year:</p> <p>Urine protein (dipstick) and foot examination</p>	

<p>Referral to DM Clinics</p> <p>What should be urgently Referred</p> <p>Altered consciousness with too low/high glucose (<4mmol/L or 20 mmol/L)</p> <p>Chest pain and breathlessness (angina, heart attack or heart failure)</p> <p>Slurred speech, one-sided weakness (stroke/transient ischaemic attack)</p> <p>Severe infection in diabetic patient including leg infection/ ulcer</p>	<p>Referral within 48/72 hours</p> <p>All women with pre-existing Type 1 or Type 2 Diabetes who become pregnant</p> <p>Women who develop Gestational Diabetes</p>
<p>Same Day Referral</p> <p>Newly diagnosed children with diabetes</p> <p>Suspected newly diagnosed type 1 diabetes especially urgent in those who present with ketonuria and/or vomiting</p> <p>Patients with infected, necrotic or gangrenous foot ulceration or suspected charcot foot.</p> <p>Sudden loss of vision</p>	<p>Others (ordered highest-> lowest priorities)</p> <p>Patients severely at risk of diabetic foot wound</p> <p>Retinopathy/reduced visual activity</p> <p>Patients presenting with persistent proteinuria</p> <p>Women with Type 1 or Type 2 Diabetes contemplating pregnancy</p> <p>Recurrent hypoglycaemia</p>

DIABETES - TREATMENT AND FOLLOW UP 3

Signs of Hypoglycemia		
Hypoglycaemia is when blood glucose is under 3 mmol/l The signs and symptoms include the following:		
Feelings of hunger Headache Tremors Profuse sweating Incoherent speech	Tachycardia Anxiety Irritability Weakness Tiredness	Dizziness Confusion Trouble concentrating Aggressiveness Unconsciousness/coma

It is important to identify the cause of hypoglycaemia and intervene.
Common causes include:

- Eaten less food than usual, skipping meals, irregular eating patterns
- Eaten different food than usual, e.g. only soup or meat
- Weight loss leading to needing less medicine
- Taken a higher dose of medicine than prescribed
- Higher level of physical activity than usual
- Alcohol intake

Check BG	If BG <3.0:
	Give sugar per oral Treatment Support
Educate patients, family and providers about hypoglycemia, its causes, and appropriate mitigation techniques	

Signs of Hyperglycemia	
Frequent urination Tiredness Stomach pain, nausea and vomiting Very dry mouth Unclear vision	Increased thirst Dry itching skin Shortness of breath

It is important to investigate and rectify the reason why the blood sugar is too high. Common causes include:

- Eaten too much or not the right type of food
- The current medication is not sufficient any longer
- Forgotten to take medication as prescribed
- Level of physical activity has been too low
- Disease e.g. an infection in the body illness e.g. depression or mental stress

Check RBG	RBG >11.0:	If RBG above 18 and Ketones:
If not known diabetic also check urine-ketone)	Find reason for hyper (out of drugs, adherence) Adjust treatment See patient within 1 month	Refer to hospital Give i/v N/S 2ltr 1st hour

Ramadhan and diabetes

Fasting for patients with diabetes represents an important personal decision. Should be discussed with health personnel, consider guidelines for religious exemptions and associated risks. For most patients the recommendation is not to undertake fasting. Patients who insist on fasting need to be aware of the associated risks Care must be highly individualized; the management plan will differ for each specific patient and should be developed by a specialist in the DM clinic. Important that patients have the means to monitor their blood glucose levels multiple times daily, especially diabetes patients who require insulin.

DIABETES - INSULIN PRESCRIPTION

Insulin (refer to doctor to initiate)	<input type="checkbox"/> Insulin is started when not controlled on oral drugs. When adding insulin, metformin can be continued, but sulphonylurea is phased out. <input type="checkbox"/> When initiating insulin review after 3 days, weekly, then monthly, then when controlled 3 monthly. <input type="checkbox"/> Do a FBG at every visit, also checking use of insulin etc. <input type="checkbox"/> When monitoring, if available ask/ ring the doctor for advice. <input type="checkbox"/> If problems, and feasible for the patient to go, refer to hospital
	Things to tell your patients taking insulin <input type="checkbox"/> Patients are more likely to gain weight. <input type="checkbox"/> Patients are more likely to get low glucose (hypos) with insulin. <input type="checkbox"/> It is important to take insulin even if unwell or not eating, but the dose may need to be altered

Before starting insulin Consider:

- Is patient/treatment supporter willing and capable to start insulin?
- Is vision good, are hands able to use appropriate device?
- Can insulin be stored at home? (Cool dry place/fridge away from heat sources)
- Is glucose monitoring at clinic or home available?
- Is the injection site known?

If No:

Give long acting insulin once a day

If yes, give 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
- When combining oral hypoglycaemic drugs and insulin, the long acting insulin once a day is preferred choice

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 e.g. as reduced appetite)
- Other treatments (beta blockers etc)

The average daily insulin requirement is 0.5 – 0.6 units/kg. Start with 0.2 units/kg/day, increase by 2 units every week.


If more than a single daily insulin dose is required, consider:

2/3 of the daily dose in the morning, 1/3 in the evening
 2/3 intermediate/long acting, 1/3 short acting/soluble

If doses are higher than 0.75 units/kg/day exclude:

- Overweight
- Low physical activity
- inappropriate insulin (measurement, expiry, storage, injection techniques)
- Overdose especially if fluctuating blood glucose levels.

DIABETES - DIABETIC FOOT

Diabetes Foot care	
At diagnosis and annual review or frequently where known problem:	
<ul style="list-style-type: none"> <input type="checkbox"/> Inspect both feet for any ulcers or deformity <input type="checkbox"/> Test foot sensation with monofilament and tuning fork/gross sensation <input type="checkbox"/> Palpate for foot pulses <input type="checkbox"/> Inspect footwear <input type="checkbox"/> If any <i>ulcer or new foot deformity, refer to hospital/doctor.</i> 	
<i>Patients with reduced sensation or absent foot pulses are high risk of acquiring foot disease</i>	
Foot care education	
<ul style="list-style-type: none"> <input type="checkbox"/> Do not walk with bare feet <input type="checkbox"/> Make sure shoes fit properly and do not cause shoe bites. Advise to buy footwear in the evening when foot size is biggest <input type="checkbox"/> Wash and dry your feet regularly <input type="checkbox"/> Check your feet regularly for any broken skin. If any new broken skin, go to health facility to be seen, even if painless <input type="checkbox"/> Do not <i>cut calluses or corns – go to the clinic for treatment</i> <p><i>If you have numbness in feet, be careful near fires and hot water.</i></p>	

DIABETES IN CHILDHOOD

Presentation	<ul style="list-style-type: none"> <input type="checkbox"/> Whereas adults may report feeling tired and lethargic, children may simply not want to work or play. <input type="checkbox"/> Polyuria and nocturia may present as bedwetting or enuresis. <input type="checkbox"/> Symptoms are often abrupt and illness is often severe with vomiting, stomach pain, rapid/laboured breathing and altered level of consciousness. <input type="checkbox"/> If glucose and ketones are present in urine, treatment is urgent and the child should be treated the same day to avoid the progression of ketoacidosis.
Management	<ul style="list-style-type: none"> <input type="checkbox"/> The main type of diabetes in childhood is Type 1 diabetes. <input type="checkbox"/> Presentation in DKA is very common and only effective treatment is insulin and not oral drugs or traditional medicines. <input type="checkbox"/> Children's insulin requirements change frequently, due to growth in size, puberty and the demands of school, sport and work. <input type="checkbox"/> Insulin dosage is based on weight. As children grow rapidly, their insulin doses need to be adjusted at each clinic visit; every few months at least. <input type="checkbox"/> Insulin requirements increase during the pubertal growth spurt and then decrease back to normal adult levels as growth is completed. <input type="checkbox"/> Children with diabetes and their families need constant re-education as the child becomes older and more able to understand and develop diabetes self-care skill. <input type="checkbox"/> Good control is essential to avoid acute complications which can be frequent and are deadly and to prevent long term complications. <input type="checkbox"/> The patient, parents, friends, neighbours, school and healthcare workers must all be working together as a team to provide the child with practical, emotional and moral support where needed. <input type="checkbox"/> Dietary considerations include requirements for growth and childhood activities including play.

SEVERELY ILL PATIENTS

Signs of Severe Illness:	
Pulse >125 bpm Temperature >40°C Wheezing or crepitations	Dry lips/tongue, sunken eyes (dehydration) Increased respiratory rate (pneumonia/ketoacidosis) Systolic BP <90 mmHg (shock/ heart failure)
Refer urgently to hospital if one or more of:	
Became unwell rapidly Reduced consciousness Abdominal pain with vomiting	Rapid breathing, dry lips/mouth (dehydration) Ketones in the urine (ketoacidosis) Rapid weight loss
While arranging transfer to hospital treat symptomatic the following:	
If dehydrated:	If suspected anaphylaxis (SBP < 90 mmHg and relevant exposure):
If conscious give frequent drinks, oral re-hydration solution or IV Ringer Lactate solution if reduced consciousness.	Monitor airway Give adrenaline 0.5 mg IM (side of thigh). If no response, repeat every 5 mins max 3 times Give hydrocortisone 100-300 mg IV Give IV fluids ½ ltr NS rapid and ½ ltr NS slow infusion
If RBG ≤2.8 mmol/l:	If signs and symptoms of heart failure:
If able to drink give one large tablespoon of sugar mixed in water or 1 glass of fruit juice, honey or a sugary drink. If no response within 15 minutes, repeat If unconscious/unable to drink, give 50 ml 50% glucose IV if feasible.	Sit patient upright Give frusemide 40 mg as single doses If chest pain, radiating to (left) arm or chin: Give aspirin 300 mg as single dose (unless history of GI bleeding) Do not give Diclofenac, Diclopar or any other NSAID
If urine ketones +++ and blood glucose >13.9 mmol/L (in known or suspect Diabetic patient)	Fever > 38°C and/or stiff neck
Give 1 ltr NS as rapid infusion, and another ½ ltr NS as slow infusion Give short acting (rapid) insulin 10 IU IM if available and only if certain of the diagnosis DKA	Consider meningitis or cerebral malaria and start appropriate treatment with antibiotics
If convulsions/seizure in pregnancy:	Paralysis
Give magnesium sulphate 4 g IV over 5-15 mins If not available, or as supplement, give diazepam 10 mg rectally Secure airways	Maintain a free airway before and during transport to hospital ►25

SEVERELY ILL PATIENTS – THE UNCONCIOUS

The Unconscious or Semi Conscious Patient
There are many causes (including diabetes and stroke) but all patients require attention before referral, as in table below

1st Group of Actions	
A) AIRWAY	Maintain airway by chin lift or jaw thrust by the head tilt manoeuvre If no free airway: check for alien body in throat and remove it
B) BREATHING	If no spontaneous breathing, assist with ventilation If wheezes, administer Salbutamol
C) CIRCULATION	Stop any bleeding by compression Insert IV line for fluid if hypovolaemic
D) DRUGS	AVPU Is the patient A wake? Responds to V oice? To P ain? Or completely U nresponsive? Place unconscious patient in lateral recovery position unless neck trauma suspected

History	2nd Group of Actions
	Diagnosis of epilepsy, hypertension, diabetes Alcohol / substance abuse Insect sting or snake bite Recent trauma Convulsions Known allergy Medicines taken
Measure	3rd Group of Actions
	Blood pressure Pulse Respiration rate Temperature Blood glucose

Check For	4th Group of Actions
	One sided weakness Seizures/convulsions Stiff neck Advanced pregnancy Swelling of lips, tongue or neck Informative skin lesions (bites, infections, pettechia etc)

TREATMENT SUPPORTER

Explain to patient why a treatment supporter is important:
<ul style="list-style-type: none"><input type="checkbox"/> Treatment is life-long, support is essential.<input type="checkbox"/> It can be difficult to remember to take tablets regularly, but it is vital to continue treatment.<input type="checkbox"/> A treatment supporter is someone they can talk to easily and who will encourage them to continue with treatment.<input type="checkbox"/> It is their choice who will be their treatment supporter.<input type="checkbox"/> The treatment supporter will be called if they cannot be contacted or if there is a problem
<p>Discuss who would be the best treatment supporter; it must be someone concerned, trusted and committed to providing support.</p> <p>Help the patient choose someone e.g. family member, friend, community volunteer or home based care volunteer. If patient cannot decide, suggest someone.</p> <p>Record name, address and mobile phone number of patient and treatment supporter on the patient's treatment card.</p> <p>Ask the patient to bring treatment supporter with them for all clinic visits, to learn about the illness, treatment and their role.</p>
Advise treatment supporter to:
<ul style="list-style-type: none"><input type="checkbox"/> Meet with the patient often, try to make this a enjoyable time. If possible, meet at the time the patient takes their tablets to see them taking the tablets as prescribed.<input type="checkbox"/> Look at tablet pack to check the patient is taking tablets correctly.<input type="checkbox"/> Inform health worker if the patient stops taking the tablets.<input type="checkbox"/> Encourage the patient to be active, eat healthily, stop smoking as needed and attend appointments
Appointment reminders
<ul style="list-style-type: none"><input type="checkbox"/> If an individual fails to attend a review appointment, take action.<input type="checkbox"/> Phone patient and encourage them to return.<input type="checkbox"/> Phone treatment supporter and ask them to remind patient.<input type="checkbox"/> Ask someone e.g. CHW to home visit if patient does not return.<input type="checkbox"/> If patient is not adhering to treatment or attending appointments:<ul style="list-style-type: none"><input type="checkbox"/> Do not criticise.<input type="checkbox"/> Discuss any concerns or difficulties.<input type="checkbox"/> Encourage the patient and treatment supporter<input type="checkbox"/> Remind patient of treatment contract and the importance of continued medication.<input type="checkbox"/> If patient has stopped medication:<ul style="list-style-type: none"><input type="checkbox"/> Check BP (see p12) and do lab tests as appropriate.<input type="checkbox"/> If results are high, review and start again as if new patient

Medicine: Contra-Indications and Major Side Effects

Medicine	Contraindication	Major common side effects
Thiazide diuretic	Gout	Low potassium leading to e.g. muscle weakness Impaired glucose tolerance/diabetes Impotence
Beta blockers (BB)	Asthma Chronic obstructive pulmonary disease (COPD) Insulin dependent diabetes Uncompensated heart failure Second and third degree heart block Bradycardia <50/min Raynaud's syndrome	Fatigue Abdominal discomfort, constipation, diarrhoea Worsening of congestive heart failure Heart rate < 50 per minute Insulin resistance/hyperglycaemia Dyslipidaemia Erectile dysfunction (impotence)
ACE-inhibitor (ACEi)	Pregnancy Hyperkalaemia Bilateral renal artery stenosis	Increase in creatinine levels Dry irritative cough Headache, dizziness, sleep disturbances Abdominal cramps, nausea or vomiting Diarrhoea, constipation/foetal abnormalities
Ca-Channel blocker	Congestive heart failure	Nausea, general discomfort Ankle swelling Constipation Headache
(CCB)	Treatment with rifampicin (TB treatment)	
Aspirin (Antiplatelet)	Peptic ulcer (and caution if dyspepsia) Severe heart failure Untreated severe hypertension	Stomach pain, heartburn Nausea and vomiting, diarrhea Gastrointestinal bleeding Headache, sleep disturbances Aspirin-induced asthma
Biguanide (Metformin)	Kidney failure Severe hepatic failure Hypoxic tissue (e.g MI) Surgery in near future Pregnancy or breast feeding	Diarrhoea, nausea, vomiting Abdominal discomfort Reduced appetite, weight loss
Sulphonylureas	Pregnancy Surgery in near future	Risk of (prolonged) hypoglycaemia Skin rash, itch
Statins	Liver disease	Affection of liver function Abdominal discomfort, flatulent, diarrhoea Headache Muscle cramps, arthritis, myalgia Hyperglycaemia
Weight reducing drug (Orlistat)		Abdominal pain, flatulent, incontinence for faeces, fatty diarrhoea Restlessness

Useful Resources

WHO Model Formulary 2008 www.who.int/seletcion_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/imai/generalprinciples082004.pdf

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
CRCT	Cluster randomised controlled trial
CVD	Cardiovascular disease
eGFR	Estimated glomerular filtration rate
FBC	Full blood count
FBG	Fasting blood glucose
GTT	Glucose tolerance test
HbA _{1c}	Glycosylated haemoglobin
HDL	High density lipoprotein
IDF	International Diabetes Federation
IGT	Impaired glucose tolerance test
IM	Intramuscularly
IMAI	Integrated management of adult and adolescent illness
IV	Intravenously
K	Potassium
LDL	Low density lipoprotein
Max	Maximum
MI	Myocardial infarction
NICE	National Institute of Clinical Excellence
NGO	Non governmental organization
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 Organization
Yrs	Years

