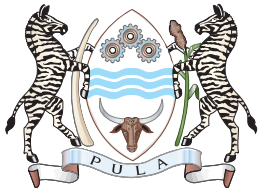

Republic of Botswana

MINISTRY *of* HEALTH
REPUBLIC OF BOTSWANA

Botswana primary care guideline for adults

2013

PACK
Practical Approach to Care Kit

Preface

This *Practical Approach to Care Kit (PACK) - Botswana Primary Care Guideline for Adults* was compiled by the Knowledge Translation Unit, University of Cape Town Lung Institute in collaboration with the University of Botswana Family Medicine Department and the Botswana Ministry of Health (Department of Non-Communicable Diseases). This work has been funded by the Medical Education Partnerships Initiative (MEPI) in Botswana to strengthen and expand medical education at the University of Botswana School of Medicine, enhance the care delivery standards of the existing health system and transform current HIV clinical outreach sites into general medical educational facilities that enhance learning opportunities while improving access to clinical services.

PACK is a symptom-based integrated clinical management guideline using an algorithmic approach for the management of common symptoms and a standardised clinical approach to chronic conditions in adults 15 years or older who present at primary care. This guideline is accompanied by a training implementation strategy that effects knowledge translation.

The PACK guideline has been developed in consultation with clinicians and health managers (see Acknowledgements below). For a description of the guideline development process, see the Knowledge Translation Unit website, *www.knowledgetranslation.co.za*. The guideline is aligned with the following Botswana Ministry of Health policies and clinical protocols:

- Botswana Essential Drugs List (BEDL)
- Botswana Treatment Guide 2007
- Botswana National HIV & AIDS treatment guidelines 2012
- National Tuberculosis Programme Manual 7th edition (2011)
- National Malaria Control Programme Guidelines for the diagnosis and treatment of Malaria in Botswana (September 2007)
- Management of Sexually Transmitted Infections – reference manual for health workers June 2005
- Safe Motherhood Nursing/Midwifery Protocols for Health Posts 2008
- Guidelines for Antenatal Care and the Management of Obstetric Emergencies and Prevention of Mother to Child Transmission of HIV (2010)
- Mental Disorders – chapter 63:02 Government printers 2002
- Botswana Integrated Management for HIV/AIDS and other Illness – palliative care: symptom management and end-of-life care
- WHO Package of Essential Non-Communicable Disease Interventions for Primary Heath Care (PEN) draft guidelines

The guideline is divided into two main sections: symptoms and chronic conditions. In patients presenting with symptoms, start by identifying your patient's main symptom. Use the Symptoms contents page to find the relevant symptom page in the guideline.

Then follow the algorithms to either a management plan for that symptom or to the relevant chronic condition in the second section of the guideline.

In the patients known with a chronic condition, use the Chronic Conditions contents page to find that condition in the guideline. Now go to the routine care pages for that condition to manage the patient's chronic condition using the assess, advise and treat framework.

- All drugs recommended in this guideline are highlighted in either green or orange:
  - Orange-highlighted drugs may be prescribed by a doctor and a nurse according to his/her scope of practice.
  - Green-highlighted drugs may only be prescribed by a doctor and a specialist nurse according to his/her scope of practice.
- Arrows refer you to another page in the guideline:
  - The return arrow (↩) guides you to a new page but suggests that you return and continue on the original page.
  - The direct arrow (→) guides you to continue on another page.
- The assessment tables on the Routine Care pages are arranged in 3 tones to reflect those aspects of the history, examination and investigations that should be considered.

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The description for making a home-made spacer (page 65) was adapted from the following article: A novel method for constructing an alternative spacer for patients with asthma H J Zar, C Green, M D Mann, E G Weinberg January 1999, Vol. 89, vol. 1 South African Medical Journal

Contents: symptoms

Assess and manage the patient using his/her symptom/s as a starting point

Contents: chronic conditions

An approach to the diagnosis and routine care of the patient with a chronic condition

Weight loss

Give urgent attention to the patient with weight loss on ART:

- Weight loss in the patient on ART associated with one or more of: nausea, vomiting, sore muscles, shortness of breath, abdominal pain or distension

Management:

- Patient needs same day lactate measurement →64.

- Check that the patient that says s/he has unintentionally lost weight has indeed done so. Compare current weight with previous records and ask if 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 ↻55.
- At the same time test for HIV ↻60 and diabetes ↻70
- and consider other causes below.

Test for HIV

- If status is unknown, test for HIV ↻60.
- The HIV patient with weight loss ≥ 10% and diarrhoea or fever > 1 month needs ART →61.

Check for diabetes

- Check random finger-prick blood glucose
- To interpret result ↻70.

Ask about symptoms of common cancers:

Abnormal vaginal discharge/ bleeding	Breast lump/s or nipple discharge	Urinary symptoms in man	Change in bowel habit	Cough ≥ 2 weeks, blood-stained sputum, long smoking history
Consider cervical cancer. Do a speculum examination →27.	Consider breast cancer. Examine breasts/axillae for lumps →18.	Consider prostate cancer. Hard and nodular prostate on rectal examination →31.	Consider bowel cancer. Mass on abdominal or rectal examination, occult blood positive.	Consider lung cancer. Do chest X-Ray.

If food intake inadequate, look for a cause:

Nausea and/or vomiting	Loss of appetite	Ask, 'Are you stressed?	No money for food	The patient has an incurable illness and you would not be surprised if s/he died within the next year.	Sore mouth or difficulty swallowing
→20.	• Eat small frequent meals. • Drink high energy drinks (milk, mageu, soup, sweetened fruit juice). • Increase energy value of food by adding sugar, milk powder, peanut butter or oil.	If yes, →52.	If available, refer to social worker.	Give end-of-life care →97.	**Oral/oesophageal thrush** likely →14

Check thyroid function (TSH) if none of the above and patient has any of pulse > 80, tremor, irritability, dislike of hot weather or thyroid enlargement.

Refer within 1 month for further investigation the patient with persistent documented weight loss and no obvious cause.

Fever

Give urgent attention to the patient with fever (temperature ≥ 38˚C now or in the past 3 days) and one or more of the following:

- Confusion or agitation
- Difficulty breathing; RR > 30 breaths/minute
- Unable to walk unaided
- Unable to drink
- Jaundice
- Seizures ↻ 2
- BP < 90/60
- Easy bleeding/ bruising/blood in urine

Management:

- Establish IV access and give 5% glucose in ½ strength Darrows. If unavailable give ORS.
- Give ceftriaxone 2mg IV/IM stat.
- If a malaria area and rapid diagnostic test positive also give quinine IV infusion, or if not possible, IM.
- Refer same day to hospital.

How to give IV/IM quinine

- If patient had choloroquine, quinine or mefloquine in past week, give 10mg/kg, otherwise 20mg/kg, up to 1.2g.
- IV infusion: dilute quinine in 5% dextrose, give over 4 hours.
- IM: combine 5ml normal saline and 300mg (1mℓ) quinine in syringe = 50mg/ml. Give maximum 4ml per injection site.
- Monitor blood glucose 4 hourly: if < 3.5, give IV dextrose.

Approach to the patient with fever (temperature ≥ 38˚C now or in the past 3 days) not needing urgent attention:

- Ask about other symptoms: if cough →16; sore throat ± blocked/runny nose →13; lower abdominal pain ± vaginal discharge →23.
- If above symptoms are not present and client has been in a malaria area recently, check a rapid diagnostic test for malaria:

Malaria test positive

Do a malaria parasite slide to confirm diagnosis.

Treat same day for malaria *and* consider another cause of fever:

- Give 6 doses of artemether/lumefantrine 20/120mg: 4 tablets stat, after 8 hours, then 12 hourly.
- If pregnant in 1st trimester give instead quinine sulphate 600mg orally 8 hourly with food for 7 days.
- Advise patient to return for review after 3, 14 and 28 days.

Fever persists

Repeat malaria parasite slide and treat depending on duration of fever.

Fever persists *within* 2 weeks

- Give quinine sulphate 600mg orally 8 hourly with food for 7 days and
- Consider other cause for fever:

Fever persists *after* 2 weeks

- If malaria slide positive, retreat with artemether/lumefantrine 20/120mg: 4 tablets immediately, after 8 hours, then 12 hourly.
- If negative, consider other cause of fever:

Malaria test negative

After 6 hours, repeat a rapid diagnostic test *and* do a malaria parasite slide.

Positive

Negative

Client was not in a malaria area.

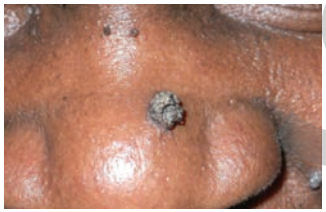
Consider other cause for fever

- If patient has any other symptoms, manage symptom on symptom page.
- Exclude TB in the client with fever ≥ 2 weeks ↻ 55.
- If status unknown, test for HIV ↻ 60. If HIV positive and temperature ≥ 39˚C, refer for workup. Give routine HIV care ↻ 61.
- If fever persists after 3 days, repeat/do malaria test, exclude TB and refer for further investigation.

Lumps

Refer same week the patient with a lump that:
- Bleeds easily
- Is a new or changed mole
- If the diagnosis is uncertain to exclude skin cancer

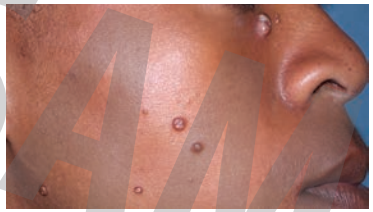
Raised nodules or papules



Warts likely
- Common on hands in young adults.
- Plantar warts on the soles of the feet are thick and hard with a black central point.

- Reassure patient that warts often disappear spontaneously.
- Protect surrounding skin with petroleum jelly and apply a silver nitrate pencil. Repeat as needed after 2 weeks.
- Refer if warts persist or are extensive.

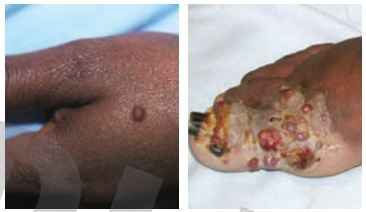
Small, skin-coloured bumps with pearly central dimples



Molluscum contagiosum likely
- May be extensive in HIV.
- If status is unknown test for HIV →60.

- Reassurance (may disappear quickly with ART).
- If distressing to patient, try local destructive treatment (open molluscum with sterile blade/ needle and apply povidine iodine 10% ointment.
- Refer if no response to ART or local destructive treatment.

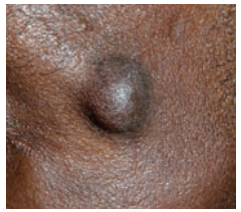
Purple lumps on skin or in mouth



Kaposi's sarcoma likely
- These can vary from isolated lumps to florid tumours.
- If status is unknown test for HIV →60.

- This is an AIDS-defining illness.
- Patient needs routine HIV care and ART →61.

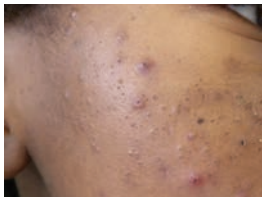
Small, firm lump beneath the skin, may discharge white material



Epidermal cyst likely

- If not infected no treatment needed.
- If warm, tender and red, the cyst is infected:
  - Incise and drain if large or fluctuant. Refer if on face or perianal region.
  - If enlarged lymph nodes or temperature ≥ 38˚C give cloxacillin 500mg 6 hourly for 5 days. If penicillin allergic give erythromycin 500mg 6 hourly for 5 days.
- Refer if large, symptomatic, recurrent infection or diagnosis uncertain.

Red papules, pustules and blackheads on face and perhaps on upper back, arms, buttocks and chest



Acne likely

- Steroids, anticonvulsants, isoniazid can all worsen acne.
- Advise to avoid squeezing lesions and greasy cosmetics. Diet will not affect acne.
- Apply benzoyl peroxide 5% cream at night to inflamed pustules and give doxycycline 100mg daily for at least 3 months. Doxycycline interferes with oral contraceptive and can cause sunburn. Advise to use condoms as well and to avoid the sun.
- If woman needs contraception, advise oestrogen-containing oral contraceptive ↩90.
- Response to treatment is usually slow.
- Refer if severe or not responding to treatment.

TB: diagnosis

Exclude TB in the patient with cough ≥ 2 weeks (or if HIV patient cough of *any* duration), unintentional weight loss ≥ 5% in 4 weeks, drenching night sweats, fever ≥ 2 weeks, loss of appetite, chest pain on breathing, blood-stained sputum, feeling unwell, lymph node ≥ 2cm ↩ 2, TB contact.

Give urgent attention to the TB suspect with one or more of the following:

- Respiratory rate of ≥ 30 breaths/minute
- Breathlessness at rest or while talking
- Coughing up ≥ 1 tablespoon fresh blood
- Prominent use of breathing muscles
- Confusion or agitation

- Give 1 dose of ceftriaxone 1g IM/IV (if unavailable, amoxicillin 1g orally. If penicillin allergic give erythromycin 500 mg orally).
- Give face-mask oxygen.
- Take 2 spot sputum specimens for AFBs 1 hour apart and arrange follow-up.
- Refer urgently with continuous oxygen to hospital.

1ST VISIT

Approach to the TB suspect not needing urgent attention

- Send 1 spot sputum specimen for AFBs at this visit. Only if patient is unable to return the next day, take 2 specimens 1 hour apart.
- Next day, send 1 early morning sputum for AFBs. If patient previously treated for TB for ≥ 4 weeks, known MDR/XDR TB contact or a health worker, also request culture and DST[1].
- If status unknown test for HIV ↩ 60.
- If patient has chest pain on breathing or is coughing frank blood, also arrange doctor review with chest X-Ray (see below).
- Ask patient to return for sputum results after 1–2 working days.

2ND VISIT

Is GeneXpert (if available) positive?

Yes

Follow GeneXpert diagnostic algorithm (Botswana National Tuberculosis Programme Manual 2011, pg 119).

GeneXpert not available or negative

At least one sputum AFB positive

Diagnose TB

- Give routine TB care →57.

Both sputum specimens AFB negative or GeneXpert negative

- Give amoxicillin 1g 8 hourly for 5 days. If penicillin allergic: erythromycin 500 mg 6 hourly for 5 days *and*
- Manage further according to HIV status. **Encourage patient who has not tested to do so** ↩ 60.

HIV positive

HIV negative

Review in one week.

No or partial response

Resolved. Advise to return if symptoms recur.

[1] Drug susceptibility testing. This specimen must be sent to the National TB Refernce Laboratory with a mycobacteriology form.

Continue workup of patient

- If GeneXpert negative, arrange chest Xray and doctor visit (see below).
- If GeneXpert not done, send 3rd sputum for AFBs, and culture and DST[1] if not already sent and patient has HIV.
- Ask patient to return for AFB result after 1–2 working days.
- If patient treated previously for TB, a known MDR/XDR TB contact or health worker, and GeneXpert not done, ensure culture and DST[1] were sent.

3RD VISIT

3rd sputum AFB positive *and/or* culture positive	All sputum specimens AFB negative or GeneXpert negative *and* culture negative *or* pending
Diagnose TB. Give routine TB care →57.	Arrange chest X-Ray and doctor appointment. Do not wait for culture result before referring to doctor.

4TH VISIT: DOCTOR

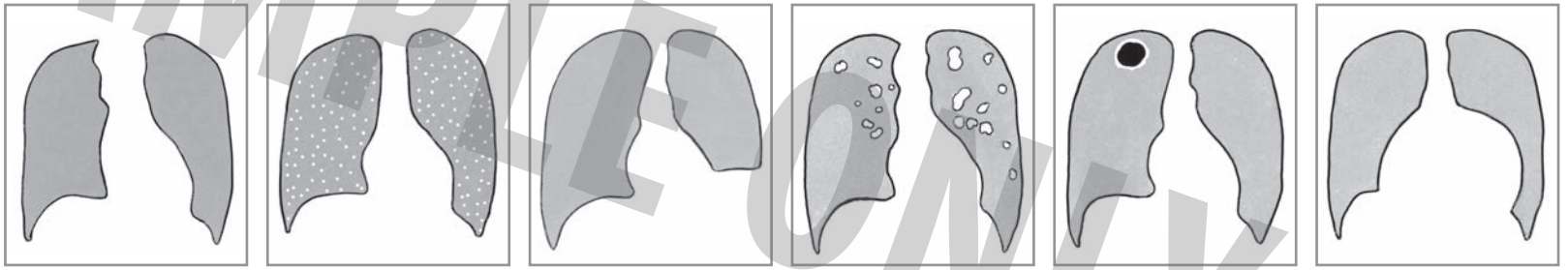
- Ensure patient does not need urgent attention ↩55.
- If the patient has HIV, does s/he have a dry cough, worsening breathlessness on exertion and if known, CD4 < 200?

Yes

PCP likely →16

No

Review chest X-Ray



Intrathoracic lymphadenopathy | Miliary TB | Pleural effusion | Any lung opacification/s can be TB in HIV patient | Upper lobe cavitation | Pericardial effusion

Chest X-Ray similar to any X-Ray above	Chest X-Ray normal	Chest X-Ray different to above or unsure
Diagnose TB on basis of chest X-Ray. • Give routine TB care →57.	• Look for extra-pulmonary TB: - If patient has abdominal pain, swelling or diarrhoea refer for abdominal ultrasound. - If patient has headache, refer for lumbar puncture. - If patient has lymphnode ≥ 2cm, aspirate for TB and cytology ↩5. - If extra-pulmonary TB diagnosed give routine TB care →57. • Look for other cause of cough →16.	Refer for specialist review.

[1] Drug susceptibility testing. This specimen must be sent to the National TB Refernce Laboratory with a mycobacteriology form.

TB: routine care

Assess the patient with TB at diagnosis and monthly

Assess	When to assess	Note
Symptoms	Each visit	Expect gradual improvement on TB treatment. Refer if symptoms worsen or do not improve.
Contacts	At diagnosis and if symptomatic	Screen household contacts who are symptomatic, < 5 years or have HIV .
Family planning	At diagnosis and each visit	Assess contraceptive needs ↴90: - Suggest patient uses injectable contraceptive or if available an intra-uterine contraceptive device. - Adjust oral contraceptive: at least 0.05mg ethinyloestradiol, shorten pill free day to 4 days and use condoms. - If using hormonal implant, advise patient uses condoms too.
Adherence	At diagnosis and each visit	At each visit check adherence on the TB card.
Side effects	At diagnosis and each visit	On starting TB treatment, advise patient about possible side effects (see below) and to report these promptly.
Substance abuse	At diagnosis and if adherence poor	If ≥ 21 drinks/week (man), 14 drinks/week (woman) and/or ≥ 5 drinks/session or misuses illicit or prescription drugs ↴83.
Severely ill patient	Each visit	Check for signs of the patient needing urgent attention ↴55.
Weight	At diagnosis and each visit	• Expect gradual weight gain on treatment. Refer for doctor review if losing weight or not gaining weight on treatment. • BMI is weight (kg) ÷ height (m) ÷ height (m). If < 18.5, refer for nutritional support.
Sputum	According to schedule ↴59. Review results at each visit. If smear negative, culture negative TB, check only if deteriorating.	• Make every effort to obtain sputum, even if early morning, by nebulisation or with brisk exercise. • If patient treated previously for TB, a known MDR/XDR contact or a health worker, ensure culture and DST[1] were requested at diagnosis. • If sensitivities show resistance refer to MDR/complicated TB treatment centre.
Chest X-Ray	After 1 month if pleural or pericardial effusion	Routine repeat chest X-Ray is unnecessary. Do chest X-ray in the patient if frank haemoptysis or smear negative TB and symptoms not improving.
HIV	If status unknown	Test for HIV ↴60. Give the HIV patient routine HIV care ↴61. Start ART within intensive phase once tolerating TB treatment.
CD4	HIV patient not on ART	If CD4 < 100 start ART at 2 weeks as soon as patient is tolerating TB treatment. Do not delay starting ART waiting for the CD4 result.

Advise the patient with TB

- Smoking worsens TB treatment outcomes. Urge the patient who smokes to quit.
- Discuss adherence: poor adherence leads to drug resistant TB. For treatment to be effective it is crucial to take all treatment for the correct period. Refer for adherence support and TB/HIV education.
- Advise the patient abusing alcohol and/or illicit or prescription drugs to stop. Substance abuse can interfere with recovery and with adherence to treatment.
- Educate patient about TB treatment side effects (as below) and to report these promptly should they occur.

Discuss TB treatment side effects

Jaundice and vomiting	Most TB drugs	Stop all drugs and refer to hospital same day.
Skin rash/itch	Rifampicin	Assess and manage ↴40.
Loss of colour vision	Ethambutol	Stop ethambutol and refer same week.
Ringing in ears/deafness	Streptomycin	Stop streptomycin immediately and refer same week.

Nausea/poor appetite	Rifampicin	Take treatment at night.
Joint pain	Pyrazinamide	Paracetamol or ibuprofen as needed
Orange urine	Rifampicin	Reassure.
Burning feet	Isoniazid	Give pyridoxine ↴37.

Treat the patient with TB →58.

[1] Drug susceptibility testing. This specimen must be sent to the National TB Refernce Laboratory with a mycobacteriology form.

Treat the patient with TB

Choose TB treatment regimen

- If patient has never been treated previously for TB or received TB treatment for less than 4 weeks s/he is a new TB case: give new treatment regimen for 6 months.
- If patient has ever been treated for TB for more than 4 weeks s/he is a retreatment TB case: give retreatment regimen for 8 months.

Start TB treatment

- Treat the patient with TB 7 days a week. Ensure directly observed treatment for the entire length of treatment.
- **New TB case**: give new treatment regimen for 6 months: Intensive phase: RHZE for 2 months and then change to continuation phase: RHE for 4 months.
- **Retreatment TB case**: give retreatment regimen for 8 months: Intensive phase: RHZE for 3 months (including streptomycin for first 2 months) and then change to continuation phase: RHZE for 5 months.
- Determine dose according to weight in table. Adjust dose with weight gain.
- Give streptomycin for the first 2 months in retreatment regimen:
  - Ideally for 7 days a week, same time every day.
  - Omit if patient is pregnant, > 65 years, has kidney disease, hearing loss or on TDF.
- Give pyridoxine 25mg daily throughout TB treatment.

TB treatment doses according to weight

Weight	RHZE (150/75/400/275)	Streptomycin	RH	E (400)
30–37kg	2 tablets	0.5g IMI	2 (150,75)	2 tablets
38–54kg	3 tablets	0.75g IMI	3 (150,75)	2 tablets
55–70kg	4 tablets	1.0g IMI	2 (300,150)	3 tablets
≥ 71kg	5 tablets	1.0g IMI	2 (300,150)	3 tablets

R – rifampicin H – isoniazid Z – pyrazinamide E – ethambutol

Manage the TB/HIV patient's HIV

- Give co-trimoxazole 960mg and and routine HIV care throughout TB treatment ↩61. Stop co-trimoxazole after completion of TB treatment if patient has CD4 > 200 and is stage 1 or 2.
- Start ART in the first 8 weeks of TB treatment as soon as patient is tolerating TB treatment, at 2 weeks or 4 weeks if TB meningitis.
- If on ART and TB treatment, check AST/ALT monthly for 3 months. To interpret result ↩64.
- If patient on lopinavir/ritonavir, double the dose of LPV/r to 800/200mg 4 tablets 12 hourly and monitor for liver problem. On completion of TB treatment, reduce LPV/r dose to 2 tablets 12 hourly.

Approach to the patient who interrupts TB treatment

- Explore with the patient the reason for interruption. Exclude substance abuse ↩83, stress ↩52, side effects, lack of treatment support.
- Provide increased adherence support and weekly follow-up. Strengthen DOT.
- Consider restarting TB treatment according to timing and duration of interruption:

Interruption during intensive phase

Interrupted for < 2 weeks
- Continue TB treatment.
- Prolong intensive phase to make up missed doses.

Interrupted for ≥ 2 weeks
- Restart TB treatment.
- Send sputum for microscopy, culture and DST if initially smear positive.

Interrupted for < 1 month
- Continue TB treatment.
- Patient to make up missed doses.

Interruption during continuation phase

Interrupted for 1–2 months
- Send sputum for microscopy, culture and DST.
- Continue treatment while awaiting results.

Negative smear *and* culture or EPTB
- Continue TB treatment.
- Patient to make up missed doses.

Positive smear *or* culture

Retreatment patient:
- Continue retreatment.
- Refer if MDR-TB confirmed.

Interrupted for ≥ 2 months
- Register patient as TB treatment default.
- Send sputum for microscopy, culture and DST.
- Give no treatment while waiting for results unless patient is sick.

Positive smear or culture or patient sick

New patient:
- Start retreatment.
- Refer if MDR-TB confirmed.

Retreatment patient:
- Refer to MDR-TB centre.

Negative smear *and* culture or EPTB and no TB symptoms
- Doctor to decide if to start retreatment or to give no more TB treatment and monitor monthly. Discuss with MDR/complicated TB treatment centre.

[1] Drug susceptibility testing. This specimen must be sent to the National TB Refernce Laboratory with a mycobacteriology form.

Approach to the sputum follow-up and discharge of the smear positive and/or culture positive TB patient.
Review the patient on TB treatment monthly. Plan his/her visits according to TB treatment regimen and sputa results.

	New smear positive	Retreatment smear positive	New smear negative culture positive	Retreatment smear negative culture positive
End of month 2	• Change to continuation phase. • Send 2 sputa for AFB. If positive, plan to repeat 1 sputum for AFB at 3 months.	Check culture and DST[1] result. If resistant, register as **treatment failure** and refer to MDR/complicated TB treatment centre.	• Change to continuation phase. • Send 2 sputa for AFB: - If negative and well, no need for further sputa. - If positive, send sputum for culture and DST[1].	
End of month 3	If month 2 sputa were positive, send 1 sputum for AFB. If positive, send sputum for culture and DST[1].	• Change to continuation phase. • Send 2 sputa for AFB. If 1 or 2 AFB positive, send sputum for culture and DST[1].	Check culture and DST[1] result if sent. If resistant, register as **treatment failure** and refer to MDR/complicated TB treatment centre.	• Change to continuation phase. • Send 2 sputa for AFB: - If negative, no need for further sputa. - If positive, send sputum for culture and DST[1].
End of month 4	Check culture and DST[1] result if sent. If culture positive, register as **treatment failure** and refer to MDR/complicated TB treatment centre.	Check culture and DST[1] result if sent. If resistant, register as **treatment failure** and refer to MDR/complicated TB treatment centre.	Check culture and DST[1] result if sent. If resistant, register as **treatment failure** and refer to MDR/complicated TB treatment centre.	Check culture and DST[1] result if sent. If resistant, register as **treatment failure** and refer to MDR/complicated TB treatment centre.
End of month 5	Send 2 sputa for AFB. Review results at the end of month 6 to determine treatment outcome.	Send 2 sputa for AFB: • If negative, continue treatment. • If positive, send culture and DST[1], register as **treatment failure** and refer to MDR/complicated TB treatment centre.		Check culture and DST[1] result if sent. If resistant, register as **treatment failure** and refer to MDR/complicated TB treatment centre.
End of month 6	Stop TB treatment and register treatment outcome: • If both sputa negative: **cured**. • If 1 or more sputa positive: **treatment failure**, re-register as **retreatment after failure** and start regimen 2. Discuss with MDR/complicated TB treatment centre. • If unable to produce sputum and is well: **treatment completed**.		• Stop TB treatment. • Register patient as **treatment completed** if patient has completed 6 months treatment.	
End of month 8		• Send 2 sputa for AFB. • Stop TB treatment and register treatment outcome: - If both sputa negative: **cured**. - If 1 or more sputa positive: **treatment failure**. Send culture and DST[1] and refer to MDR/complicated TB treatment centre. - If unable to produce sputum and is well: **treatment completed**.		• Stop TB treatment. • Register patient as **treatment completed** if patient has completed 8 months treatment.

[1] Drug susceptibility testing. This specimen must be sent to the National TB Refernce Laboratory with a mycobacteriology form.

Hypertension: diagnosis

Check blood pressure (BP)

- Seat patient with arm supported at heart level for 5 minutes.
- Use a standard cuff or **larger cuff if mid-upper arm circumference is > 33cm**.
- Record systolic BP (SBP) and diastolic BP (DBP): SBP is the first appearance of sound. DBP is the disappearance of sound.
- If raised, recheck until a reading is repeated. Use this reading to determine the patient's BP.
- **Do not diagnose hypertension on the basis of one reading alone**.

< 180/110
Is there diabetes, ischaemic heart disease, peripheral vascular disease, stroke, heart failure, kidney disease or CVD risk > 30%?

No

< 140/90

- Review in 3 years if all readings normal.
- Review in 1 year if any raised readings.

140/90–179/109

Check BP on 2 further occasions at least 2 days apart.

140/90–159/99

Assess CVD risk ↻68.

< 10%

- Manage CVD risk ↻69.
- Review CVD risk and BP every 3 years.

10–20%

- Manage CVD risk ↻69.
- Review CVD risk and BP every year.

20–30%

- Manage CVD risk ↻69.
- Recheck BP in 6 months.

< 140/90

- Continue to manage CVD risk ↻69.
- Review BP and CVD risk 6 monthly.

≥ 140/90

- Diagnose hypertension. **Do not diagnose hypertension on the basis of one reading alone**.
- Start routine hypertension care →74.
- Refer if patient is < 40 years or pregnant.

160/100–179/109

BP confirmed 130/80–179/109

Yes

130/80–179/109

Check BP on 2 further occasions at least 2 days apart.

BP confirmed 130/80–179/109

< 130/80

Repeat BP yearly.

≥ 180/110
Does patient have any of the following: headache, difficult breathing, visual disturbances, chest pain, confusion, leg swelling?

No

- Diagnose hypertension.
- Start routine hypertension care →74.
- Start drug treatment at step 1 *and* step 2 anti–hypertensive treatment →74.
- Review in 2 weeks.

Yes

Patient needs urgent care

- Only treat BP if no sign of stroke: sudden onset of weakness on 1 or both sides, vision problems, dizziness, difficulty speaking or swallowing.
- Give nifedipine SR 20mg or nifedipine XL 30mg stat.
- Avoid short-acting nifedipine as it may drop the BP too quickly, causing a stroke.
- If dizzy or faint after treatment, check BP: if more than 25% drop or < 160/100, lie patient down with legs raised.
- Refer same day to hospital.

Hypertension: routine care

Assess the patient with hypertension

Assess	When to assess	Note
Symptoms	Every visit	Manage symptoms on symptom page. Ask about symptoms of stroke or transient ischaemic attack (TIA).
BP	Every visit	BP is controlled if < 140/90 (or < 130/80 if diabetes, CVD, heart failure or kidney disease). See below.
BMI	BMI at diagnosis, weight at every visit	BMI is weight (kg)/[height (m) x height (m)]. If BMI > 25, calculate target weight: 25 x height (m) x height (m).
Waist circumference	Every visit	Measure on breathing out midway between lowest rib and top of iliac crest. Aim for < 80cm (woman), < 94cm (man).
CVD risk	At diagnosis and every 5 years	If CVD or diabetes no need to check. It reflects the risk of a heart attack or stroke over the next 10 years ↩ 68.
Urine dipstick	6 monthly	Refer to doctor if blood or protein on repeat dipstick. If glucose on dipstick, screen for diabetes ↩ 70.
Glucose	Yearly and if glucose on urine dipstick	Check random finger-prick glucose ↩ 70 to interpret result. Check every visit if patient diabetic.
Creatinine clearance	Yearly	CrCl reflects kidney function. Give age and sex on form. If < 60 refer to doctor.
Cholesterol	At diagnosis	Refer to specialist if total cholesterol ≥ 8.

If patient on treatment, check if BP is controlled: < 140/90 (or < 130/80 if diabetes, CVD, heart failure or kidney disease).

BP controlled on treatment

- Continue current treatment.
- Review 6 monthly.

BP not controlled on treatment

- If ≥ 180/110: check for symptoms needing urgent attention →73.
- Adherent: Step up treatment (to at least step 3 if ≥ 180/110) and review in 1 month.
- Not adherent: Explore reasons for non-adherence and advise patient to take current treatment reliably. Review in 1 month.

Advise the patient with hypertension

- Help the patient to manage his/her CVD risk ↩ 69.
- Advise patient to avoid non-steroidal anti-inflammatory drugs (like ibuprofen), oestrogen-containing oral contraceptives ↩ 90.
- Educate the patient on enalapril to stop it immediately should angioedema (swelling of tongue, lips, face, difficulty breathing) develop.

Treat the patient with hypertension

- Give simvastatin 20mg daily if patient has CVD *or* a CVD risk > 20%. Avoid in pregnancy, liver disease.
- Give aspirin 150mg daily if patient has CVD and/or diabetes. Avoid if < 30 years, previous peptic ulcers or dyspepsia or if BP ≥ 180/110.
- Treat hypertension stepwise as in table below. If BP ≥ 180/110 start steps 1 and 2 together. If BP is not controlled after 1 month on treatment and patient is adherent, proceed to the following step:

Step	Drugs all once a day	Note
1	Start hydrochlorothiazide (HCTZ) 12.5mg	Avoid in pregnancy, liver or kidney disease, gout. Use enalapril first instead in diabetes, kidney disease, heart failure.
2	Add enalapril 10mg	Avoid/stop in pregnancy, angioedema, persistent cough on enalapril or renal artery stenosis.
3	Add nifedipine XL 30mg and increase enalapril to 20mg.	Avoid nifedipine in heart failure if possible.
4	Add atenolol 50mg; increase HCTZ to 25mg and nifedipine XL to 60mg.	Avoid atenolol in pregnancy, asthma, COPD, heart failure ↩ 75. **Refer for specialist assessment if BP not controlled on step 4 treatment.**