Effective Diagnosis, Treatment, and Monitoring of Hypertension in Primary Care

Participant Guide

4

Service Delivery and Patient Monitoring

> Content should be adapted with country-specific information prior to use. Red text denotes places where modification may be required. Guidance on how to adapt the training is provided in the Course Overview.

Expected competency on completion of session:

Ability to identify current service delivery strengths and gaps and to accurately fill out recording tools at the primary health care level.

Target users:

Health care providers
Facility managers
District supervisors

In this session, you will discover how to:

- Modify service delivery and patient flow
- Complete individual patient treatment cards
- Store cards

4.1 Hypertension management activities

Successful management of hypertension requires primary health care workers to work in a team with clear roles and shared responsibilities. A number of activities need to be carried out sequentially or in parallel, by different health workers, and within set time frames.

Required primary health care facility activities include:

Task/subtask	Frequency/timeframe
Opportunistic screening	
Measure blood pressure (BP) of all adults waiting in the outpatient department queue following the protocol.	*Daily during outpatient department (OPD) hours*
Refer patients with BP >160/100 to the doctor.	*When a patient with BP >160/100 is identified*
Ask patients with systolic between 140–160 to come back for a second reading at least one week later in order to establish diagnosis.	*When a patient initially presents with SBP 140–160*
Initiate treatment	
Measure biometrics.	*Every time a new patient who needs treatment is diagnosed*
Follow hypertension treatment protocol.	
Lifestyle counselling	
Counsel patients receiving treatment.	*At each clinic visit*
Dispensing	
Dispense medications and provide adherence advice.	*At each clinic visit*
Refill medications for stable patients.	*Refill medications monthly for patients who had controlled BP three visits in a row*
Maintaining records and reports	
Patient Treatment Card: Fill in sections of the first page of the treatment card. Fill in data in the follow-up sheets.	*For every new hypertensive patient* *At every follow-up visit*
Facility Register for Hypertension: Enter newly registered patients. Update quarterly treatment outcomes. Update annual treatment outcomes. Prepare quarterly facility reports. Prepare annual facility report.	*End of every week* *End of every month* *End of first quarter of the year* *Every quarter* *15 April of each year*
Follow-up of defaulting patients	
Telephone patients who missed their appointment the previous month.	*Start of new month: follow-up on all patients who missed their appointment the previous month*

Make a home visit to track a patient who cannot be contacted by phone.	*Start of new month: follow-up on all patients who missed their appointment the previous month who cannot be contacted by phone*
Referral of patients to higher levels	
Refer patients whose BP is not controlled after following the protocol.	*Every time BP is not controlled after following the protocol.*
Call referred patients who have not followed up after one month of referral.	*One month after every referral is made*

## 4.2 Modifying the service delivery model and patient flow pathway

Incorporating hypertension screening and management into primary care will require modification to the current service delivery model and patient flow pathway.

The service delivery model refers to the way healthcare services are delivered and the roles of the various healthcare workers in that process. Service delivery models can help ensure that healthcare workers have a shared understanding and are working towards a common set of goals.

To define and establish a service delivery model, consideration for all levels of care is essential and should include:

    i.   Outlining clear roles for different healthcare workers
    ii.   Strengthening referral mechanisms to secondary and tertiary levels of care
    iii.   Developing a patient monitoring system
    iv.   Preparing for future impact evaluation of patient outcomes

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Example 1. New York City workflow for BP control
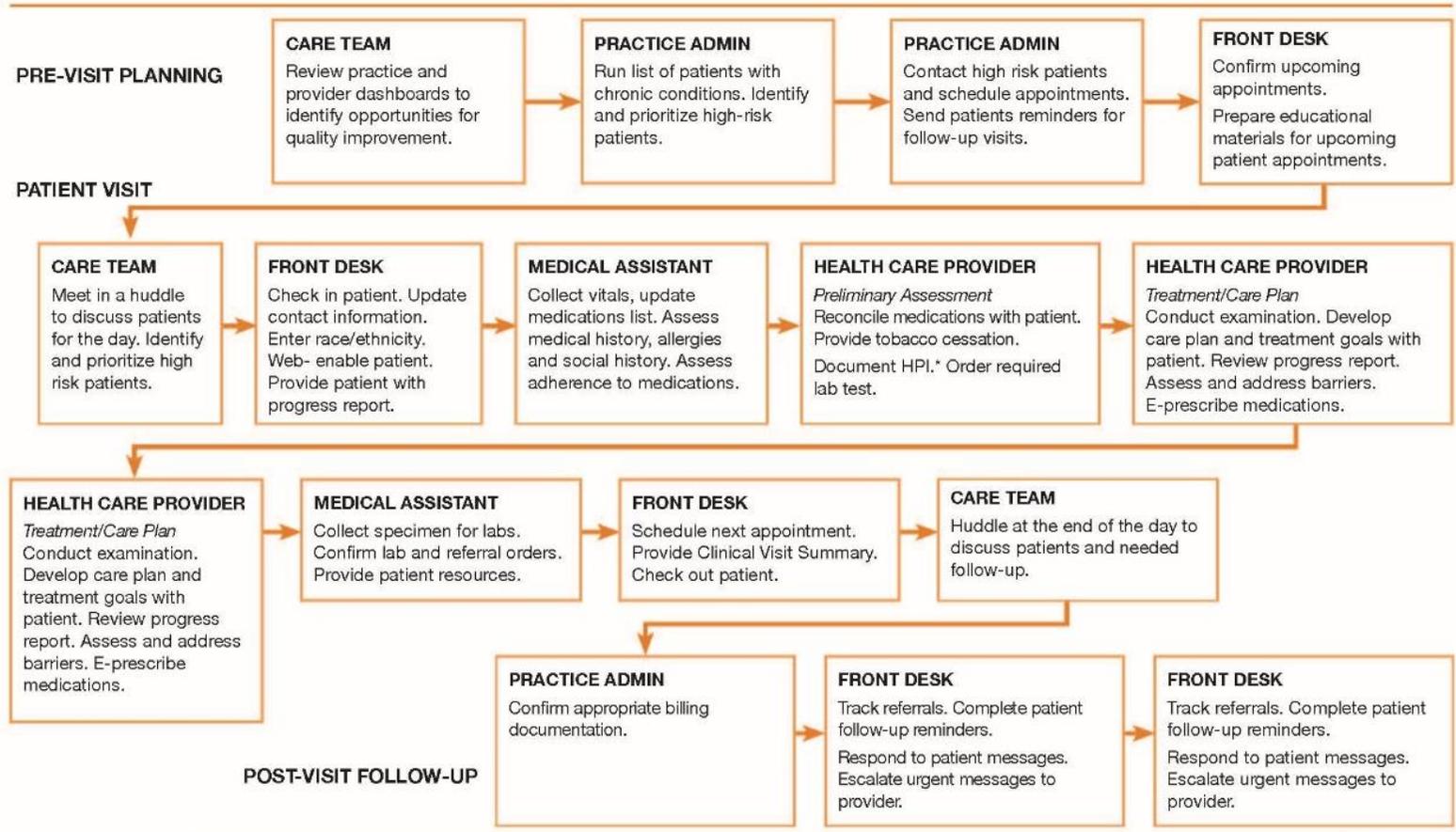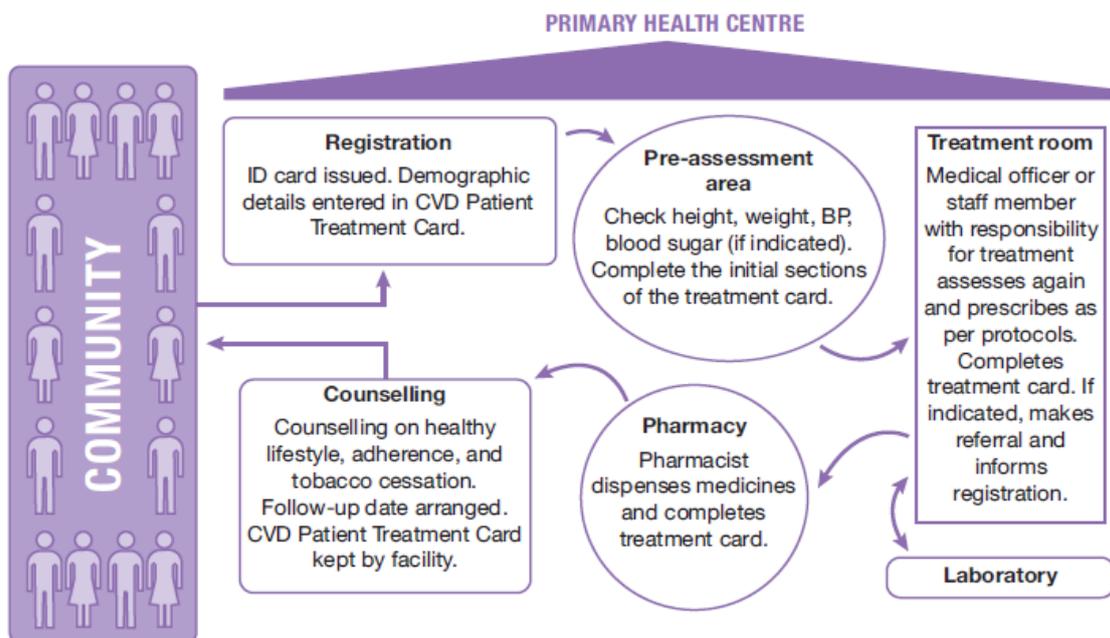

Adapted from: ABCS Toolkit for the Practice Facilitator, HealthyHearts NYC. New York City Department of Health and Mental Hygiene. 2017.

Example 3. Sample patient flow pathway

Example 4. Thailand Integrated Patient Pathway, Ongkarak District Level Community Hospital

Community level:

- Screening for hypertension and diabetes once a year. Hypertensive and diabetic patients are referred to District Hospital.

District Hospital:

- All OPD patients >18 years screened for hypertension. Patients with high BP follow the illustrated patient pathway.

- Controlled patients referred back to Sub-District Health-Promoting Hospital, closer to patients' home.

- Patients needing specialist care are referred to Provincial or Regional Hospital.

- Clinic nurse phones patients who miss their appointments.

- Clinic outreach staff conduct home visits to follow up patients who miss a number of appointments.
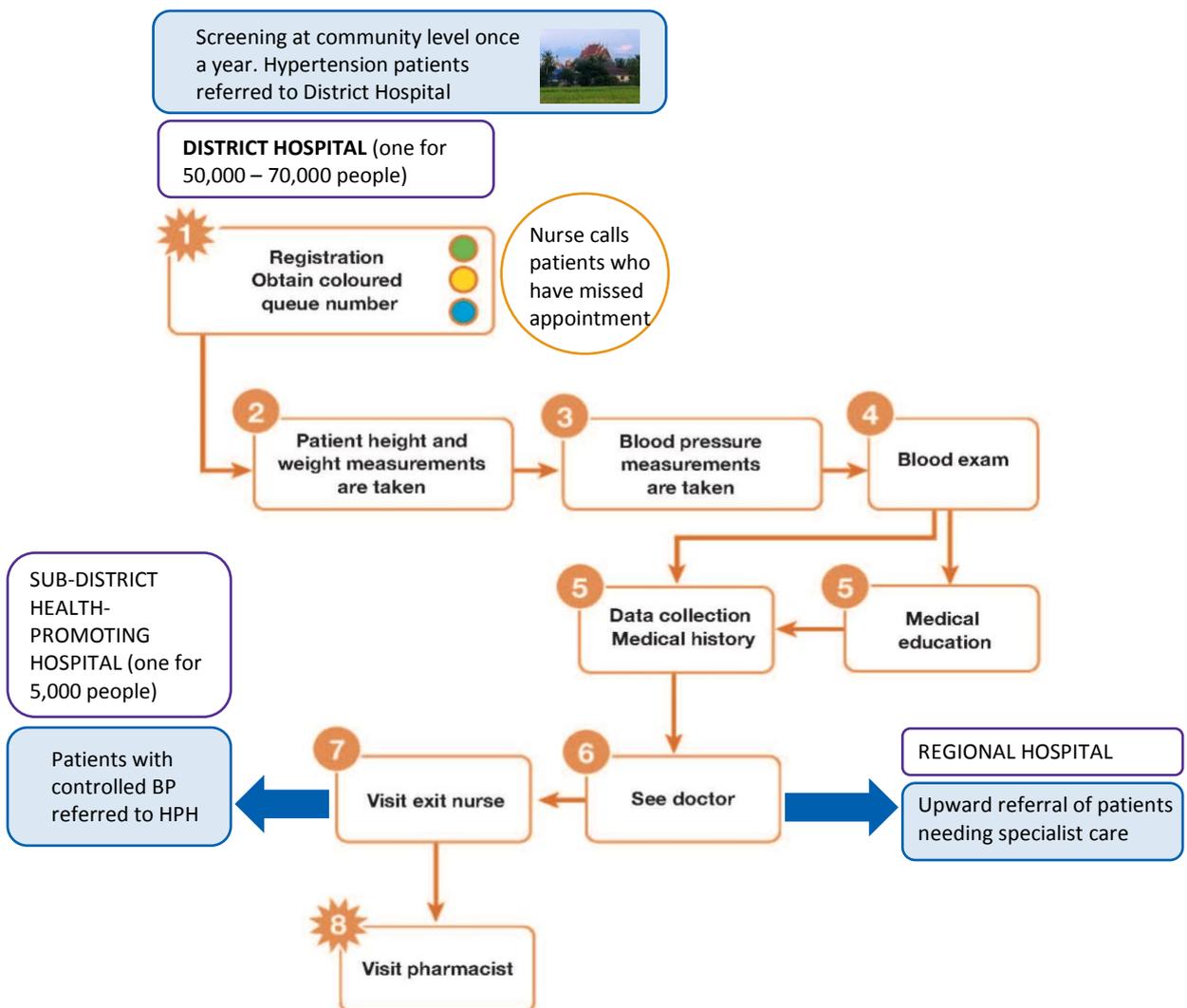
EXERCISE 1:
PATIENT FLOW AND SERVICE DELIVERY

Part 1: *Outline the patient flow pathway in your clinic.*

Part 2: *Identify the main assets and barriers to incorporating hypertension screening and management into your current service delivery model.*

4.3 Recording and reporting tools

Keeping accurate records of each patient is essential for patient and programme management. Data will need to be reported to the District Headquarters each quarter. The following records and reports should be completed at the primary health care level:

Recording tools

• Patient treatment cards

• Facility Register for Hypertension (covered in session 5)

Reporting tools (covered in session 5)

• Quarterly facility reports

• Annual facility reports

Other

Patient identification cards

Figure 1. Overview of Patient Treatment Card

Figure 2. Information flow

Patient Treatment Card

A new Patient Treatment card should be issued for each patient registered for treatment for hypertension. These patients can be:

- Newly diagnosed with hypertension and starting treatment, OR

- Already on treatment elsewhere for hypertension and wish to get treatment at the health facility.

(Please note that one card is issued for each individual patient.)

The treatment card captures information on:

1. Patient identification information
2. Clinical assessment of the patient
3. Treatment given to patient
4. Laboratory investigations completed
5. BP of patient during initial visit and follow-ups.

The first page of the card is filled in only at the time of the first visit, capturing information on patient identification, diagnosis, and prescribed treatment. The remaining pages of the card track treatment, investigations, and BP of the patient on the first <u>and</u> all follow-up visits.

Figure 3a. Patient Treatment Card (first page)

CVD PATIENT TREATMENT CARD	
Name of Health Facility:	Name of District/ State/Province:
Date of registration:	Unique Identification n°

A. Patient identification information	**B. Diagnosis**

Patient ID number:	1. Hypertension:
Name:	☐ Yes, treatment initiated
	☐ Yes, was already on treatment when registered
Father's/husband's name:	**Other co-morbidity**
Sex: Age:	2. Prior heart attack: ☐Yes ☐No
Address:	3. If yes, h/o heart attack in the past 3 years?
	☐Yes ☐No
	4. Prior stroke: ☐Yes ☐No
	5. Chronic kidney disease: ☐Yes ☐No
Phone number:	6. Diabetes: ☐Yes ☐No
Alternative phone number:	7. H/o smoking: ☐Yes ☐No

C. Hypertension treatment at registration	**D. Diabetes treatment at registration**
1. Medication	1. Medication dose
2. Medication dose	2. Medication dose
3. Medication dose	3. Medication dose
4. Medication dose	4. Medication dose

Additional notes

Life-style modification (LSM)
☐ Life-style modification alone   ☐ Both lifestyle modification & medication
Any other advice :

The date of registration and a unique patient treatment number will be provided from the Facility Register for Hypertension at the time of registration. The patient ID number is either a driver's license number, social security number or another form of identification that verifies a patient's identity.

Figure 3b: Patient Treatment Card (additional pages)

	E. Initial and follow-up visit														
SL n°		**At Rx start**	**Visit**	**Visit**	**Visit**	**Visit**	**Visit**	**Visit**	**Visit**	**Visit**	**Visit**	**Visit**	**Visit**	**Visit**
1	Date attended													
2	Blood pressure – systolic													
3	Blood pressure – diastolic													
4	Blood sugar fasting													
5	amlodipine													
	telmisartan													
	enalapril													
	chlorthalidone													
	aspirin													
	statin													
	beta blocker													
	metformin													
F	Referred to specialist													
G	Date of next visit													
H	Signature of doctor													

Treatment dose and code. Indicate dosage. Note when starting (N for new), and stopping (D for discontinued).

I. Additional investigations if available

Visit date			
1. Serum potassium			
2. Serum creatinine			
3. Total cholesterol			
4. Urine protein			
5. Fundus examination			
6. Foot examination			

J. New complications

Visit date			
1. Stroke			
2. Hypertension			
3. CVD			
4. Renal failure			
5. Lower limb amputation			
6. Others			

K. Additional information

How to fill in the Patient Treatment Card

[Amend instructions to fit with the system operating at your facility.]

- First page:
  - Section A (Patient identification) is filled by data assistant/nurse.
    - The facility should generate a unique treatment number for each patient being registered for hypertension treatment. This number should follow sequentially previous treatment numbers used in the Facility Register for Hypertension, e.g. 00001, 00002, 00003, etc.
  - Sections B and C (Diagnosis and Treatment) are filled by the doctor.
    - In Section C, doctor will note hypertension treatment prescribed at first visit.

- Additional pages (treatment follow-up sheets):
  - At the initial visit and for each follow-up visit, the non-physician staff member fills in the date, BP, blood sugar, treatment dose and code, and date of next visit. At the start of every calendar year, begin a new follow-up sheet.
  - If the patient's BP is controlled (i.e. systolic <140 and diastolic <90) at the follow-up visit, the non-physician staff member would dispense the next month's supply of medication and update the information on the treatment card.
  - If the patient's BP is not controlled, the non-physician staff member would refer the patient to the doctor for clinical assessment and prescription modification. The signature of the doctor is required only when the patient's prescription is being initiated or changed. If medicine prescribed by the doctor is not already listed on the treatment card, the name of that medication can be added in the blank rows provided.
  - Results of laboratory investigations should be recorded, if available.
  - Use the space under "Additional notes" to record any significant events related to the treatment of hypertension, such as side effects.

The purpose of the patient treatment card is twofold.

1. For the patient, the purpose is to:
   - Track patient's BP and treatment
   - Record date of last visit
   - Record when follow-up is due
   - Record if patient attendance is regular
   - Record prescribed medications.

2. For the programme, the purpose is to:
   - Update Facility Register for Hypertension
   - Prepare quarterly and annual facility reports
   - Facilitate supervision

- o Facilitate future digitalization
- o Support operations research.

Patient Identification Card

[Amend text to fit with the system operating at your facility.]

When a patient is registered at the health facility for hypertension treatment, a Patient Identification Card may be issued in addition to the Patient Treatment Card. While the Patient Treatment Card is kept at the health facility, the Patient Identification Card is given to the patient to keep.

The Patient Identification Card has information that can identify the patient and includes a unique patient treatment number allotted to the patient by the health facility. The patient is advised to bring their Patient Identification Card every time he/she visits the health facility for follow-up. The purpose of the ID card is to retrieve the Patient Treatment Card using the unique patient treatment number recorded on the card.

Figure 4. Patient Identification Card

[Replace with an image of country's existing patient identification card]

Patient Identification Card

Unique patient treatment number: □□□□-□□□□□□□□

Name of health facility: _____

Name of patient: _____

Address _____ Village_____ District_____

Mobile number _____

Diagnosis _____

Date of registration: □□-□□-□□□□

Date of initiating treatment: □□-□□-□□□□

Medicines 1. _____ 2. _____ 3. _____

4. _____ 5. _____ 6. _____

Lifestyle Advice

- Avoid tobacco
- Avoid alcohol
- Heart Healthy Diet
  - o Eat 400 g of fruits and vegetables per day
  - o Eat less than a teaspoon of salt per day, avoid papads, chips chutneys/dips and pickles
  - o Use healthy oils: polyunsaturated and monounsaturated oils like sunflower, groundnut
  - o Reduce fat intake by changing how you cook – remove the fatty part of meat; use vegetable oil (not animal oil); and boil, steam or bake rather than fry; limit reuse of oil for frying, limit intake of fried foods
  - o Limit the consumption of foods containing high amounts of saturated fats (e.g. cheese, ice cream, fatty meat).
  - o Avoid processed foods containing trans fats
  - o Avoid added sugar
- Exercise regularly: moderate exercise 150 minutes per week

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EXERCISE 2:
COMPLETING A PATIENT TREATMENT CARD

Review the patient details and complete the treatment card accordingly. Please keep the completed treatment card for future exercises.

Case study 1

Name: Rohan Sharma

Age/Sex: 34/Male

Health Facility: SA Nagar PHC

On 1.1.18 [1 January 2018], he visits the PHC for the first time to get his BP checked. His BP is 146/96 mmHg. The medical officer advises the patient to reduce salt in his diet and to return to the clinic for a second measurement after three days. His BP had never been measured before.

On 6.1.18 the patient returns. His BP is 150/96 mmHg. The medical officer decides to start treatment. The treatment card is issued.

> Address – No. 121, Nethaji Colony, Thambaram West, Kancheepuram district 600044
> Neighhbour's phone number – 981856xxxx

Patient history: Smoker from the age of 17 until 3 years ago, with an occasional intake of alcohol. No other significant personal or family history.

On examination: Height: 167 cm and weight: 60 kg

Treatment: Tab amlodipine 5 mg per day. The patient receives a 30-day prescription of the drugs from the pharmacy and is asked to return for a follow-up appointment after one month.

On 7.1.18, the staff nurse enters the details of the treatment card into the Facility Register for Hypertension and assigns a unique treatment number – 00001.

The patient's follow-up visits are as follows:

4.2.18 – BP 150/85 mmHg. The doctor increases the dosage of amlodipine to 10 mg per day.

5.3.18 – BP 130/ 80 mmHg, advised to continue the same drug

5.4.18 – BP 124/80 mm Hg, advised to continue the same drug

4.5.18 – BP 120/80 mm Hg, advised to continue the same drug

5.6.18 – BP 125/76 mm Hg, advised to continue the same drug

3.7.18 – BP 130/80 mm Hg, advised to continue the same drug

CVD PATIENT TREATMENT CARD

Name of Health Facility:	Name of District/ State/Province:
Date of registration:	Unique Identification n°

A. Patient identification information

Patient ID number:

Name:

Father's/husband's name:

Sex: Age:

Address:

Phone number:

Alternative phone number:

B. Diagnosis

1. Hypertension:

☐   Yes, treatment initiated

☐   Yes, was already on treatment when registered

Other co-morbidity

8. Prior heart attack: ☐Yes   ☐No

9. If yes, h/o heart attack in the past 3 years?
                                            ☐Yes   ☐No

10. Prior stroke: ☐Yes   ☐No

11. Chronic kidney disease: ☐Yes   ☐No

12. Diabetes: ☐Yes   ☐No

13. H/o smoking: ☐Yes   ☐No

C. Hypertension treatment at registration

5. Medication
6. Medication   dose
7. Medication   dose
8. Medication   dose

D. Diabetes treatment at registration

5. Medication   dose
6. Medication   dose
7. Medication   dose
8. Medication   dose

Additional notes

Life-style modification (LSM)

☐ Life-style modification alone   ☐   Both lifestyle modification & medication

Any other advice :

			E. Initial and follow-up visit												
SL n°		At Rx start	Visit	Visit	Visit	Visit	Visit	Visit	Visit	Visit	Visit	Visit	Visit	Visit
1	Date attended														
2	Blood pressure – systolic														
3	Blood pressure – diastolic														
4	Blood sugar fasting														
5	amlodipine														
	telmisartan														
	enalapril														
	chlorthalidone														
	aspirin														
	statin														
	beta blocker														
	metformin														
F	Referred to specialist														
G	Date of next visit														
H	Signature of doctor														

Treatment dose and code. Indicate dosage. Note when starting (N for new), and stopping (D for discontinued).

I. Additional investigations if available					J. New complications					K. Additional information
Visit date					Visit date					
1. Serum potassium					1. Stroke					
2. Serum creatinine					2. Hypertension					
3. Total cholesterol					3. CVD					
4. Urine protein					4. Renal failure					
5. Fundus examination					5. Lower limb amputation					
6. Foot examination					6. Others					

EXERCISE 3:
SPOT THE MISTAKES

*Review the patient details below and the completed treatment card (provided). Identify at least **three** errors on the card.*

Case Study 2

Name: Radha Srinivasan

Age/sex: 56/Female

Health facility: SA Nagar PHC

Patient's history: Known case of hypertension for the past 6 months and is on treatment as prescribed by another health facility. On reviewing her prescription reports, she is on amlodipine 10 mg daily. However, her BP was not under control.

BP: 131/99 mmHg

The medical officer decides to modify her management per the protocol.

Date of registration: 8.1.18 [8 January 2018]

- Unique patient treatment number: 00002
- Address: No. 6, CLC works lane, Thambaram, Kancheepuram district: Pin code: 600044
- Phone number: Not available
- Alternative number: 98976***** (spouse number)

Relevant history: She chews tobacco, does not consume alcohol, and her elder brother died due to heart attack a year ago. On examination, height: 157 cm and weight: 76 kg. The medical officer prescribes the following medicines:

amlodipine 10 mg daily along with Tab telmisartan 40 mg OD.

The patient is advised to return to the clinic after one month. The lab results are as follows as on 4.2.18:

- Total cholesterol: 226 mg/dl
- Random blood sugar: 140 mg/dl
- Urine albumin: Nil
- Serum creatinine: 1.7 mg

The patient's follow-up visits are as follows:

4.2.18 – BP 129/81 mmHg, advised to continue the same drug

02.3.18 – BP 117/73 mmHg, advised to continue the same drug

02.4.18 – BP 120/72 mmHg, advised to continue the same drug

12.5.18 – BP 124/76 mmHg, advised to continue the same drug

The patient did not return for treatment in June. On 1 July, the nurse called the patient. The patient reported that she was feeling fine, so there was no need to continue treatment.

EXERCISE 4: COMPLETING A PATIENT CARD WITH FOLLOW-UP VISITS

Correct and update the Patient Treatment Card used in Exercise 3, entering details of further follow-up treatment, given below.

Case Study 2 (continued from Exercise 2)

The nurse asked the auxiliary nurse midwife to visit the patient's house and counsel the patient. After the counselling, the patient decided to return and continue treatment. The dates and subsequent readings were as follows:

19 August 2018 – 138/85 mmHg

15 September 2018 – 111/84 mmHg

October 2018 – did not come for follow-up

2 November 2018 – 132/93 mmHg

3 December 2018 – 134/85 mmHg

5 January 2019 – 130/80 mmHg

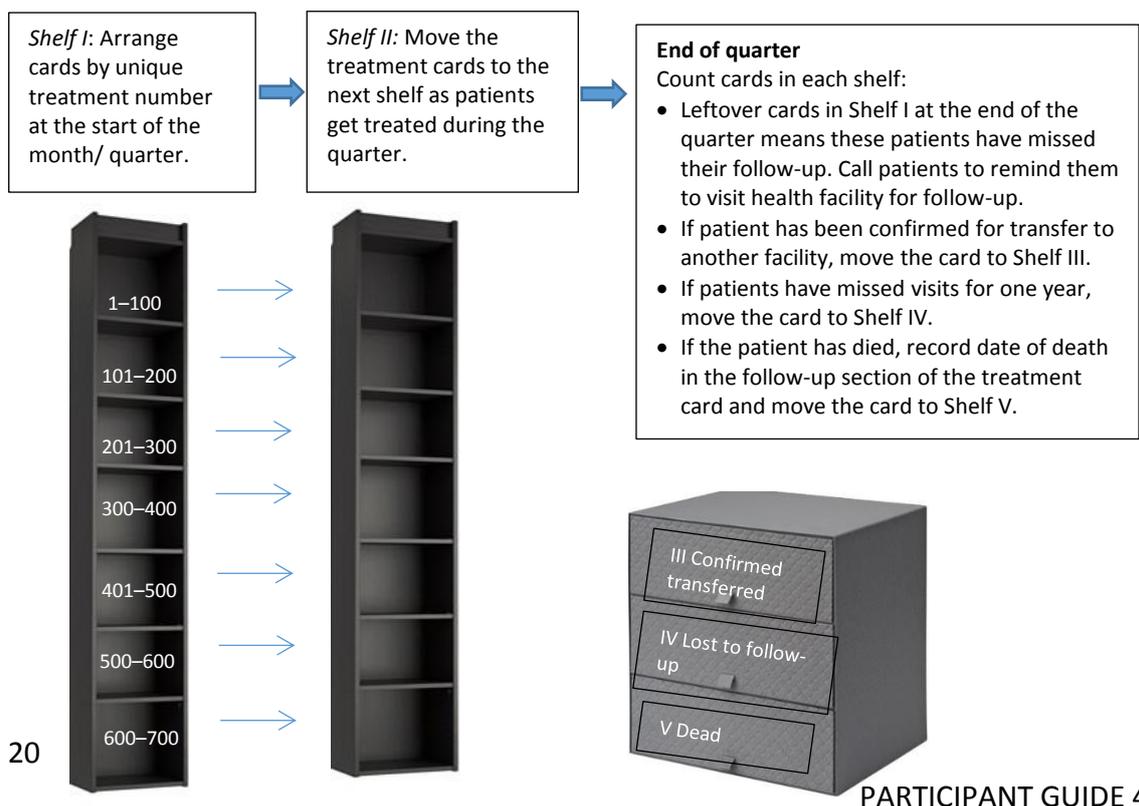**6 February 2019** – 127/79 mmHg

3 March 2019 – 128/78 mmHg

Using the patient card provided in exercise 2, record results from the follow-up visits.

4.4 Treatment card storage

- Patient Treatment Cards should be stored systematically to facilitate retrieval during follow-up visits by the patient. They will be needed to record treatment and progress during follow-up visits, as well as to update the Facility Register for Hypertension and facility reports (described in Session 5).

- There should be appropriate and safe storage space and tools available, such as two columns of shelves (depicted in the diagram below) that enable staff to quickly and easily establish which patients have attended clinic during a given period and which have not.

- Arrange Patient Treatment Cards sequentially, by the unique patient treatment number to:
  o Help to retrieve them easily when patients attend the clinic
  o Identify which patients have missed an appointment in the preceding period. These patients should be called to reschedule their appointment and reminded of the need to follow-up to receive medication.
  o Identify which patients have been lost to follow-up. Patients are considered lost to follow-up after not receiving care in the health centre continuously for four quarters.

- At the end of the month, move all the cards (other than those of patients lost to follow-up, transferred, or deceased) back to the shelves in the first column.

- Cards can be stored in stacks of 50 or 100 in paired shelves.

Figure 5: Patient Treatment Card System

Shelf I: Arrange cards by unique treatment number at the start of the month/ quarter.

Shelf II: Move the treatment cards to the next shelf as patients get treated during the quarter.

End of quarter
Count cards in each shelf:
- Leftover cards in Shelf I at the end of the quarter means these patients have missed their follow-up. Call patients to remind them to visit health facility for follow-up.
- If patient has been confirmed for transfer to another facility, move the card to Shelf III.
- If patients have missed visits for one year, move the card to Shelf IV.
- If the patient has died, record date of death in the follow-up section of the treatment card and move the card to Shelf V.

1–100
101–200
201–300
300–400
401–500
500–600
600–700

III Confirmed transferred

IV Lost to follow-up

V Dead

4.5 Models of record keeping

Model 1: Paper-based system

This model is based on a system of paper-based individual health records, registers, and data-collection formats, and represents a basic system that could be implemented in all contexts, including low-resource settings. Once collected, the data are entered into electronic databases for aggregation and analysis at the subnational level.

Model 2: Hybrid paper + electronic system

This model uses paper-based individual health records but an electronic longitudinal register. In a longitudinal register, the patient's name is entered once in the register, but selected clinical information is entered at successive visits along the same line in the register. Immunization registers or tuberculosis treatment registers are examples of longitudinal registers.

Model 3: Electronic record system

If an electronic health records system is operational, a cardiovascular disease module can be included within the individual records. The electronic health records system allows for collection and aggregation of data exactly as a paper-based system does, but with significantly more ease, especially at large volumes. With the burden of data extraction lessened, aggregate reporting can be done more frequently, if desired.

Sources

- HEARTS technical package: Team-based care module. Geneva: World Health Organization; 2016.
- HEARTS technical package: Systems for monitoring module. Geneva: World Health Organization; 2016.
- Managing the Revised National Tuberculosis Control Programme in your area. New Delhi: Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare; 2000.