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:

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

<table>
<thead>
<tr>
<th>Referral of patients to higher levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refer patients whose BP is not controlled after following the protocol.</td>
</tr>
<tr>
<td>Call referred patients who have not followed up after one month of referral.</td>
</tr>
</tbody>
</table>

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
Example 1. New York City workflow for BP control

PRE-VISIT PLANNING

CARE TEAM
Review practice and provider dashboards to identify opportunities for quality improvement.

PRACTICE ADMIN
Run list of patients with chronic conditions. Identify and prioritize high-risk patients.

PRACTICE ADMIN
Contact high risk patients and schedule appointments. Send patients reminders for follow-up visits.

FRONT DESK
Confirm upcoming appointments. Prepare educational materials for upcoming patient appointments.

PATIENT VISIT

CARE TEAM
Meet in a huddle to discuss patients for the day, identify and prioritize high risk patients.

FRONT DESK

MEDICAL ASSISTANT
Collect vitals, update medications list. Assess medical history, allergies and social history. Assess adherence to medications.

HEALTH CARE PROVIDER
Preliminary Assessment

HEALTH CARE PROVIDER
Treatment/Care Plan

MEDICAL ASSISTANT
Collect specimen for labs. Confirm lab and referral orders. Provide patient resources.

FRONT DESK
Schedule next appointment. Provide Clinical Visit Summary. Check out patient.

CARE TEAM
Huddle at the end of the day to discuss patients and needed follow-up.

POST-VISIT FOLLOW-UP

PRACTICE ADMIN
Confirm appropriate billing documentation.

FRONT DESK
Track referrals. Complete patient follow-up reminders. Respond to patient messages. Escalate urgent messages to provider.

FRONT DESK
Track referrals. Complete patient follow-up reminders. Respond to patient messages. Escalate urgent messages to provider.

Adapted from: ABOS Toolkit for the Practice Facilitator; HealthyHearts NYC. New York City Department of Health and Mental Hygiene. 2017.
Example 2.

[Describe and insert image of country’s existing service delivery model.]

Example 3. Sample patient flow pathway

[Diagram showing patient flow pathway through a primary health centre with steps such as registration, pre-assessment area, counselling, pharmacy, treatment, and laboratory.]
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.

![Patient Pathway Diagram](image)

**Screening at community level once a year. Hypertension patients referred to District Hospital**

**Nurse calls patients who have missed appointment**

**SUB-DISTRICT HEALTH-PROMOTING HOSPITAL (one for 5,000 people)**

**Regional Hospital**

Upward referral of patients needing specialist care
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

Completed by health provider daily

One time data completed once a patient BP ≥140/90 Includes sequential registration number

Follow-up data completed at every subsequent visit Includes BP measure, Tx, and investigation

Completed by data assistant or nurse monthly/quarterly/annually

Completed by facility manager quarterly/annually

Health Facility Report
Data from treatment register
Calculates control rate
Supports supervision

Quarterly and Annual Report

FACILITY REGISTER FOR HYPERTENSION

Left side
Newly registered patients

Right side
Treatment outcomes 6 mths and annual

Facility Register for Hypertension

Patient Treatment Card
BP ≥ 140/90
Stored sequentially by registration number

PARTICIPANT GUIDE 4
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 and all follow-up visits.
### CVD Patient Treatment Card

#### A. Patient Identification Information

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

#### B. Diagnosis

1. **Hypertension:**
   - □ Yes, treatment initiated
   - □ Yes, was already on treatment when registered

#### Other co-morbidity

2. **Prior heart attack:**
   - □ Yes
   - □ No

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

6. **Diabetes:**
   - □ Yes
   - □ No

7. **H/o smoking:**
   - □ Yes
   - □ No

#### C. Hypertension Treatment at Registration

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<tbody>
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<td>1.</td>
<td>Medication</td>
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<td>2.</td>
<td>Medication dose</td>
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<td>3.</td>
<td>Medication dose</td>
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<td>4.</td>
<td>Medication dose</td>
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</table>

#### D. Diabetes Treatment at Registration

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<tbody>
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<td>1.</td>
<td>Medication</td>
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<td>Medication dose</td>
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<td>3.</td>
<td>Medication dose</td>
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<td>4.</td>
<td>Medication dose</td>
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</table>

#### Additional Notes

- **Life-style modification (LSM)**
  - □ Life-style modification alone
  - □ Both lifestyle modification & medication

**Any other advice:**

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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

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<tr>
<th>SL n°</th>
<th>At Rx start</th>
<th>Visit</th>
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<td>Blood sugar fasting</td>
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| 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
How to fill in the Patient Treatment Card
[Amend instructions to fit with the system operating at your facility.]

• First page:
  o 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.
  o 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):
  o 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.
  o 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.
  o 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.
  o Results of laboratory investigations should be recorded, if available.
  o 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:
   o Track patient’s BP and treatment
   o Record date of last visit
   o Record when follow-up is due
   o Record if patient attendance is regular
   o Record prescribed medications.

2. For the programme, the purpose is to:
   o Update Facility Register for Hypertension
   o Prepare quarterly and annual facility reports
   o Facilitate supervision
- Facilitate future digitalization
- 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]
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
Neighbour’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
<table>
<thead>
<tr>
<th>CVD PATIENT TREATMENT CARD</th>
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</thead>
<tbody>
<tr>
<td>Name of Health Facility:</td>
</tr>
<tr>
<td>Date of registration:</td>
</tr>
<tr>
<td>A. Patient identification information</td>
</tr>
<tr>
<td>Patient ID number:</td>
</tr>
<tr>
<td>Name:</td>
</tr>
<tr>
<td>Father's/husband’s name:</td>
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<tr>
<td>Sex:</td>
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<td>Age:</td>
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<td>Address:</td>
</tr>
<tr>
<td>Phone number:</td>
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<tr>
<td>Alternative phone number:</td>
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<tr>
<td>B. Diagnosis</td>
</tr>
<tr>
<td>1. Hypertension:</td>
</tr>
<tr>
<td>□ Yes, treatment initiated</td>
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<tr>
<td>□ Yes, was already on treatment when registered</td>
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<tr>
<td>Other co-morbidity</td>
</tr>
<tr>
<td>8. Prior heart attack:</td>
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<td>□ Yes □ No</td>
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<tr>
<td>9. If yes, h/o heart attack in the past 3 years?</td>
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<td>□ Yes □ No</td>
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<td>10. Prior stroke:</td>
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<td>□ Yes □ No</td>
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<td>11. Chronic kidney disease:</td>
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<td>□ Yes □ No</td>
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<td>12. Diabetes:</td>
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<td>□ Yes □ No</td>
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<td>13. H/o smoking:</td>
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<td>□ Yes □ No</td>
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<tr>
<td>C. Hypertension treatment at registration</td>
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<td>5. Medication</td>
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<td>6. Medication dose</td>
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<td>D. Diabetes treatment at registration</td>
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<td>6. Medication dose</td>
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<td>7. Medication dose</td>
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<td>8. Medication dose</td>
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<tr>
<td>Additional notes</td>
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<td>Life-style modification (LSM)</td>
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<td>□ Life-style modification alone □ Both lifestyle modification &amp; medication</td>
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<tr>
<td>Any other advice :</td>
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</table>
### E. Initial and follow-up visit

<table>
<thead>
<tr>
<th>SL n°</th>
<th>At Rx start</th>
<th>Visit</th>
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<td>Date attended</td>
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<td>Blood pressure – systolic</td>
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<td>3</td>
<td>Blood pressure – diastolic</td>
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<td>4</td>
<td>Blood sugar fasting</td>
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- **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
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/l  
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:
  - Help to retrieve them easily when patients attend the clinic
  - 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.
  - 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
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