

# HEARTS

Technical package for cardiovascular disease management in primary health care



## Team-based care







**Technical package for cardiovascular disease  
management in primary health care**

# Team-based care



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# HEARTS Technical Package

More people die each year from cardiovascular diseases (CVDs) than from any other cause. Over three-quarters of heart disease and stroke-related deaths occur in low- and middle-income countries.

The HEARTS technical package provides a strategic approach to improving cardiovascular health. It comprises six modules and an implementation guide. This package supports Ministries of Health to strengthen CVD management in primary care and aligns with WHO's Package of Essential Noncommunicable Disease Interventions (WHO PEN).

HEARTS modules are intended for use by policymakers and programme managers at different levels within Ministries of Health who can influence CVD primary care delivery. Different sections of each module are aimed at different levels of the health system and different cadres of workers. All modules will require adaptation at country level.

The people who will find the modules most useful are:

- **National level – Ministry of Health NCD policymakers responsible for:**
  - developing strategies, policies and plans related to service delivery of CVD
  - setting national targets on CVD, monitoring progress and reporting.
- **Subnational level – Health/NCD programme managers responsible for:**
  - planning, training, implementing and monitoring service delivery
- **Primary care level – Facility managers and primary health care trainers responsible for:**
  - assigning tasks, organising training and ensuring the facility is running smoothly
  - collecting facility-level data on indicators of progress towards CVD targets.

Target users may vary, based on context, existing health systems and national priorities.



MODULES OF THE HEARTS TECHNICAL PACKAGE				
Module	What does it include?	Who are the target users?		
		National	Subnational	Primary care
<b>H</b> ealthy-lifestyle counselling	Information on the four behavioural risk factors for CVD is provided. Brief interventions are described as an approach to providing counselling on risk factors and encouraging people to have healthy lifestyles.		✓	✓
<b>E</b> vidence-based protocols	A collection of protocols to standardize a clinical approach to the management of hypertension and diabetes.	✓	✓	✓
<b>A</b> ccess to essential medicines and technology	Information on CVD medicine and technology procurement, quantification, distribution, management and handling of supplies at facility level.	✓	✓	✓
<b>R</b> isk-based CVD management	Information on a total risk approach to the assessment and management of CVD, including country-specific risk charts.		✓	✓
<b>T</b> eam-based care	<b>Guidance and examples on team-based care and task shifting related to the care of CVD. Some training materials are also provided.</b>		✓	✓
<b>S</b> ystems for monitoring	Information on how to monitor and report on the prevention and management of CVD. Contains standardized indicators and data-collection tools.	✓	✓	✓



# Introduction

Many low-resource settings have a shortage of physicians and health workers. (1) In order to provide patient-centred continuous care more effectively, primary care systems can include team-based care strategies in their clinic workflows and protocols.

Team-based care uses multidisciplinary teams (which may involve new staff, or the shifting of tasks among existing staff). Teams can include patients themselves, primary care physicians, and other allied health professionals, such as nurses, pharmacists, counsellors, social workers, nutritionists, community health workers, or others.

Teams reduce the burden on physicians by utilizing the skills of trained health workers. Strong evidence shows that team-based care is effective in improving hypertension control among patients in a cost-effective way. (2) Some amount of task shifting/team-based care is already taking place in many settings; this module provides further guidance on how to maximize this approach for greater impact.

## What this module includes

- Description of team-based care and advantages and disadvantages of the approach;
- Suggested steps on how to implement team-based care;
- Case studies of team-based care in different countries;
- Sample workflow charts and tables that can be customized to implement team-based care in a specific facility.

# 1 About team-based care

The world is facing a chronic shortage of trained health workers. Recent statistics indicate that there is a global health workforce deficit of more than 4 million. At the same time, the demand for health care is rising and noncommunicable diseases (NCDs) are becoming more common globally. NCDs require health systems to treat large numbers of patients for long periods of time. A quality community-based health workforce is critical to addressing the NCD epidemic. Learning from experiences in treating HIV, team-based care and/or task shifting can improve management and control of NCDs. (3)

**Task shifting** is the reassignment of clinical and non-clinical tasks from one level or type of health worker to another so that health services can be provided more efficiently or effectively. For example, when medical officers are in short supply, some services can be effectively shifted to equipped and well trained non physicians such as clinical officers and nurses, while maintaining quality. This increases accessibility of health services to the community. Task shifting also can apply to laboratory functions, supply management, and pharmacy services. (4)

**Team-based** care is a strategic redistribution of work among members of a practice team. In the model, all members of the physician-led team play an integral role in providing patient care. The physician (or in some circumstances a nurse practitioner or physician assistant) and a team of nurses and/or medical assistants (MAs) share responsibilities for better patient care.

Team-based care and task shifting, or a combination of the two, are useful models that can be tailored to meet country needs. This module refers to both but will use the phrase “team-based care” as shorthand.

## Advantages (5, 6)

- Expanded access to care (more hours of coverage, shorter wait times)
- Better patient support
- Team member collaboration
- Improved patient adherence to medications
- Better follow-up
- Improved BP control and other patient outcomes (CVD morbidity and mortality, and comorbid CVD risk factors such as diabetes and high cholesterol)
- Improved patient knowledge
- Better quality of life
- Time saving for patient and health care team
- Cost efficient
- Improved patient and physician satisfaction

## Barriers

- Rapid staff turnover
- Retention of training
- Patient attitudes: perception by patients of being treated by non-physician health workers
- Physician attitude and reactions
- Legislation and policy

## Requirements

Policy decisions are usually made nationally, but there are methods that health centre managers can use to help ensure successful implementation:

- Consult closely and coordinate with the physician.
- Train health care workers in new skills.
- Enable additional health workers to prescribe medications.
- Clearly define roles and responsibilities for different team members.
- Arrange close supervision, mentoring and support by experienced health centre staff.
- Schedule regular clinical team meetings and good communications between staff to discuss patient cases and issues, so that they can work together to solve problems.
- Facilitate regular dialogue between staff about how to improve tasks in order to increase service efficiency and quality.
- Devise measurable processes and outcomes.

Refer to Section 2, Implementation, for more detailed information and tools to put these methods into practice.

## 2 Implementing team-based care\*

Implementing team-based care (7) is specific to country, regional and clinic contexts. These recommendations are meant to be adapted as needed. This section provides step-by-step implementation guidance and additional resources and examples that can assist with implementation.

### Steps to implementing team-based care

#### Box 1: Implementation steps

1. Engage the team
2. Determine the team composition
3. Design workflows to reflect the new model of care
4. Increase communication among the team, practice and patients
5. Use a gradual approach to implement the model
6. Optimize the care model

### 1 Engage the team

Bring together a multi-disciplinary team of nurses, medical assistants (MAs), physicians, pharmacists, community health workers, nutritionists, administrators and information technology staff members with a leader who has enough authority within the practice or organization to empower the process. Consider involving patients on the team as well (see Table 1 overleaf).

### 2 Determine the team composition

Design the model of care that will meet the needs of your patients and team. Consider which current team members could learn a new skillset and fulfil a new role. Your team may include a counsellor, nutritionist, nurse practitioner, physician assistant, clerical staff or others (see Table 2 overleaf).

Ensure that the team(s) consists of physicians and supporting team members who are eager to transform the clinic into a team-based care model. They should be champions and good communicators who are willing to put in extra effort to prepare for the transition and continue to develop the new model once it is underway.

\* The following team-based care framework is adapted with permission from the American Medical Association Steps Forward™ team-based care module. For more innovative practice transformation strategies that can help your organization achieve the quadruple aim, visit [www.stepsforward.org](http://www.stepsforward.org).

**Table 1: Team-based care for hypertension in Cuba**

Activity	Task shift	New personnel in charge	Required activities	Lessons learned
Hypertension control	Measuring blood pressure	Health professionals: Nurses Dentists Physical therapists  Health professionals in training: Medical students Nursing students  In community settings: Community health workers Patients' relatives	Certification of blood pressure measurement.  Introduction to digital blood pressure measuring devices.	There is a need to take advantage of all possible opportunities to promote hypertension control.  Including community health workers and patients' relatives is possible due to the increased access to digital blood pressure measuring devices.
	Reporting consumption of anti-hypertensives	Pharmacists	Generation of monthly reports from the health area of the patients that are not refilling their hypertensive medications at the corresponding community pharmacy.	Pharmacies have the potential of becoming ideal health education and hypertension control points in the community.
Registry	Entering the data in the registry system	Nursing assistants	Appropriate training for data entry	Having the data entered in the system allows for easier access and visibility of the data.
Education	Self-management	Medical and nursing students Community health workers Relatives of patients Patients themselves	Training on self-management for patients and their relatives, and community health volunteers.	There is a need to increase access to digital blood measurement devices.  Need to improve self-management education.

**Table 2: Distribution of staff responsibility for hypertension management**

Task	Doctor	Hypertension specialist	Nurse	Pharmacist	Counsellor	Nutritionist	Social Worker	Community health worker (CHW)	Clerical staff
Take patient history			✓						
Diagnosis	✓								
Regular evaluation for secondary causes, additional risk factors and organ damage	✓								
Highly complex patients*		✓							
Identify barriers			✓	✓		✓			
Take BP measurement				✓				✓	
Perform lifestyle counselling			✓	✓	✓	✓	✓	✓	
Refill medications			✓	✓					
Adjust medications			✓	✓					
Patient follow-up			✓			✓	✓	✓	
Refer patient			✓	✓				✓	
Data entry									✓
Appointment scheduling					✓		✓	✓	✓
Appointment reminders					✓		✓	✓	✓

\* Defined as patients who do not improve despite multiple therapies, or patients with suspected secondary causable.

**Table 3: Task reassignment table for clinic and staff management**

Use the table below to identify the best approach to implement a team-based care strategy, given your current staff capacity.

A. Task	B. Who does it now?	C. In a perfect world, who would do it?	D. Does this person need additional training to complete this task?	E. If answer to D is yes, then what kind of training is best (training to role or training as a team)?
Take patient history				
Diagnosis				
Regular evaluation for secondary causes, additional risk factors and organ damage				
Highly complex patients				
Identify barriers				
Take BP measurement				
Arrange lab testing				
Perform lifestyle counselling				
Refill medications				
Adjust medications				
Refer patient				
Data entry				
Appointment scheduling				
Appointment reminders				

Module 19. Implementing Care Teams. Content last reviewed May 2013. Agency for Healthcare Research and Quality, Rockville, MD (<http://www.ahrq.gov/professionals/prevention-chronic-care/improve/system/pfhandbook/mod19.html>, accessed 17 October 2017).

Institute for Healthcare Improvement, Partnering in Self-Management Support: A Toolkit for Clinicians, Self-Management Support Roles and Tasks in Team Care (<http://www.ihl.org/resources/Pages/Tools/SelfManagementToolkitforClinicians.aspx>, accessed 17 October 2017).

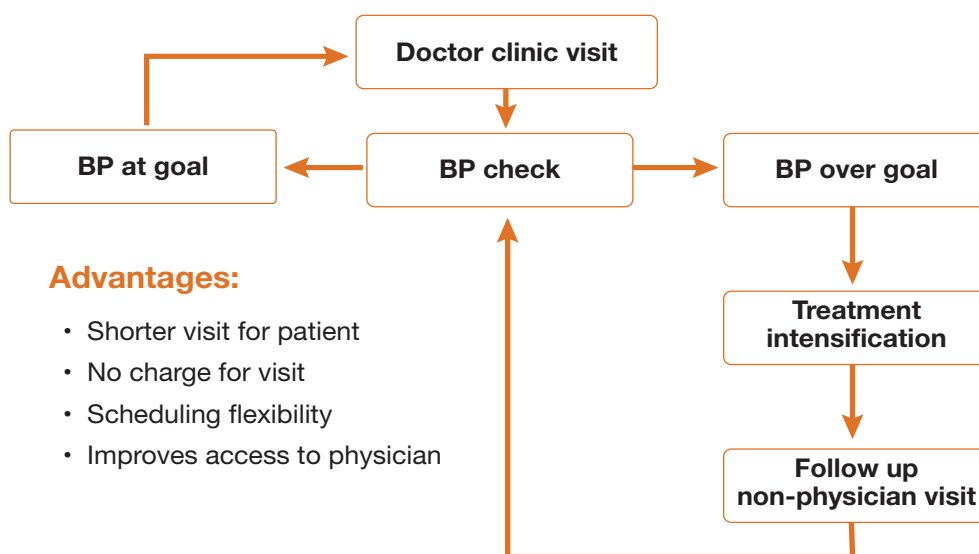


### 3 Design workflows to reflect the new model of care

Determine your new team-based care workflows. Remember, you are creating your ideal future state, so think outside the box when designing your dream team and ideal practice. If certain aspects of your current workflow function well, feel free to incorporate them into your future state! Try not to limit yourself; consider how an already great process can be made better.

You can design workflows for an entire clinical process (including pre-visit, visit, and post-visit), or for individual tasks that you want to assign to the team. Figure 1 is an example from Kaiser Permanente, California, of a simple workflow for a blood pressure check and follow-up process for nurses or healthcare workers.

Figure 1: Workflow for blood pressure check



#### Advantages:

- Shorter visit for patient
- No charge for visit
- Scheduling flexibility
- Improves access to physician

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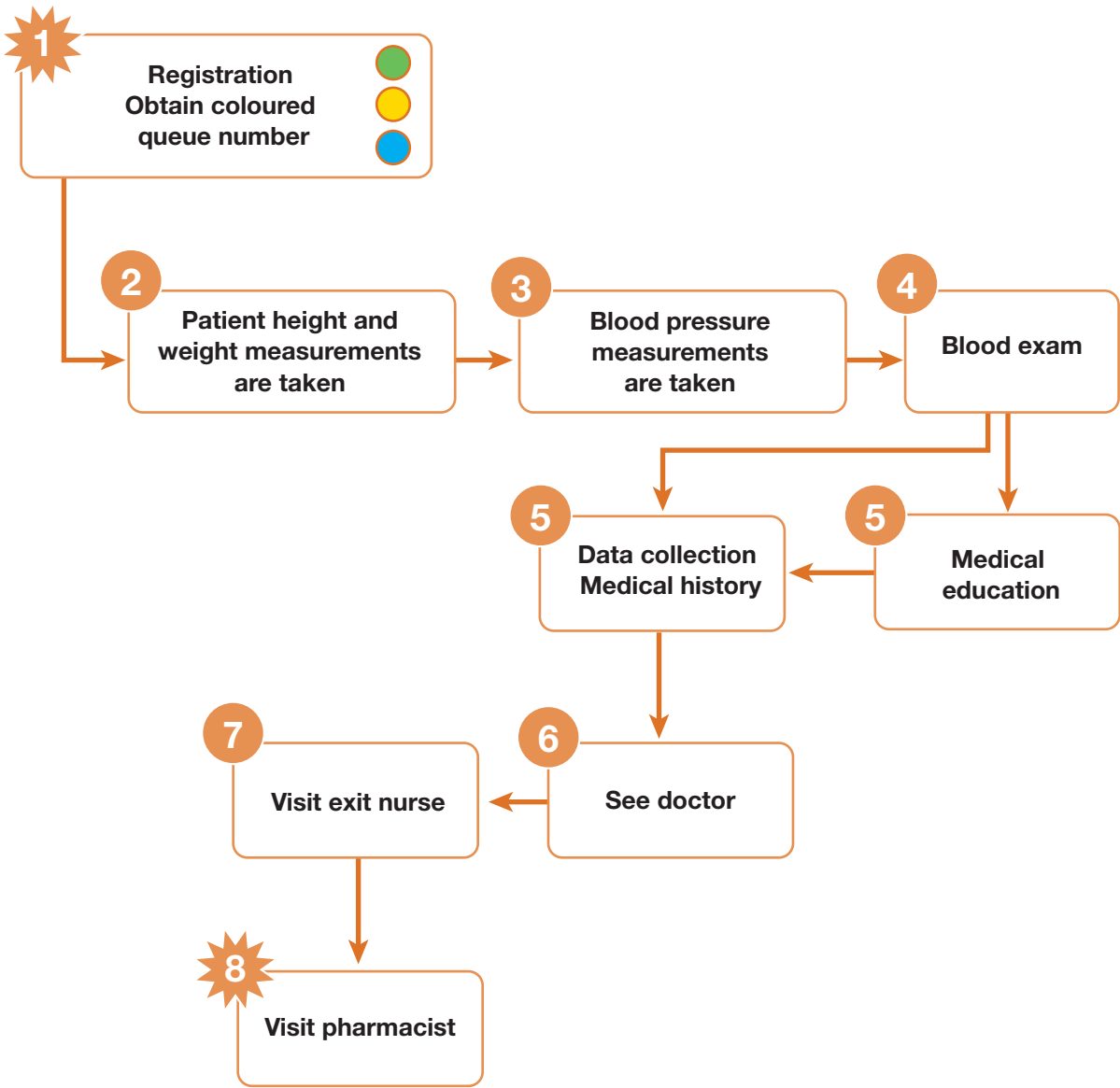
Jaffe, M. Care Delivery Models in Different Settings – The Kaiser Permanente Northern California Hypertension Control Project: How a large health care organization improved blood pressure control. March 7, 2013.

Figure 2 (overleaf) is an example of the clinical workflow for hypertension at the Ongkarak District Level community hospital in Thailand.

In Thailand, the system of patient flow and the logistical aspects throughout every step on the pathway are integrated (8):

**Registration:** The registration desk is the first contact point in the patient pathway continuum. Tuesdays and Thursdays are set days designated especially for hypertensive patients. Patients are sorted through a numbered colour scheme registration system: green for those with appointments, yellow for older individuals as a fast track option, and blue for general OPD patients.

Figure 2: Clinical workflow example: integrated patient pathway, Thailand



**Height and weight:** Body weight and height measurements are collected at every visit for every patient, along with blood pressure measurements.

**Blood pressure:** Blood pressure measurements are carefully collected and repeated if the first measurement is high. A second high indicator is followed up with a manual BP measurement. Patients are referred to the emergency room (ER) if the manual measurement is also high. ER patients are also measured for BP. Blood pressure measurement machines are calibrated on a yearly basis by the regional medical science office.

**Blood exam:** Patients coming in for blood work are referred to the lab.

**Medical history and medical education:** Patients are directed to either a nurse for a consultation on their current medical history before meeting with the doctor, or directed to a health and nutritional team before consulting with the nurse on their medical history. This medical history is entered into the client chart and hospital database. For high-risk patients requiring additional health and nutritional education, such as patients with Stage 3 chronic kidney disease (CKD), they are identified and referred to a community peer counselling group where nurses and pharmacists provide relevant information regarding eating habits, food and drug consumption, and current trends in the community. At the end of these sessions, a feedback system ensures that participants provide their opinions, ideas, and perspectives.

**Doctor visit:** Patient charts and registration numbers are assembled and prepared for the doctor. Patients are called through a televised screen that includes their name, registration number, and photograph. Patient charts include a star system that ranks their sugar or blood pressure levels for the visit. The doctor provides further consultation and adjusts and prescribes essential medicines as needed.

**Exit nurse:** Patients meet with an exit nurse to review their visit and prescribed medicine before visiting the pharmacy for their medicine. Additional critical information is collected by the nurse and added to the patient record.

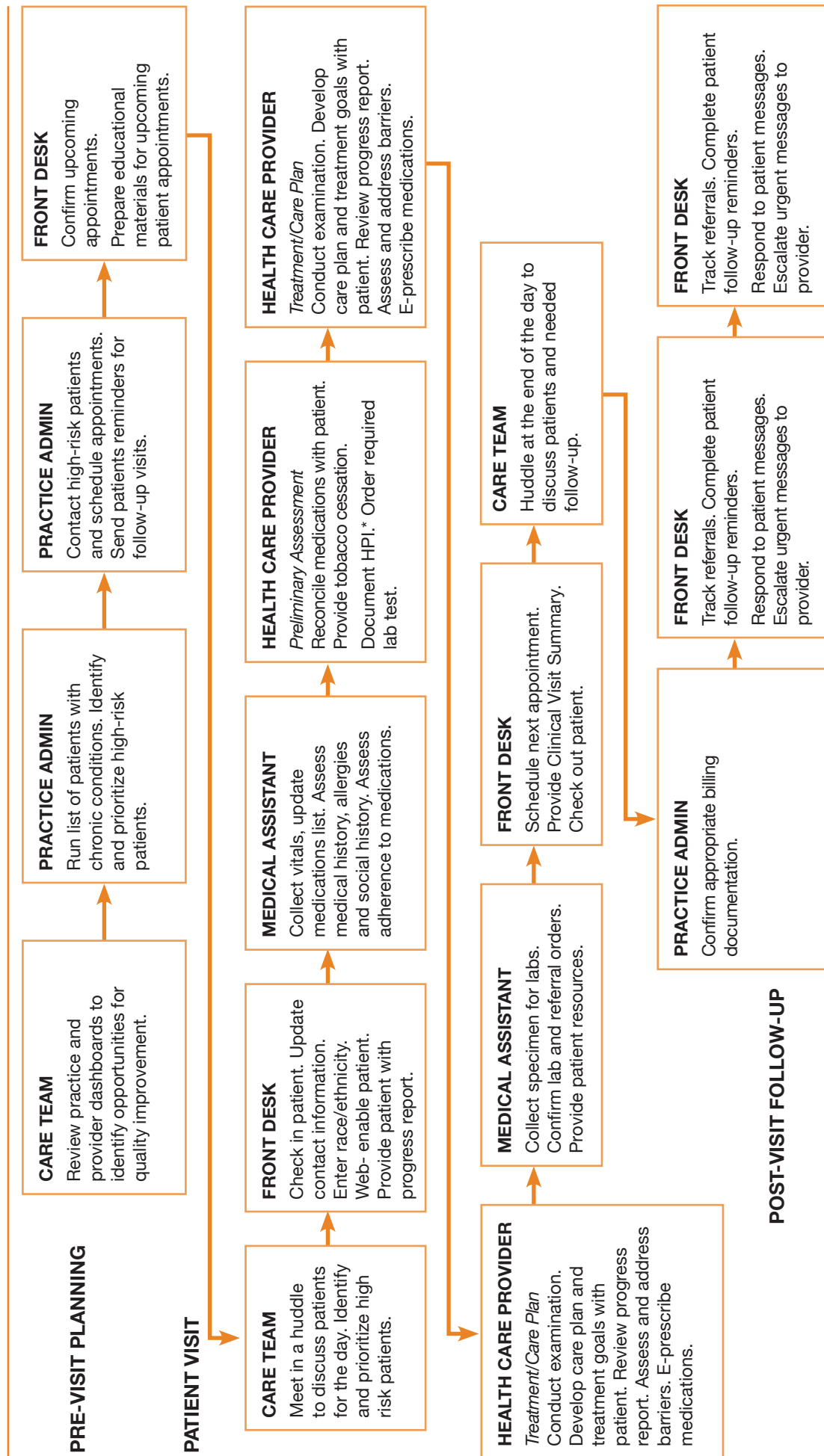
**Pharmacist:** Patients provide the pharmacy with their prescriptions and wait for their medicine. The pharmacy team reviews previous treatment history and ensure that patients do not have an excess of medicine left over from previous visits.

### Highlights from Thailand

- Direct communication between the district hospital and the health promoting hospital is a consistent method that helps to expedite transfers for those transferred out.
- Proximity to services at every step on the pathway makes it easier for patients to navigate the health system.
- The star system regarding sugar and BP levels at every visit helps patients understand their current health state and reinforces health knowledge.
- The televised screen and photograph arrangement helps ensure patients who might not be able to read and/or have vision problems know when they are being called.
- Peer counselling and the inclusion of pharmacists in patient health promotion initiatives provide patients with a multifaceted team of experts.

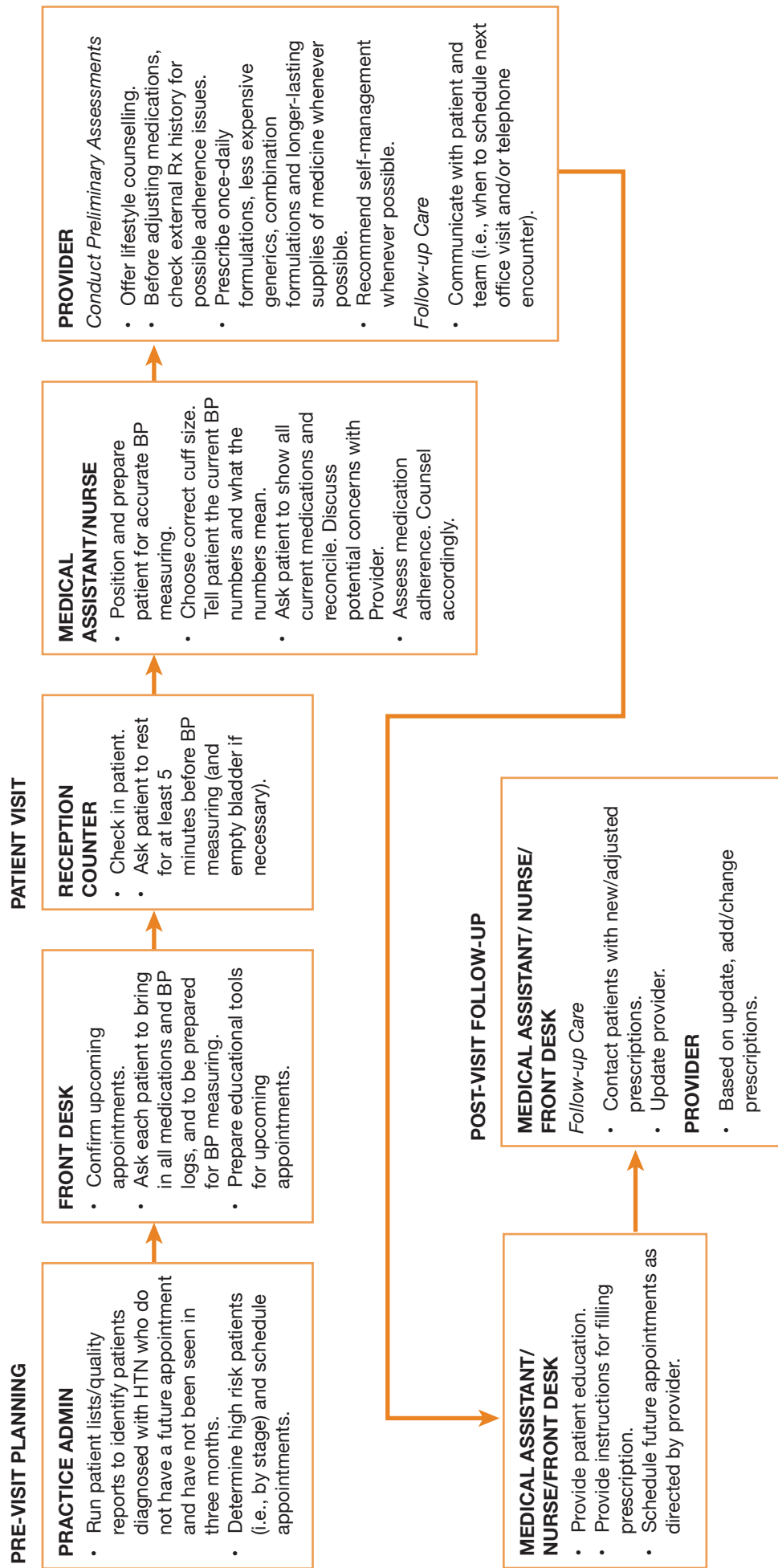
Figures 3 and 4 show some additional examples of office workflows to refer to when planning your clinic workflow. To help you plan comprehensive team-based care for patients before, during, and after their visit, refer to the workflow mapping worksheets in Annexes A to C.

Figure 3: Workflow mapping worksheet example: chronic care



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

Figure 4: Workflow mapping worksheet example: blood pressure control



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

## 4 Increase communication among the team, practice and patients

Start by keeping the practice aware of the team's work. Physicians and staff may feel out of the loop and disengage if they are not involved.

What kind of communication tactics can you use with your team?

- Include the team's task-shifting work as a standing agenda item at team meetings and department gatherings.
- Broadcast updates in a weekly meeting or call.
- Have doctors share space with the rest of their team in a common workspace to support team communication.

### Box 2: Team-based care pilot

Some clinics in Ethiopia piloted a team-based care approach to improve control of diabetes and hypertension. Health care managers, administrators, laboratorians, pharmacists, and other team members met every two weeks during the early stages of the pilot, and monthly once the pilots were more established. The meeting objectives were to discuss patient screening, care retention, supplies, lab services, health education, community activities, challenges and reporting. (9)

Communicate the team's work to your patients as well. Pamphlets in the waiting and exam rooms could also be used to remind patients of the changes before their visit begins.

## 5 Use a gradual approach to implement the model

Team-based care implementation will be a gradual process. It will take time, and every day will not be perfect. Be patient; know that several months may go by before the team feels like they are really comfortable with the new system.

One physician who has implemented team-based care recommends that physicians who are considering implementation make sure that they are completely committed because it is not easy. He followed up with, "I cannot imagine practising any other way."

A medical assistant (MA) who works in a team-based care model said that it took her about two months to feel like she was really getting the hang of documenting patient visits for her physician. She worked very closely with him as he taught her his preferences and showed her how he edited every single patient note. This type of time commitment is necessary to successfully implement team-based care. As the model expands, experienced staff can mentor or assist with training new staff.

## 6 Optimize the care model

### Shared work space

Teams that sit in closer proximity communicate with greater frequency and ease. Questions can rapidly be answered, reducing the time that someone may have to wait before completing a task or responding to a patient. Everyone will be aware of the work that their teammates are doing, enabling easier task-sharing and division

of work. Finally, after a busy clinic day, your inbox will not be filled with messages that could have quickly been triaged by another team member during the day.

### Communication management

In a team-based care model, the number of phone and email messages that are sent to the team should decrease for several reasons:

- Lab results are discussed during the visit, so the number of messages sent back and forth to discuss results or set up a call is significantly reduced.
- Patients receive additional education at the conclusion of their visit, resulting in fewer questions after the visit.
- Care coordination is enhanced. Patients will leave with their follow-up appointments, corresponding labs and diagnostics scheduled, so they should have fewer requests after leaving the office.
- Referrals to supportive services such as behavioural health or to a health educator can be made during the visit. Involving additional team members in a patient's care provides them with a point of contact for follow-up questions regarding these specific services.

Of the questions that do come into the office, the team should be able to handle most of them. The physician may delegate most questions and concerns to the nurses or MAs who work with him or her. Their knowledge of each patient's case will be much greater in a team-based care model, and they will be able to answer most questions according to what was said during the visit or the plan of care that was determined. They will also build their skillset over time, further engaging them in this critical work.

#### Box 3: The benefits of team-based care

The benefits from team-based care have gone beyond what I envisioned. Originally, I simply hoped to regain eye contact with patients, as this is such an important assessment tool for me during visits. What I've seen has really gone way beyond that. Yes, my face time with patients is increased, but the visit is also more efficient and relevant. Since my documentation is now in "real time", my notes are better and timelier. Our clinical staff is learning so much more now that they feel like they are truly part of a team and they enjoy the added dimensions to their clinical practice. They have more confidence when teaching patients during office visits as well as when they're on telephone triage. Team care has been a win-win here. And best of all, families love it!

David Lautz, MD, Stanford Coordinated Care



## 3 Case studies

### Hypertension care in Thailand

Diagnosis and treatment of hypertension is done at community hospitals at district level (one per 75,000) supported by a network of health-promoting hospitals (one per 5,000) at the sub-district level and village health volunteers at the village level.

At the community hospital, a senior clinical nurse is designated as the Case Manager (or clinic manager) for organizing services. For old and new patients, paramedical staff measure height, weight, and blood pressure using a digital device, and take the patient's history. For new patients, the doctor makes the diagnosis based on blood pressure readings and writes the prescription. Patients receive group counselling by a nurse or public health nutritionist (if available). The pharmacist dispenses the medicines and the data clerk enters paper-records into the hospital electronic registry.

At follow-up visits, patients who have not achieved blood pressure goal are again seen by the physician, who adjusts the drugs/dose. Follow-up patients with controlled blood pressure are seen by a nurse. Patients who do not attend the clinic on the date of the appointment are reminded by a phone call by data clerk and given another appointment.

Patients with controlled blood pressure are referred to a health-promoting hospital (HPH) closer to their homes. These are run by non-physicians (a team consisting of a clinical nurse and a public health nurse). The nurse provides continuing prescription/refills to controlled patients, or adjusts dose in consultation with a doctor on the phone, when blood pressure is not controlled.

### Roles of various team members

**Senior nurse:** In charge of service organization (also referred to as Case Manager), prescribes continuing medicine (without change in drug/dose), counsels patients.

**Doctor:** Makes diagnosis, prescribes medicines and tests, titrates drug/dose.

**Nurse:** Measures height, weight, BP and takes history.

**Counsellor:** Provides nutrition counselling and lifestyle advice.

**Pharmacist:** Checks for adherence, dispenses medicines and advises on how to take medicines.

**Data clerk:** Enters patient BP and treatment details into the electronic registry; generates list of defaulters and makes calls, generates list of patients for appointments on next day.

**Nurse at HPH:** Provides refills, counsels patients and occasionally adjusts drug/dose in consultation with doctor on phone.



## Team-based care for NCDs in Nepal

In order to address the growing burden of NCDs in Nepal, the Primary Health Care (PHC) division of the Ministry of Health has introduced the WHO PEN package in two pilot districts of Kailali and Ilam. Given the success of these pilots, MOH intended to scale up implementation in 20 districts in the following year.

Early detection, management and referral of hypertension, diabetes and cardiovascular disease risk (as a total-risk approach) is done at the primary health care level in the district.

At the district level, basic NCD services are provided by a network of primary health care centres and health post level and community health volunteers at the village level. At the primary health care level, a medical officer is designated as the manager and at the community level a health assistant is the manager.

For old and new patients, paramedical staff measure height, weight and blood pressure, using and assessing CVD risk using WHO tools at the health post level. For patients visiting primary health care centres, the medical officer makes the diagnosis based on blood pressure readings, blood glucose level, total cholesterol and risk exposures, and writes the prescription.

Patients receive counselling by either a medical officer, health assistant, staff nurse or auxiliary nurse midwife, as available, who also enter paper records that are sent to the district public health office and to the national health management information system.

At follow-up visits at health posts, patients who have not achieved their blood pressure goal are again referred to the medical officer, who adjusts the drugs/dose. Follow-up patients with controlled blood pressure and diabetes are managed by the paramedic health staffs at the health post level.

Patients who do not attend the clinic on the date of the appointment are reminded by a phone call to attend their next one.

### Roles of various team members

**Medical Officer (MO):** In overall charge of service delivery for NCDs. MOs diagnose, manage patients and refer as needed, prescribe medicines and counsel patients.

**Senior/Health Assistant:** In overall charge of service delivery for NCDs. They are responsible for early detection, management and counselling patients. They do not prescribe medicines but refill medicines, as prescribed by the MO.

**Staff Nurse (PHC):** Measures height, weight and BP, counsels the patients and enters patient BP and treatment details in the NCD registry.

**Assistant Health Worker:** Measures height, weight and BP, counsels the patients and enters patient BP and treatment details in the NCD registry.

**Senior ANM:** Measures height, weight and BP, counsels the patients and enters patient BP and treatment details in the NCD registry.

**Community Health Worker:** Provides counselling on lifestyle and nutrition.

**Pharmacist (PHC):** Checks for adherence, dispenses medicines and advises on how to take medicines.

## Task shifting in Ethiopia

Ethiopia has a relatively large number of health workers, but its large population makes for a very low ratio of health worker to population at 0.84/1000 population.

The shortage of health workers became perceptible in the early 2000s during the HIV/AIDS crisis. One of the policy reforms implemented by the Ethiopian government to address this was a task-shifting program, in addition to increasing pre-service education at different levels. A health extension program trained community health workers to provide health promotion and preventive services at the community level (health posts and home visits). Similarly, an Accelerated Health Officer Training Program was launched in 2005 to assist with the physician shortages. Furthermore, nurses also began in-service training to perform the additional tasks of prescribing medication for managing HIV patients.

Currently, because of the progressively increasing concern about rising NCDs, the country has adopted some task-shifting practices for NCD service integration at the PHC level in a pilot project. Primarily, the task-shifting strategy focuses on using nurses to manage chronic problems like hypertension, diabetes, and CVD risk assessment, using simple logical algorithms and job aids. Additionally, at the primary hospital level, general practitioners and health officers replace the work of specialists. Training for these professionals is designed as a cascade, involving specialists of regional hospitals training GPs and health officers; GPs and health officers training nurses, and nurses training health extension workers.

The pilot has shown promising results and it is planned that the MOH will scale up this model, ensuring that there is regional capacity to conduct training and strengthen undergraduate training to include NCD service integration.

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# Annex: Planning exercises

The following exercises are provided to help facility managers develop workflow plans for the process of preparing for a patient visit, the patient visit itself, and the post-visit follow-up.

Example workflow plans are given, and the user is invited to:

- compare processes in their own clinic against these examples of good practice
- use the template provided to map out workflow plans for the future.

As part of the exercise, the user is invited to work with members of staff through a series of questions relating to current processes, during which they may identify barriers or duplications that need to be overcome in order to arrive at the ideal process. The user is encouraged to think about ways that current practices can be adjusted to incorporate different members of the healthcare team.

## **Pre-visit planning**

Workflow mapping worksheet  
Assessment of current practice

## **Patient visit**

Workflow mapping worksheet  
Assessment of current practice

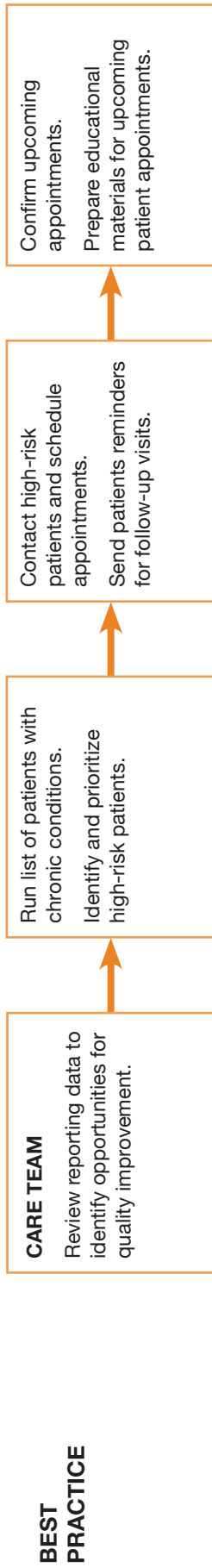
## **Post-visit follow-up**

Workflow mapping worksheet  
Assessment of current practice

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The following material has been adapted from: ABCS Toolkit for the Practice Facilitator, HealthyHearts NYC. New York City Department of Health and Mental Hygiene. 2017

**Pre-visit planning – Workflow mapping worksheet**

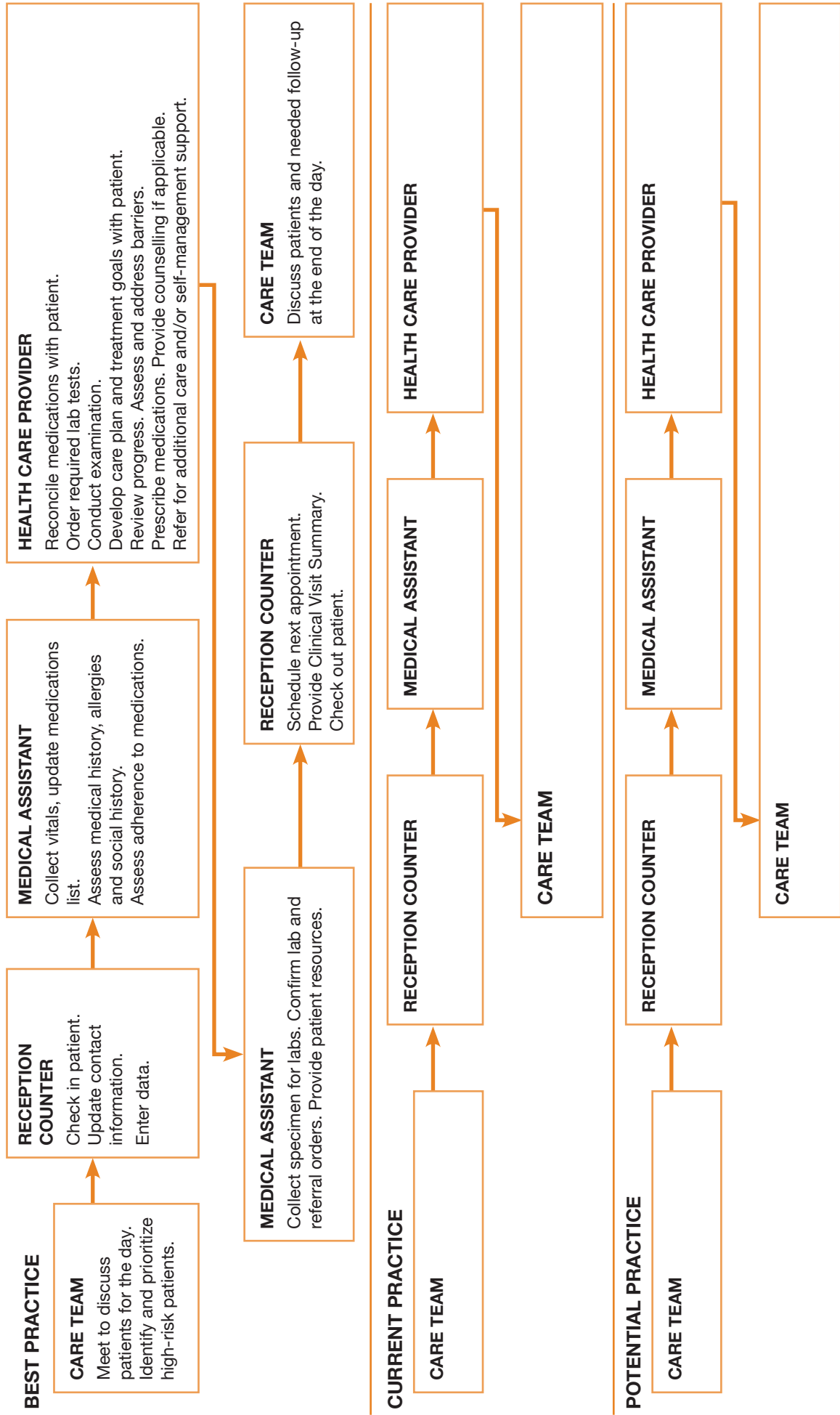


**Additional notes:**

## Pre-visit planning – Assessment of current practice

Process	Current process	Barriers/duplication	Ideal process
1. Does the practice conduct any pre-visit planning? Describe the process.			
<b>Registry and reporting</b>	<b>Current process</b>	<b>Barriers/duplication</b>	<b>Ideal process</b>
2. How does the practice monitor and track patients with chronic conditions?			
3. Does the practice monitor at-risk populations? How is the physician alerted?			
4. What are the current reporting requirements for the practice (e.g., patient-specific populations, time studies, clinical operating reports, incoming referrals, patient-care measures)? How frequently are these reports run?			
5. Does anyone at the practice conduct chart reviews? How frequently? Describe this process.			
<b>Additional notes:</b>			

## Patient visit – Workflow mapping worksheet



## Patient visit – Assessment of current practice

Rooming the patient	Current process	Barriers/duplication	Ideal process
1. What is the average patient wait time to see the doctor?			
2. How does the front office notify the medical assistant that the patient is ready to be taken back?			
<b>Vitals/intake</b>	<b>Current process</b>	<b>Barriers/duplication</b>	<b>Ideal process</b>
3. Does the practice have a triage room/area? Who conducts triage, where is it conducted and how? What is measured? How is it recorded?			
4. Who conducts initial screenings, i.e., chief complaints, subjective history, etc.?			
5. Who reviews current medications in the medical record? Is it completed for every visit?			
6. Does the practice perform tobacco screening and cessation counseling for tobacco users?			
<b>Provider</b>	<b>Current process</b>	<b>Barriers/duplication</b>	<b>Ideal process</b>
7. What is the communication and handoff between the medical assistant and the provider (e.g., reviewing of vitals, concerns)?			
8. Review how the provider manages patients with chronic conditions, i.e., referrals, medication reconciliation and adherence, treatment procedures, etc.			
9. How does the provider communicate to the medical assistant that the patient is ready for check out? What action is taken, i.e., bill given, lab orders, vaccines, etc.?			
10. How long does it take the provider to write visit notes? Does the provider complete during or after the visit? When does the provider sign-off the chart?			

**Patient visit – Assessment of current practice (continued)**

Clinical discharge	Current process	Barriers/duplication	Ideal process
11. Are prescriptions provided to the patient or sent directly to the pharmacy?			
12. Who gives the patient their prescriptions and associated prescription education (i.e., pharmacist or physician during visit)?			
13. Who provides patient education? How (i.e., paper, electronic)?			
Referrals	Current process	Barriers/duplication	Ideal process
14. Do you have a list of providers you commonly refer patients to?			
Check out	Current process	Barriers/duplication	Ideal process
15. How does the patient get directed to check out? Describe the check-out process.			
16. Is a follow-up visit scheduled? Are instructions/education provided?			
17. Does the practice provide the patient with any forms during check-out?			
<b>Additional notes:</b>			



**Post-visit follow-up – Workflow mapping worksheet**

**BEST PRACTICE  
POST-VISIT FOLLOW-UP**

**PRACTICE ADMIN**  
Confirm appropriate billing documentation.

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

**HEALTH CARE PROVIDER**  
Review laboratory results. Contact patients with abnormal results. Respond to patient messages.

**CURRENT  
POST-VISIT FOLLOW-UP**

**PRACTICE ADMIN**

**FRONT DESK**

**HEALTH CARE PROVIDER**

**POTENTIAL  
POST-VISIT FOLLOW-UP**

**PRACTICE ADMIN**

**FRONT DESK**

**HEALTH CARE PROVIDER**

**Additional notes:**

## Post-visit follow-up – Assessment of current practice

Referrals	Current process	Barriers/duplication	Ideal process
1. How is the loop closed to ensure continuity of care (e.g., nurse, medical assistant, practice administrator)?			
2. Does the practice commonly generate outgoing referrals? Receive incoming referrals? Which is more common? Describe overall processes.			
<b>Clinical telephone encounters</b>			
3. What are the most common telephone encounters (e.g., refills, test results, referrals)? Describe the process. Are there specific policies in place regarding turnaround time?			
4. How are incoming calls tracked (i.e., is a telephone encounter created for each call)?			
5. What is the process for returning calls? Outgoing calls (e.g., lab results)?			
<b>Clinical telephone encounters</b>			
6. Does the provider offer after-hours or weekend calls? How are these documented? Describe the process.			
<b>Additional notes:</b>			

# References

- 1 Hearts: technical package for cardiovascular disease management in primary health care. Geneva: World Health Organization; 2016.
- 2 Cardiovascular disease: team-based care to improve blood pressure control. A Community Guide systematic review; 2012 (<https://www.thecommunityguide.org/findings/cardiovascular-disease-team-based-care-improve-blood-pressure-control>, accessed on 6 October 2017).
- 3 Joshi R, Alim M, Kengne AP, Jan S, Maulik PK, Peiris D, et al. Task shifting for non-communicable disease management in low and middle income countries – a systematic review. PLOS ONE. 2014;9(8).
- 4 Operations manual for delivery of HIV prevention, care and treatment at primary health centres in high-prevalence, resource-constrained settings: edition 1 for field testing and country adaptation. Geneva: World Health Organization; 2008.
- 5 Schottenfeld L, Petersen D, Peikes D, Ricciardi R, Burak H, McNellis R, et al. Creating patient-centered team-based primary care. AHRQ pub. no. 16-0002-EF. Rockville, MD: Agency for Healthcare Research and Quality; March 2016.
- 6 Proia KK, Thota AB, Njie GJ, Finnie RKC, Hopkins DP, Mukhtar Q, et al. Team-based care and improved blood pressure control: a Community Guide systematic review. Am J Prev Med. 2014;47(1):86-99. doi:10.1016/j.amepre.2014.03.004.
- 7 Sinsky C, Rajcevic E. Implementing team-based care to increase practice efficiency: engage the entire team in caring for patients. American Medical Association; 2015 (<https://www.stepsforward.org/modules/team-based-care>, accessed 16 October 2017).
- 8 Bunluesin S. Ongkharak Hospital visit, trip report. 2017.
- 9 National training on hypertension for health care workers in Ethiopia: facilitator's manual. Ministry of Health; 2016.

## For more information

A community health worker training resource for preventing heart disease and stroke. Atlanta, GA: Division of Heart Disease and Stroke Prevention, Centers for Disease Control and Prevention. 2015. Available in English and Spanish at ([https://www.cdc.gov/dhdsp/programs/spha/chw\\_training/index.htm](https://www.cdc.gov/dhdsp/programs/spha/chw_training/index.htm), accessed 19 October 2017).

Cardiovascular disease: interventions engaging community health workers. A Community Guide systematic review. March 2015 (<https://www.thecommunityguide.org/findings/cardiovascular-disease-prevention-and-control-interventions-engaging-community-health>, accessed 19 October 2017).

Carter BL, Bosworth HD, Green B. The hypertension team: the role of the pharmacist, nurse and teamwork in hypertension therapy. *J Clin Hypertens*. 2012;14(1):51-65. doi: 10.1111/j.1751-7176.2011.00542.x.

Community health workers and Million Hearts. Million Hearts ([https://millionhearts.hhs.gov/files/MH\\_CommHealthWorker\\_Factsheet\\_English.pdf](https://millionhearts.hhs.gov/files/MH_CommHealthWorker_Factsheet_English.pdf), accessed 10 October 2017).

Hypertension control: action steps for clinicians. Atlanta, GA: Centers for Disease Control and Prevention, US Dept of Health and Human Services; 2013 ([https://millionhearts.hhs.gov/files/MH\\_HTN\\_Clinician\\_Guide.pdf](https://millionhearts.hhs.gov/files/MH_HTN_Clinician_Guide.pdf), accessed 10 October 2017).

Gaziano T, Abrahams-Gessel S, Surka S, Sy S, Pandya A, Denman CA, et al. Cardiovascular disease screening by community health workers can be cost-effective in low-resource countries. *Health Aff*. 2015;39(9):1538-45.

Mitchell P, Wynia M, Golden R, McNellis B, Okun S, Webb CE, et al. Core principles and values of effective team-based health care. Discussion Paper. Washington, DC: Institute of Medicine; 2012 ([www.iom.edu/tbc](http://www.iom.edu/tbc)).

Patel P, Ordunez P, Di Pette D, Escobar MC, Hassell T, Wyss F, et al. Improved blood pressure control to reduce cardiovascular disease morbidity and mortality: The Standardized Hypertension Treatment and Prevention Project. *J Clin Hypertens*. 2016;18(12):1284-94. doi: 10.1111/jch.12861.

Promoting Team-Based Care to Improve High Blood Pressure Control. Atlanta, GA: Division for Heart Disease and Stroke Prevention, Centers for Disease Control and Prevention. 2018. (<https://www.cdc.gov/dhdsp/pubs/guides/best-practices/team-based-care.htm>).

Sidney S. Team-based care: a step in the right direction for hypertension control. *Am J Prev Med*. 2015;49(5):e81-e82. doi: 10.1016/j.amepre.2015.05.014.

Xavier D, Gupta R, Kamath D, Sigamani A, Devereaux PJ, George N, et al. Community health worker-based intervention for adherence to drugs and lifestyle change after acute coronary syndrome: a multicentre, open, randomised controlled trial. *Lancet Diabetes Endocrinol*. 2016;4(3):244-53.