Integrating NCD case management into your health facility- an operations manual for health centres and outpatient clinics in Uganda

WHO PEN- HEARTS- IMAI

Draft for use in Uganda:

September 2018

This operations manual on service organization and PHC operations at first-level facilities is targeted at the PHC facility in-charge—predominantly at health centre level but also relevant to organization outpatient hospital clinics providing NCD case management integrated within primary health care.

Acknowledgements:
Produced by IMAI Alliance (a US NGO) under the direction of Sandy Gove and Mona Shah, in collaboration with and on a contract from WHO Department for Management of Noncommunicable Diseases, Disability, Violence and Injury Prevention, Management of Noncommunicable Diseases, under the direction of Oyere Onuma and Cherian Varghese.

The patient monitoring system was developed on a contract with WHO AFRO Department of Noncommunicable Diseases. The IMAI team developing the longitudinal patient monitoring system (model 2 in the HEARTS monitoring manual) included Tisha Mitsunaga, Mona Shah, Kirsty McHarry, Sandy Gove.

The QI section was drafted by Elijah Goldberg and Shevin Jacob from Walimu, a Ugandan NGO also registered in the USA; the medicine supply management section by Ashwin Vasan then by PATH and updated for the HEARTS Technical package for cardiovascular disease management in primary health care: Access to essential medicines and technology
Editing and reference help from Sarah Gove and Katherine Bloomquist gratefully acknowledged.

Material has been drawn from:

- *Child health planning documents* and
- *WHO: Operations manual for delivery of HIV prevention, care and treatment at primary health centres in high-prevalence, resource-constrained settings*[1]

Contents

1. Introduction 1
2. Scope, purpose and assumptions of the manual 2
3. Where are we starting from in NCD case management, in your health facility? 4
4. How to integrate CVD/DM case management into primary care at the health centre or hospital outpatient clinic 5
5. Linkages with the community 22
6. Medicines and technologies for NCD treatments 23
7. Establishing and maintaining essential laboratory and other diagnostic capacity for NCD case management 25
8. Patient and programme monitoring in your health facility 27
9. Referral and back-referral 30
10. Capacity building to implement HEARTS within an integrated NCD/PHC approach 32
11. How to establish effective supervision, benefit from clinical mentoring and use these visits to support ongoing quality improvement 41
12. Develop an implementation workplan for your health facility 44
13. Make a budget 49
14. Review implementation status 51

Annexes

Abbreviations

References, resources

1. Introduction

Noncommunicable diseases (NCDs) are growing as a public health challenges in all parts of the world. In many settings, this can be especially pronounced in the absence of systematic NCD case management within health services, leading to high morbidity, premature mortality and financial hardships for the patients and their families. In Uganda and many other low resource countries, the only substantial public health efforts to date have been population-based prevention approaches to reduce NCD risk factors. These are critically important and must be given high priority but early detection, secondary prevention and good case management are also important. A substantial proportion of NCD premature mortality can be prevented and controlled through good case management using a structured delivery system to support chronic care, as has been successfully done for HIV and TB.

This manual, *Integrating cardiovascular disease and diabetes case management into your health facility- an operations manual for health centres and outpatient clinics in low-resource settings,* aims to provide practical guidance for operationalizing integrated NCD case management at your primary health facility. It complements guidance for service delivery and implementation planning framework for NCD management at district level. This manual is based on the WHO-PEN protocols and Global HEARTS tools, as well as the Uganda experience scaling up HIV care and ART. The target audience are the health facility in-charge and their staff.

WHO PEN and Global HEARTS, with its more focused emphasis on cardiovascular risk management, provide the evidence-based, cost-effective interventions for NCD case management and many suggestions for the efficient use of limited health care resources to produce patient-centered, community-based and sustainable health care. This manual helps facility managers operationalize this at the first-level health facility- health centre III and the outpatient clinics of health centre IV, general (district) hospitals, and regional referral hospitals, drawing on materials and approaches to scaling up programmes for child health and HIV care/ART. **Error! Bookmark not defined.**

The manual is focused on delivery at through the primary health care system, with back-up from the hospital and close collaboration with the community.

The manual presents several service delivery models for NCD chronic care:

- An NCD chronic care clinic organized within PHC services several days per week and staffed by a clinical team including nurses, clinical officers and auxiliaries (not a specialist clinic)
- A family practice or private clinic model where the returning patient with hypertension, diabetes or elevated CVD risk is seen by appointment by the same doctor or nurse (or one of several collaborating professionals in the practice). This may function in some government health centres in higher resource setting or in an NGO or private health facility.
- Integrated NCD- HIV co-management within established HIV/antiretroviral (ART) services

2. Scope, purpose and assumptions of the manual

Target audience:
This Manual is written for the health centre team, and in particular the health centre manager (often an in-charge senior nurse or clinical officer). This person can be the head NCD clinical provider, the nurse in-charge, or another person on the health centre team who is responsible for overseeing and managing the health centre.

This **Operations Manual** should be used alongside:

- Uganda NCD strategic plan
- HEARTS Technical Package: Access to essential medicines and technology, which is particularly useful for those with specific tasks such as managing the supplies of medicines and essential equipment and laboratory tests;
- NCD longitudinal patient monitoring tools and includes the essential indicators from the HEARTS Technical Package: Systems for monitoring; and
- *NCD Quality improvement module for first-level facility staff.*

This manual assumes:

1. Integration into existing PHC services:
   - HEARTS case management interventions are being added or improved within existing PHC services.
   - Service delivery is integrated, for the range of NCDs which can be cared for as well as acute care, “acute on chronic” care, and referral between levels of the district health system.
   - Emphasis is on decentralized service delivery at the front lines of the health system.
   - Patient-centered primary care is delivered through a team approach with community participation[2].
   - Your health centre (or outpatient department in a district hospital) functions within a district health system.
   - You are working with your district management team to achieve a system that is both sustainable and capable of going to scale, to reach high coverage within the district.

2. Key NCD national strategic and adaptation decisions have been made:
   - which cardiovascular/diabetes and other NCD case management services should be performed at different levels of the health systems
   - which tasks that can be performed by different cadres of health workers, with clear definition of the roles and responsibilities of health staff at each level
   - agreements between national programmes and various stakeholders on screening and co-management (or not) of CVD risk/DM within the HIV, TB and antenatal/post-partum clinics

3. District strategic and implementation planning has been carried out

4. Tools for HEARTS implementation have been adapted at national level and provided to your health facility, both physical copies of tools and training in their use:
    - adapted clinical guidelines
    - adapted training materials
    - adapted first-level facility operations manual (this manual)
    - adapted patient monitoring system including:
        - patient card/record or insert for CVD/DM/HTN and for secondary prophylaxis for RHD
        - longitudinal CVD/DM/HTN register (paper or electronic) or clinical audit forms if using model 1
        - register for RHD patients
        - appointment book
        - CVD risk and diabetes screening forms/tally register or assessment register
        - stamps or stickers to facilitate recording CVD risk/DM data in the patient-held record
5. Implementation is within a low- resource setting. If you have more resources than are assumed here (for example, availability of an ECG in clinic, paramedical services for prompt transfer to a CCU/ICU for severe illness, or more comprehensive screening for high risk individuals including exercise stress tests, echocardiography, etc)—this manual would require adaptation.

An effective organizational structure for a health facility requires clearly defined functions for each of its moving parts. The staff in charge should be trained in and familiar with each of these different components of running a health centre. These include:

- Clinic management- both acute medical and chronic NCD care
- Programme planning
- Financial management
- Monitoring system Supply management for medicines and laboratory consumables
- Maintenance and calibration for essential NCD diagnostic equipment (see *WHO HEARTS technical package*)
- Facility management, including TB infection control and other workplace safety
- Mentoring, supervision and staff appraisal
- Quality management

The Manual is intended to be both a learning and job aid for health centre workers. During country adaptation, some content may be presented as wall charts or used to develop standard operating procedures for various services or specific types of patients.

The Manual should also be helpful to the district management team, which supervises and supports health centre services, as well as other partners planning and supporting decentralization of NCD services.

3. Where are we starting from in NCD case management, in your health facility?

Use the HEARTS facility assessment survey (see *WHO HEARTS technical package*). Your district team should provide a country-adapted version and collaborate with you in carrying out the survey.

In addition, answer the following questions which can help guide planning. It is important to involve your staff in these assessments and discussions, as their insights and participation within a clinical team are essential to successful development of NCD services.

- What are the current number of patients receiving NCD case management services at your health facility?

(Note: It may be difficult to determine the number of patients being cared for if return visits are recorded in the same register as acute care visits.

	Estimated number of patients currently in chronic care identified as having:							
Your health facility:	Prior CVD	CKD	CVD risk≥ 30%	Hypertension (HTN)	Diabetes (DM)	Asthma	COPD	RF/RHD on secondary prophylaxis
Number								
Comments								

- Current staff availability- number by cadre and their preparation to provide NCD care (in addition to existing acute care services). Although not a formal assessment of staff knowledge and skills, you should have some idea of their current capacities.
- Existing health facility processes and resources (including medicine and equipment availability and utilization) for screening, diagnosing, monitoring, and caring for patients with hypertension, diabetes, elevated cardiovascular risk, asthma, COPD, breast cancer, and cervical cancer.
- Existing process and resources for referring patients from primary care level to hospital
- Flow of patients and patient information within the health facility
- Current clinical referral arrangements with district and regional hospitals
- Observed and perceived (by health workers) key barriers to the following:
  - Appropriate screening of patients for NCDs
  - Accurate diagnosis of NCDs
  - Rapid and effective referral of patients to the appropriate care level
  - Efficient supply chain of drugs and medical equipment
  - Quality of care of the NCD patient

These questions can be addressed in the context of a health facility assessment, done with the district team.

4. How to integrate CVD/DM case management into primary care at the health centre or hospital outpatient clinic

Integrating cardiovascular disease and diabetes management into the PHC services you deliver at your health centre or outpatient clinic requires a plan and set-up to deliver the several components of case management. Usually this will mean augmenting your existing service delivery approach in a practical and feasible way that allows you to deliver, for a large number of patients with hypertension, diabetes and/or elevated cardiovascular risk:

- Emergency and acute cardiovascular/diabetes care- this may involve improving how you triage and provide emergency care including the provision of important pre-referral treatments
- Screening during acute care visits:
    - CVD risk/DM pre-assessment by auxiliaries
    - Screening/early disease detection by health workers
- Ongoing Chronic NCD Care for patients with CVD risk/DM care or on secondary prophylaxis for RHD, either
    - integrated into routine PHC care organized as a periodic NCD chronic care clinic sessions held in the morning on certain days of the week. Note that this clinic is organized within PHC, using health workers trained to deliver chronic care with the addition of auxiliaries to the chronic care clinical team. This would include new patient visits, follow-up visits and "acute on chronic" visits for those patients referred to these sessions. The clinical health workers provide acute care and other services at other times within the health centre or OPD. If there is a large number of patients that come, the facility may decide to continue acute care or OPD sessions in parallel with NCD chronic care. The health centre clinic does not have NCD specialists (section 4.1-4.2) OR
    - a family practice/private care model (section 4.3) OR
    - more fully integrated chronic care, integrating HIV care/ART and CVD/DM case management for HIV patients on antiretroviral treatment who also have elevated cardiovascular risk, hypertension or diabetes (see section 4.4) or an integrated NCD clinic which cares for all NCD and HIV care/ART patients (adapt out/skip this option if low HIV prevalence or national decisions not to integrate chronic care).

4.1 Acute care for NCDs/emergency management and CVD risk/diabetes screening in a medical OPD in a health centre or hospital outpatient clinic

This is an example of a model suitable for a high volume of patients and limited clinical health workers. Expanding services often requires utilizing auxiliaries to expand the clinical team.

Management of a very large number of patients with NCDs within primary health care in this service delivery model is based on:

- basic services delivered by a non-physician health workers, often a nurse- or clinical officer-led teams
- auxiliaries and "expert patients" added to the clinical team to help manage the enlarging numbers of patients in chronic care for registration, triage, counselling
- clear delineation of what can be done at a primary health centre/outpatient clinic and what requires referral to hospital (first- referral care within the district) or to health facilities or NGOs providing specific services such as fundoscopy, complicated foot care, or specialized cardiology care
- strong capacity building efforts followed by mentoring and ongoing quality improvement (see chapter 11 and the *NCD quality improvement module*)

In order to present a simplified approach and provide concrete examples and handy checklists, given the several available tools to support generic HEARTS implementation, it is assumed you are organizing NCD chronic care using a scheduled clinic session and that the team includes trained auxiliaries. The examples in 4.1- 4.2 are based on a country-adapted *WHO IMAI-PEN Integrated Chronic NCD guideline module*[3] (protocols 1 and 3) and training materials for nurses/clinical officers and for auxiliaries. These are based on the WHO HEARTS technical package.[4] If this is not the case, use the family practice/private clinic model (section 4.3) or other service delivery models. This operations manual should be adapted prior to use.

Triage all acute care patients on arrival and provide emergency treatments:

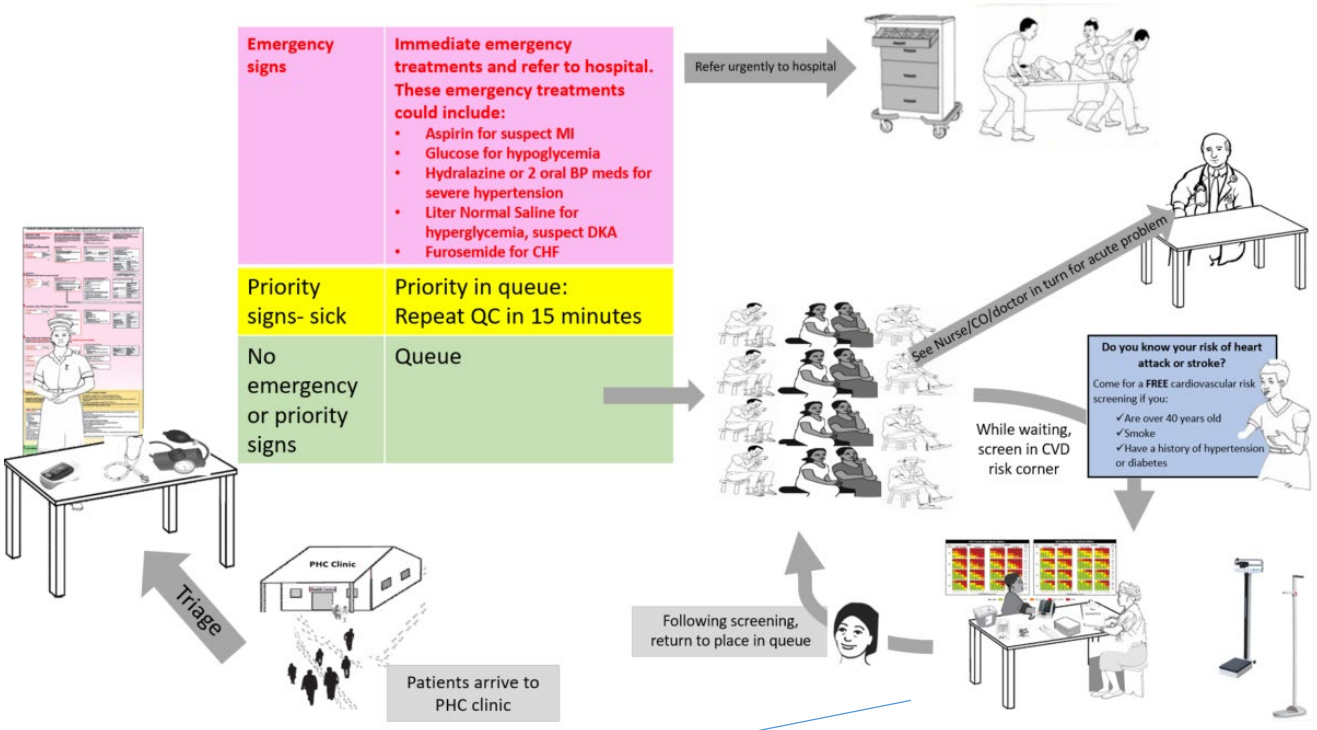
> Whenever a patient arrives at either general medical clinic or the NCD Chronic Care Clinic, it is important to do a rapid "ABCD" triage for emergency signs then the rapid provision of emergency treatments. Some interventions can avert mortality in severely ill patients through initial detection and referral from the primary care facility to hospital, after lifesaving pre-referral treatments such as aspirin for suspect acute MI; glucose for hypoglycaemia; hydralazine or two oral BP medicines to lower BP in severe hypertension; furosemide for acute heart failure/pulmonary oedema; saline infusion of hyperglycaemia/suspected DKA.

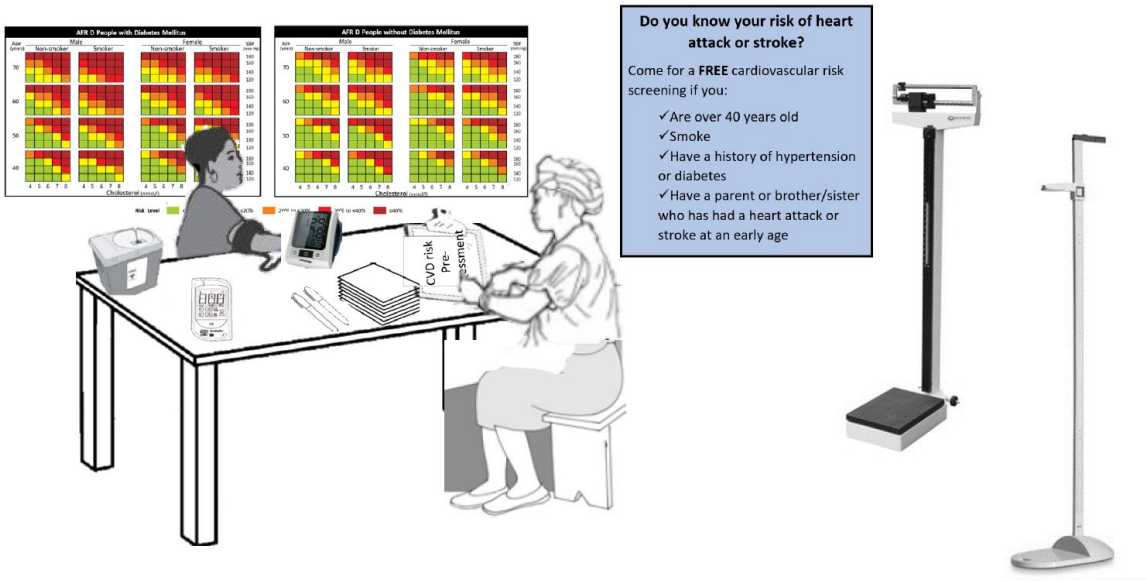
- Triage each patient - pink (emergency), yellow (priority) or green (can sit in queue)
- If emergency signs- give immediate pre-referral emergency treatments then refer to hospital
- If green (no emergency or priority signs), patient can sit in queue. This is a good opportunity for CVD risk/diabetes screening.

Most adult visits to a primary care health facility for acute problems. This is an important opportunity to detect unrecognized and untreated NCDs such as hypertension, diabetes, elevated cardiovascular disease risk, or lumps/pain/abnormal bleeding or discharge that may be cancer. One can suspect diabetes based on a number of patient complaints (polyuria, polydipsia, weight loss, blurry vision).

Acute care also affords an opportunity for screening for asymptomatic risk conditions and diseases, as health worker time permits. Because patients come sick to acute care clinics, however, the clinical team need to prioritize attention to presenting complaints but should also do CVD risk screening when possible. If conditions such as hypertension, diabetes or elevated cardiovascular risk are suspected during an acute visit, it is important to have a system in place to follow these patients once stabilized from their acute problem.

In an often busy acute care clinic, assessment and follow-up of these risk factors and suspected NCD diagnoses may be missed. In this circumstance, enhancing CVD risk and diabetes screening would benefit from, and perhaps require, additional auxiliary staff or lay providers to take the time to carry out CVD risk screening, in part or whole and provide this information to the health worker, as well as linking the patient to appropriate follow-up services. An auxiliary or a nurse can do CVD risk screening while patients are sitting in the queue:





Checklist: requirements for integrating NCD care and CVD risk/DM screening into triage, emergency and acute care in the medical OPD	
Infrastructure/layout	☐ Triage set up where new patients arrive ☐ Registration ☐ Acute care/emergency treatment rooms or area with trolley, chair or guerney (if available) ☐ Corner for CVD/DM risk screening by an auxiliary or nurse in view from queue, not interfering with flow of patients to emergency triage point (see separate checklist for requirements for this corner below)
Human resources	☐ Trained clinical health workers to triage and provide immediate emergency care- often nurse, clinical officer (CO); could be MD/GP. ☐ Trained clinical health workers to provide other acute care and manage new problems—screening for diabetes, cardiovascular risk may be integrated into these visits (facilitated by pre-screening by an auxiliary; patient carries pre-assessment form).
Equipment and laboratory	☐ BP machine, several cuff sizes, stethoscope or reliable digital BP machines ☐ Pulse oximeter ☐ RR timer ☐ Glucometer and test strips to measure blood sugar[1] ☐ Urine pregnancy test ☐ Accurate adult weighing scale, regularly calibrated ☐ Height board or measuring tape or long ruler (for BMI calculations)
Emergency medicines	Pre-referral treatments: ☐ Glucose/dextrose IV ☐ Normal saline infusion ☐ Furosemide IV or po ☐ Oral BP medicines (two) or hydralazine IV for severe hypertension ☐ Aspirin 300 mg tablet (to chew)
Guidelines, wallcharts	☐ WHO Quick Check wallchart ☐ WHO IMAI-PEN Acute Care guideline module ☐ Country-adapted WHO/ISH cardiovascular risk prediction charts ☐ BMI chart- laminated
Patient monitoring	☐ Register- all acute care patients ☐ Register- CVD assessments or tally sheet ☐ Stamp or sticker to record CVD risk in patient-held record
Referral arrangements	☐ To district hospital if emergency signs/severely ill ☐ To laboratory for additional lab ☐ To NCD Chronic Care Clinic
Infection prevention and control	☐ Sharps box ☐ Alcohol wipes ☐ Gauze or cotton ☐ Gloves, masks; other IPC as needed by risk ☐ Waste disposal for gloves, wipes ☐ Follow WHO TB infection control principles for patients in queue

[1] In some health centres, this will be done by the laboratory only

Checklist: requirements for CVD risk/diabetes screening corner- staffed by auxiliary (or nurse)	
Infrastructure/ layout	☐ Corner in view from queue, not interfering with flow of patients to emergency triage point and immediate delivery of emergency treatments ☐ Table, several chairs. ☐ Space to put up poster and wallcharts
Human resources	☐ Trained auxiliary or expert patient lay provider (daytime shifts) (this could be a nurse if ample nurses) ☐ Nurse supervisor
Equipment and laboratory	☐ Reliable digital BP machines with several cuff sizes ☐ Stethoscope ☐ Accurate adult weighing scale, regularly calibrated ☐ Height board or measuring tape or long ruler (for BMI calculations) ☐ Waist circumference tape- non-stretchable ☐ Glucometer and many test strips to measure blood sugar[2]
Medicines	None
Guidelines, wallcharts	☐ Country-adapted WHO/ISH cardiovascular risk prediction wallchart (enlarge, laminate) ☐ BMI chart- laminated
Patient monitoring	☐ Supply of pre-assessment forms ☐ Tally sheet for assessments done or CVD assessment register ☐ Stamp or sticker to record in patient-held record
Referral arrangements	☐ To laboratory for additional lab ((total cholesterol if lab-based screening; FBG) To NCD Chronic Care Clinic or follow-up chronic care appointment
Infection prevention and control	☐ Sharps box ☐ Alcohol wipes ☐ Waste disposal for gloves, wipes ☐ Gauze or cotton

Besides the general adult acute care/general medical care outpatient clinic, other clinics at primary care level (often on different days of the week or in different sections in large health facilities, but all integrated within PHC) can be a fruitful location for screening. Also, linking with other disease control programmes to identify at-risk individuals participating in other health-care services may not only facilitate in NCD case detection but also provide opportunities to integrate care for the patient. This could include screening in:

- Antenatal/postpartum clinic
    - check BP; recheck BP at 6 weeks postpartum,[5] especially if elevated earlier
    - NCD Chronic Care Clinic - patients may also
        - come directly to the NCD Chronic Care Clinic when they hear care and treatment is available;
        - Or be referred from community screening- CHWs, pharmacists, family or others
        - Or be referred from hospital or a specialist clinic (e.g. cardiologist)
- TB clinic (high yield diabetes patients)
- HIV care/ART clinic
    - in health centres or hospital outpatients which have a HIV care/ART clinic- either contiguous or one-several days/week in same space

[2] in some health centres, this will be done by the laboratory only

4.2 Cardiovascular and diabetes component of Integrated NCD Chronic Care within primary health care

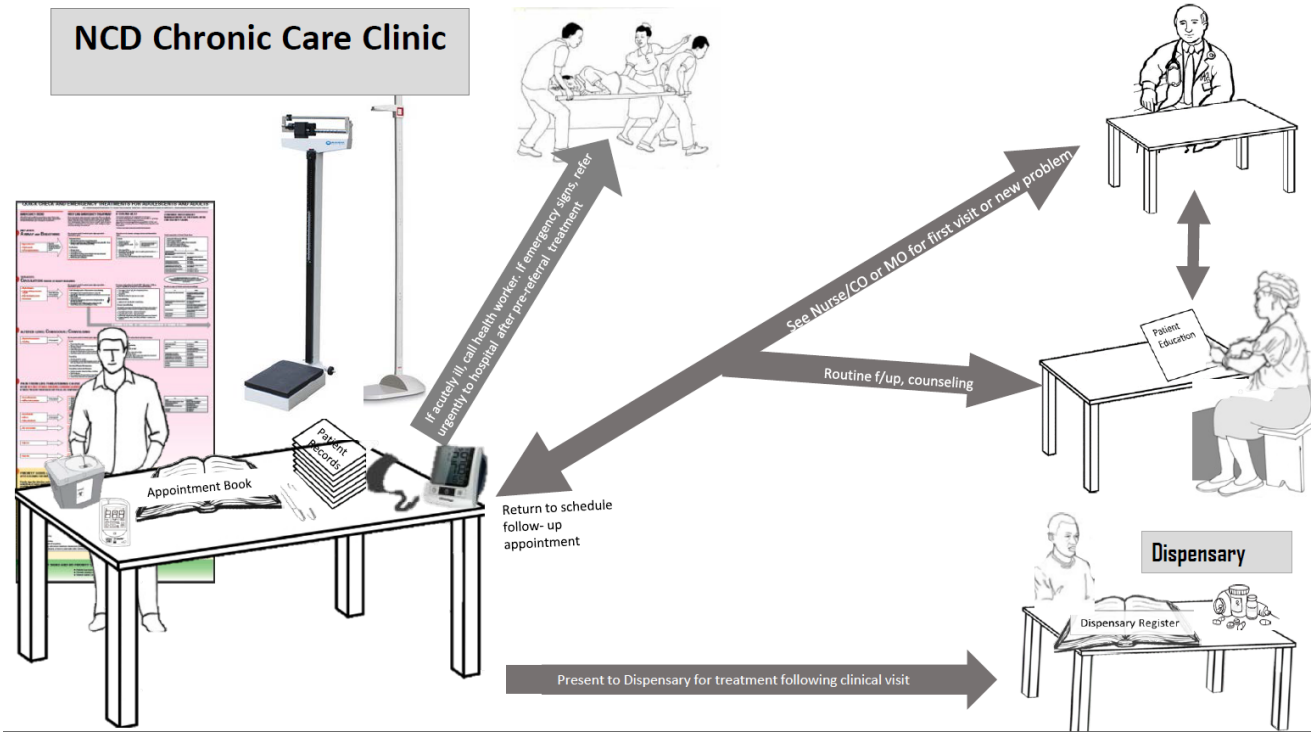
This example assumes a clinical team approach to NCD chronic care with a clinic arranged several days per week, in a clinic room used at other times for other types of care. It is fully integrated within primary health care—the health workers trained to provide NCD chronic care are the same health workers that provide general medical clinic care and other days may be providing care in other clinics organized within the PHC services of the health centres, such as TB, antenatal or HIV/ART care.

New patients or patient with a new problem see a clinical health worker. Others return for tests, BP or glucose check and counselling and receive refills from a trained auxiliary, without seeing a health worker if they have no acute problems. This approach allows the health centre to provide care to an expanding number of patients with cardiovascular problems or diabetes.

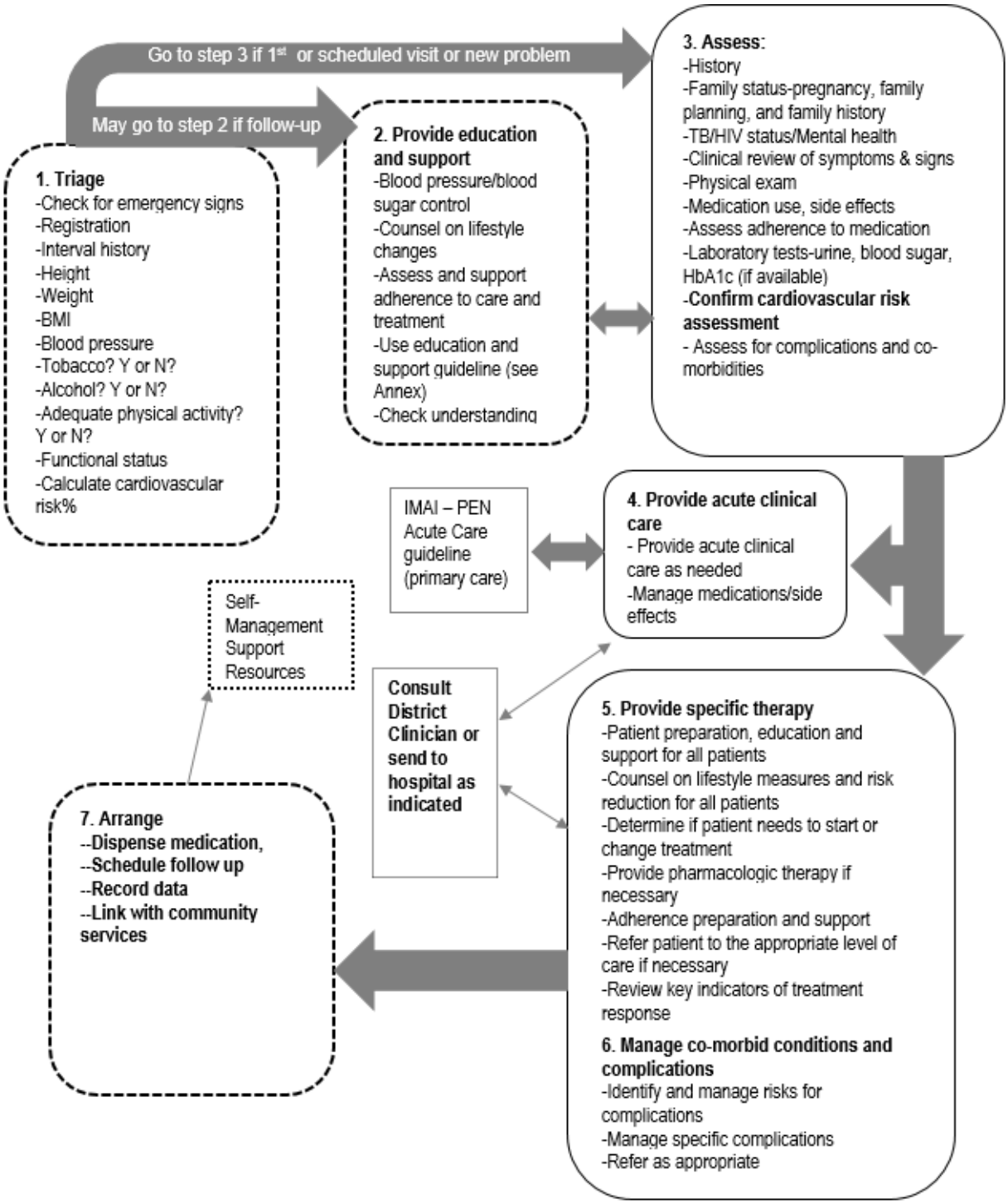
Example of a **sequence of chronic care** follows on page 12.[6]

Most patients with NCDs still require periodic acute care, sometimes referred to as “acute on chronic”. Provision of basic Acute Care can occur in the NCD Chronic Care Clinic (health workers should be trained in both) or in the general medical/acute care clinic

At the initial triage for NCD chronic care, once it is determined that there are no “ABCD” signs (this can be done quickly), the auxiliary staff/lay provider or nurse takes vitals, pulls the patient’s card or record, and completes the initial portion of NCD patient monitoring card for elevated CVD risk, hypertension and DM. If labs have not been done (e.g. fasting blood glucose), the triage worker may send the patient to the laboratory at this point (if not done within the clinic visit itself). After registration and triage, the patient can see the clinical health worker (if problem, new visit or scheduled follow-up) or the auxiliary staff/lay provider (if here for BP/glucose check, counselling and/or medication refills). *The patient does not need to see the clinical health worker at every visit if there is well-prepared clinical team that is communicating amongst its members.* The patient completes the clinical encounter and/or counselling encounter and then returns to registration for follow-up (if not done already during the encounter) and then to the dispensary/ pharmacy for medications.


NCD Chronic Care Clinic
If acutely ill, call health worker. If emergency signs, refer urgently to hospital after pre-referral treatment
See Nurse/CO or MO for first visit or new problem
Routine f/up, counseling
Patient Education
Appointment Book
Patient Records
Return to schedule follow- up appointment
Dispensary
Dispensary Register
Present to Dispensary for treatment following clinical visit

Sequence of care



Tasks that can be done by non-clinical staff **Tasks that can be done by clinical staff, such as nurses**

Checklist: requirement for HEARTS component of integrated NCD chronic care	
Infrastructure/ layout	☐ Clinic with 1-2 triage auxiliaries with table, equipment—to see patients before and after counselling/clinical consultations ☐ Several small rooms or corners for counselling ☐ 1-2 clinical exam room or areas (or more depending on volume)
Human resources	☐ Need ample trained auxiliaries, expert patient lay providers/peer support- able to triage, counsel patients, provide peer support ☐ Trained clinical health workers- nurses, CO ☐ For higher level health facilities and supportive supervision/clinical mentoring: MD/MO
Equipment and laboratory	☐ BP machine, several cuff sizes, stethoscope; validated digital BP devices (for auxiliary staff/lay providers) ☐ For clinician, also 10 g monofilament and pulse oximeter ☐ Glucometer and many test strips to measure blood sugar[3] ☐ Urine test strips for protein and ketones (and urine microalbuminuria, although these test strips may only be available at district hospital level) ☐ Rapid pregnancy test ☐ Syringe, needles, blood draw tubes (or lab requisition form→ to laboratory e.g. for cholesterol, serum potassium, creatinine) and materials for transport if needed
Medicines	☐ Glucose solution or juice- oral ☐ Pre-referral treatments- from emergency room trolley ☐ HEARTS 10-15 medicines- available in dispensary (with dispensing register)
Guidelines, wallcharts	☐ WHO Quick Check wallchart ☐ Country-adapted WHO/ISH cardiovascular risk prediction wallchart (enlarge, laminate) ☐ Country-adapted IMAI-PEN Integrated NCD Chronic Care guideline module ☐ Counselling cards
Patient monitoring	☐ Patient card or insert record ☐ Longitudinal patient register ☐ Appointment book ☐ Stamp or sticker to record in patient-held record
Referral arrangements	☐ To hospital for emergency signs/severe disease ☐ To hospital for specialist or specially trained generalist MD for high CVD risk, PCVD, CKD, other referral criteria and complications ☐ To ophthalmologist or specially trained optometrist for diabetes eye screening (with fundoscopy)
Infection prevention and control	☐ Sharps box ☐ Alcohol wipes ☐ Gloves ☐ Gauze or cotton ☐ Waste disposal for gloves, wipes

[insert example of primary health centre flow incorporating CVD/DM screening corner]

[3] In some health centres, this and other laboratory tests will be done by the laboratory only

4.3 Family practice/private care model

In this model, all new problems and acute care as well as return visits for chronic NCD problems are seen by appointment. Each chronic NCD patient has a return appointment scheduled with a single doctor or group of doctors and nurse- practitioners working as a family practice team and assigned to a panel of patients. Some acute care slots are made available each day and CVD risk screening is integrated within the acute care or new problem visit.

This would work better for smaller volume clinics and would entail the clinical team to be trained to triage for both acute and chronic care in order to effectively track its patient population. This model still needs to follow a "sequence of care" to comprehensively manage follow-up of chronic care patients from triage and CVD risk assessment to clinical assessment/treatment plan and counselling, to routine preventive care and provision of acute care to its general population (those with non-chronic conditions). Substantially increasing the number of chronic care return visits for integrated WHO PEN-HEARTS CVD risk-based approach to hypertension, diabetes and elevated cardiovascular risk may still require additional staff (auxiliary workers, expert patient lay providers) to ease the burden of clinical health worker to facilitate CVD risk assessment and counselling, referral to laboratory, pharmacy, referral for eye exam, routine return visits for clinical management and refills, etc. unless the number of doctors and nurses can be increased.

Checklist: requirement for HEARTS acute and chronic care integration within a family practice	
Infrastructure/ layout	□ Clinic with triage/registration/appointment book at entry- nurse □ Several small rooms or corners for counselling □ 1-2 clinical exam room or areas (or more depending on volume)
Human resources	□ Trained doctors, nurses and clinical officers to counsel and provide clinical care □ Addition of trained auxiliaries/lay providers/expert patients as needed for lifestyle counselling, peer support, BP or blood glucose follow-up
Equipment and laboratory	□ BP machine, several cuff sizes, stethoscope □ For clinician, 10 g monofilament and pulse oximeter □ Glucometer and many test strips to measure blood sugar[4] □ Urine test strips for protein and ketones (and urine microalbuminuria, although these test strips may only be available at district hospital level) □ Rapid pregnancy test □ Syringe, needles, blood draw tubes (or lab requisition form→ to laboratory e.g. for cholesterol, serum potassium, creatinine) and materials for transport if needed
Medicines	□ Glucose solution or juice- oral □ Pre-referral emergency treatments □ HEARTS 9 chronic care medicines and acute care medicines - available in dispensary (with dispensing register)
Guidelines, wallcharts	□ WHO Quick Check wallchart □ Country-adapted WHO/ISH cardiovascular risk prediction wallchart (enlarge, laminate) □ Country-adapted IMAI-PEN Integrated NCD Chronic Care guideline module □ Counselling cards
Patient monitoring	□ Patient card or insert record □ Longitudinal patient register or clinical audit forms □ Appointment book

[4] In some health centres, this and other laboratory tests will be done by the laboratory only

	☐ Stamp or sticker to record in patient-held record
Referral arrangements	☐ To hospital for emergency signs/severe disease ☐ To hospital for specialist or specially trained generalist MD for high CVD risk, PCVD, CKD, other referral criteria and complications ☐ To ophthalmologist or specially trained optometrist for diabetes eye screening (with fundoscopy)
Infection prevention and control	☐ Sharps box ☐ Alcohol wipes ☐ Gloves ☐ Gauze or cotton ☐ Waste disposal for gloves, wipes

4.4 NCD chronic care clinic in health facilities which also have an HIV/ART clinic

In health facilities where there is also an HIV clinic (in health centres or hospital outpatients which have a HIV care/ART clinic- either contiguous or one-several days/week in same space), several models have been used:

1. Separate clinics: HIV care/ART patients continue to get comprehensive HIV care and treatment services AND are referred to NCD chronic care for diabetes/CVD risk management, where they are seen alongside HIV negative patients with NCDs. (An HIV-positive patient who needs cardiovascular/diabetes care would need to attend two different clinics).
2. A fully integrated chronic care clinic- all patients needing care for NCDs and HIV care/ART are managed in the same clinic session (or series of clinic sessions, several days per week) attend the same clinic. If an HIV-positive patient needs cardiovascular risk-based management, both HIV care/ART and cardiovascular/diabetes management are provided by the same clinician during the same visit.
3. Separate integrated chronic clinics:
    a. HIV care/ART clinic expands to provide cardiovascular disease risk and diabetes care for their patients AND
    b. HIV negative patients receive NCD care in a separate NCD chronic care clinic (still using same health systems approach as HIV care/ART).

    The same health workers may work in both clinics.

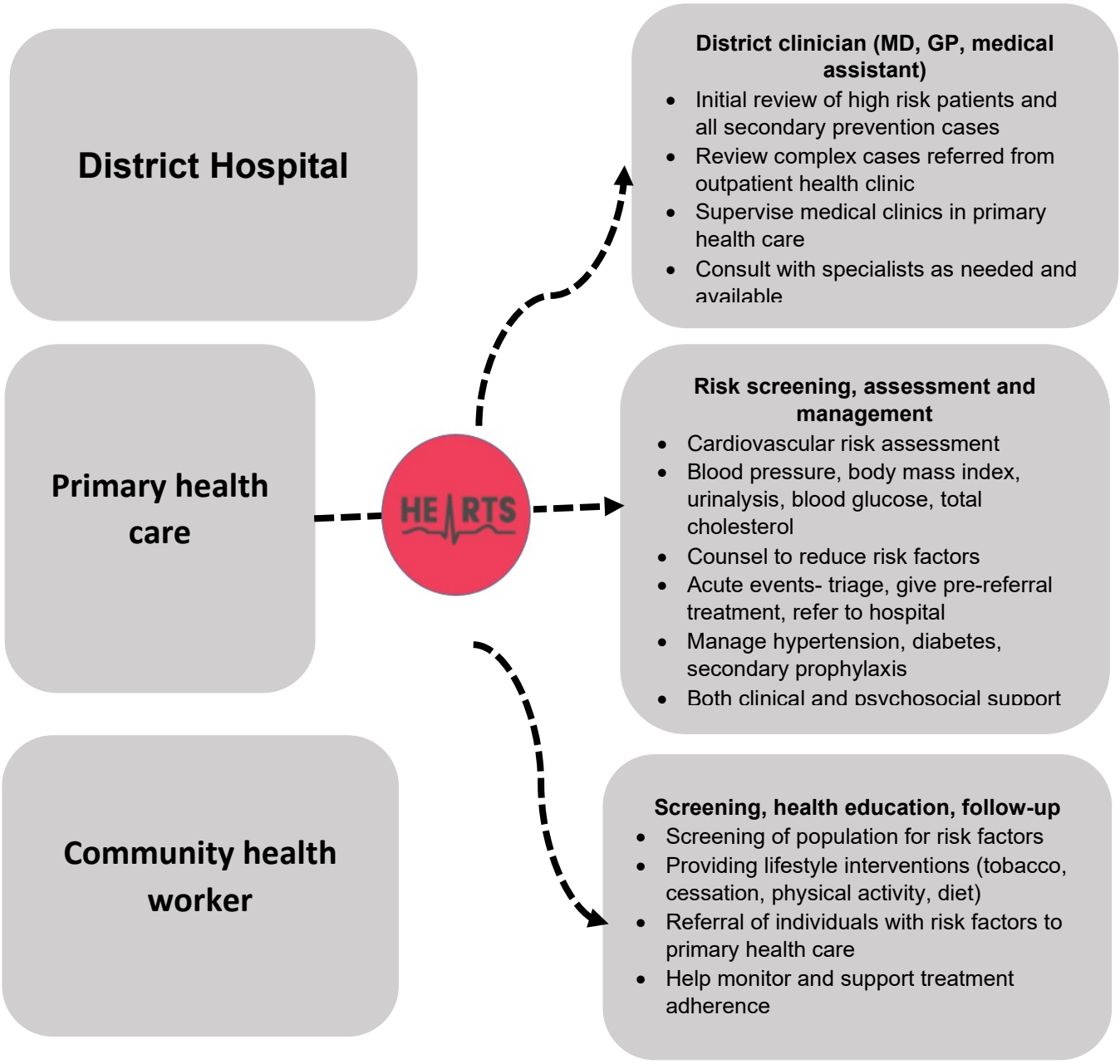
In countries with a moderate or high prevalence of HIV, integrating NCD care for PLHIV within an existing system for HIV care/ART can cover the care for a large number of patients with elevated cardiovascular risk, hypertension and diabetes.

4.5 Screening and risk factor identification in the community

The population 40 years and above can be assessed in the community (see examples in the *NCD national strategic planning and adaptation manual*). Substantial numbers can be screened. However, successful linkages with the health facilities can be low and ability to absorb new patients into chronic care will often be a limiting factor. *It is crucial to establish the health facility NCD chronic care capacity before screening and referring a large number of patients to an already busy system.*

It is also important to train the CHWs well, to do ongoing quality management and supervision of their work, to assure periodic clinic visits, and to have a clear linkage within the patient monitoring system (not a fully separate CHW system).

Example of HEARTS implementation by level



4.6 Developing an appointment system and assuring follow-up to retain patients in care and treatment

Instructions for an appointment book, for adaptation (note that a family practice or private clinic may give appointments by time and use only one appointment system for all care):

1. Consider it a health record. It should be kept confidential at all times.
2. Make sure writing is legible and organized.
3. Appointments should be recorded in the correct month on the days of the week that the NCD clinic is held or the family practice is seeing patients. For example, the record below is for Wednesday, June 14, 2017- the scheduler can fill in appointments for 80 patients. The first 70 are for follow-up appointments and remaining 10 include held slots for new patients. More can be printed as needed e.g. if a clinic sees 200 patients/day,160 spots could be filled for follow-up visits and 40 held for new patients.
4. Record the patient's first and last name.
5. Record the patient's file or identification number.
6. Record important phone numbers (mobile, home, or work).
7. Record the patient's diagnosis that is pertinent for the appointment.
8. Record the reason for the appointment. For example, if the patient is a new patient that was referred from the district hospital, write "new." If the patient is to follow-up to see the Auxiliary HW for blood pressure check, write "BP check." See more examples below:
   New=new patient visit
   BP check= follow-up for blood pressure check
   HW FU= follow-up to see clinical HW
   Counsel= follow-up for counselling
   Lab= follow-up for laboratory results
   Referral/DH- if referred in from district hospital (or add from where referred) or
   Back-referral (if prior referral to hospital)*
9. Confirm the appointment date with the patient and record it in his patient-held record or give him an appointment slip.
10. On the day of the appointment- write "yes" if the patient showed up for the appointment or highlight the line. If the patient called or came in to reschedule- write in this information and make sure that the new date is pre-filled out.

If the patient missed the appointment, write "MISS."

At the end of the week, review the appointment book and write the names of patients with missed appointments on the "MISS list" which is located at the end of each month.

If the patient came in on a date later in the month and his/her name is not scheduled for that date, ask the patient and check to see if his/her name is written on the MISS list. Go back to this list, cross the patient name off and write the current date in the "checked-in" column of the original scheduled appointment date. Record the patient information in the new appointment slot.
At the end of each month, the patients who are on the MISS list should be called (or contacted through their assigned CHW) and offered to have their appointment rescheduled.

11. For cancellations in advance of the appointment date- consider crossing out the patient's name (after pre-filling rescheduled date), so different schedulers are aware that there is an opening for another appointment on that date.

12. The appointment book should also include a list of out-referrals to district hospital and specialists within the month, listing date of referral, date of appointment at the facility (if a routine referral) and receipt of back-referral note. See section 9. This list, and the MISS list, should be reviewed at the end of each month.

Wednesday, June 14th 2017

HW: _____

NAME	FILE/ ID#	CONTACT NO.	DIAGNOSIS	REASON	CHECKED-IN? Yes/MISS/ Later date
NCD follow up					
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
11.					
12.					
13.					
14.					
15.					
16.					
17.					
18.					
19.					
20.					

NAME	FILE/ID#	CONTACT NO.	DIAGNOSIS	REASON	CHECKED-IN? Yes/MISS/ Later date
NCD follow up					
21.					
22.					
23.					
24.					
25.					
26.					
27.					
28.					
29.					
30.					
31.					
32.					
33.					
34.					
35.					
36.					
37.					
38.					
39.					
40.					

NAME	FILE/ID#	CONTACT NO.	DIAGNOSIS	REASON	CHECKED-IN? Yes/MISS/ Later date
Follow up					
41.					
42.					
43.					
44.					
45.					
46.					
47.					
48.					
49.					
50.					
51.					
52.					
53.					
54.					
55.					
56.					
57.					
58.					
59.					
60.					

NAME	FILE/ID#	CONTACT NO.	DIAGNOSIS	REASON	CHECKED-IN? Yes/MISS/ Later date
Follow up					
61.					
62.					
63.					
64.					
65.					
66.					
67.					
68.					
69.					
70.					
New Patient					
71.					
72.					
73.					
74.					
75.					
76.					
77.					
78.					
79.					
80.					

5. Linkages with the community

The first-level PHC facility needs to be in active contact with your catchment community and promote good NCD case management in several ways:

Community awareness, education and support

- Community education:
  - raise awareness on risk factors
  - use mass media, signs, flyers, screening “camps” (if capacity for linkage and facility- or CHW-based care are adequate)
  - identify people with PCVD in their village
- Improve knowledge and practices, through communication with individuals and groups, health workers and CHWs
- Develop community supports (such as health volunteers, groups, essential infrastructure, supervision or oversight of activities)

CHWs- depending on their role(s)

- Screening
- Linkage between patient/community and primary health centre ()
- organize peer support/adherence promotion- for diabetes, hypertension, PCVD
- Providing support for lifestyle interventions (tobacco, cessation, physical activity, diet)
- follow-up, monitoring (link data- can be facilitated by mobile phone technology)
  - May be treatment buddy to support adherence, lifestyle interventions, retention in care or
  - also involved in BP or FBG checks on treatment.
  - symptom management, palliative care in home after heart attack, stroke, heart failure

  There may be different CHWs, community caregivers with different roles.

Prepare patients and families to support patient in chronic NCD care – this can happen in facility or on outreach into the community

- Understand goals of care
- Negotiate plan of care with the clinical team
- Help manage their condition
- Treatment adherence
- Monitor keys symptoms
- Retention in care

6. Medicines and technologies for NCD treatments

A consistent supply of essential quality-assured NCD medicines and diagnostic equipment are required to support scale of NCD case management.

See HEARTS Technical Package: Access to essential medicines and technology

At the first level facility--

- Train then provide ongoing support for first-level facility and hospital pharmacies and their staff for effective supply management for NCD medicine. Effective NCD supply management starts at[7]. Training is available that emphasizes NCD supply management, with inventory registration, distribution and restocking protocols, and documentation for monitoring and evaluation.

Keep track of access of the population to essential NCD medicines

As facility in-charge, make sure the following procedures are good in your health centre:

1. Pharmacy store preparation
    a. A medicines and commodities supply store, separate to the dispensing area, which is dry and well organized
    b. Ensure that this store is secured/locked, temperature controlled, and organized
2. Supply record-keeping
    a. Routine use and completion of a logistics monitoring system
    b. Ensure routine use of demand based reporting and ordering based on past consumption and forecasting
3. Dispensing
    a. Ensure that dispensing areas contain only the medicine needs for the day and are cleaned and secured at the end of each clinic session
4. Payment procedures, if facilities receive direct payments for purchasing of essential medicines and supplies, ensure adequate system of collections and ordering is in place.
5. Monitoring of special systems of medicines/commodities supply management. When scaling up the number of patients receiving treatment, it is critical to employ a simplified forecasting system to create an adequate buffer stock, when scaling up NCD case management.
6. For insulin and any other injectable where refrigeration is required, ensuring adequate refrigeration and stock security is critical. This is in addition to the cold chain for vaccines which require this.

Essential medicines for NCD case management in primary care- health centre and hospital outpatient			
Cardiovascular/diabetes medicines		**Chronic respiratory disease- asthma, COPD medicines**	**Symptom management/ palliative care medicines**
HEARTS 9 essential medicines- for outpatient chronic CVD/DM care: **ACE inhibitor-** captopril, enalapril, or lisinopril **Thiazide diuretic** such as hydrochlorthiazide **Beta blocker** such as atenolol **Calcium channel blocker** (long-acting) such as amlodipine **Sulfonylurea**- gliclazide tablet or glibenclamide cap/tab **Metformin** cap/tab **Insulin** regular injection **Statin** such as simvastatin **Aspirin low-dose** cap/tab	Other cardiovascular medicines: Glyceryl trinitrate sublingual tablet Isosorbide dinitrate tablet Spironolactone tablets **For primary and secondary prevention of rheumatic heart disease:** Benzathine benzylpenicillin powder for injection	Salbutamol inhaler Beclomethazone inhaler Prednisolone cap/tab	Paracetamol Aspirin Ibuprofen Morphine
Emergency treatments at health centre level (pre-referral)	Dextrose 50% injection Dextrose infusion Normal saline infusion Furosemide Hydralazine injection Aspirin 325 mg	Epinephrine Oxygen Hydrocortisone or dexamethasone injection	

7. Establishing and maintaining essential laboratory and other diagnostic capacity for NCD case management

NCD laboratory tests by level will vary depending on choice on NCD interventions and decisions on where care will be provided. The district management needs to plan for how essential laboratory tests are provided most efficiently:

- on site- in the lab or point-of-care
- off-site- how to send samples or the patient for other lab or diagnoses. This requires a system to reliably send back the results to PHC. These systems may already exist and should not be specific for NCD case management.

This section should have been adapted for health centres and district hospital outpatient clinics to reflect district decision on use of point-of-care testing vs facility lab measurement vs transport of specimens to district hospital, central or specialized laboratories.

Blood glucose measurement Every primary care facility should have the capacity to do fasting blood glucose (FBG) by glucometer on site. Assuring an adequate supply of test strips is crucial but an ongoing challenge in many health facilities.

- A system needs to be set up to efficiently do FBGs early each morning, for both the initial assessment of CVD risk and the diagnosis of diabetes, as well as to monitor diabetes patients returning that day for care.

- For some screening in clinic or in the community (during mobile lab outreach or camps), a casual (random) blood glucose (RBG) by glucometer with strips will be necessary, using the higher threshold (>11.0 mmol/l (200 mg/dl)).

HbA1c if available.

For CVD risk assessments (in addition to tests to diagnose diabetes above and sending out blood for cholesterol determination, if available):

- **Charts: country-adapted WHO/ISH cardiovascular risk prediction chart and BMI chart-** if possible, enlarged and laminated.

- **Set up to determine BMI and waist circumference (this area should be run by an auxiliary, trained lay provider/expert patient or nursing assistant)**
  - Body mass index (BMI) measurement:
    - adult beam scale
    - height board
    - BMI tables
  - For waist circumference: non-stretchable measurement tape

  See HEARTS/NCD essential medicines and technologies manual for instructions on:
  Setting up adult beam scale on a firm flat surface
  Setting up height board or tape
  Calibration of the scale

- **Equipment for blood pressure measurement**

Note: BP equipment needs to be available in several locations:

- for use by nurses and other health workers providing emergency/acute clinical care and NCD chronic care (where they may need to recheck a BP)
- for use by auxiliaries/lay providers for initial screening of patients who come for other reasons for acute care and during return visits for HEARTS/NCD chronic care

- Blood pressure (BP) measurement: BP machine* with several cuff sizes. Either:
    - Using auscultation with stethoscope and a cuff or
    - For auxiliaries/lay provider expert patients/CHWs: a validated BP measurement device with digital reading is preferable.

See HEARTS/NCD essential medicines and technologies manual for instructions on:
Choice, validation and maintenance of digital BP machines
Specification of cuff sizes

Organizing urine samples and dipsticks for:

- **Urine test strips for protein and ketones** (and urine microalbuminuria, although these test strips may only be available at district hospital level)
- **Rapid pregnancy test**

For clinical care by health worker

- **Pulse oximeter** to measure oxygen saturation (SpO_2)
- **10-g monofilament** to test sensation
- **Timer to measure respiratory rate** (clock or watch with second hand, timer)

Collection, labelling and preparation for transport of specimens sent to district hospital or other laboratories for:

- **HbA1c** if point-of-care test not available for health centre use
- **Serum creatinine and potassium**
- **Total cholesterol with or without lipid profile**
  INR/PT, aPTT if monitoring patients on anticoagulation (for atrial fibrillation or after valvular surgery).

  Health centres need specifications for type of blood collection tube, labelling, packaging and transport schedule- see the *HEARTS/NCD essential medicines and technologies manual*.

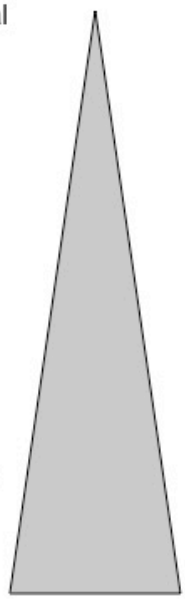
8. Patient and programme monitoring in your health facility

See the country-adapted *monitoring module* which details:

- Content of the country-adapted patient monitoring system
- Details on how to fill out facility level monitoring tools-including instructions for filling registers and reports

Figure xx Different levels of monitoring

Level of data collection	Monitoring tools	Purpose	Quantity
Global, regional, national	Global, regional, national summary indicators	Summary indicators for global reporting and national planning and reporting	Less
District	District summary indicators	Indicators for district and national reporting and planning	
Facility	Facility registers, logbooks	Clinical team management of groups of patients, case review, audits, drug supply management, facility-level indicators (e.g. programme, QI)	
Patient/ community	Patient card/ record	Individual patient management	More



Human resources and organization requirements for patient and programme monitoring

Human resources

Patient monitoring is an activity that requires the participation of a wide range of staff with overlapping responsibilities. In health centres with limited clinical staff, monitoring can be facilitated by task shifting to lower-level cadres and even lay providers (see below). The following table is a recommendation of the breakdown of different roles and responsibilities among potential staff. Note that in the case of electronic systems, EMR may replace “patient record” and electronic register may replace “register” though staff responsibilities may remain the same.

Table A: Staff and their suggested roles and responsibilities for NCD patient monitoring in an NCD chronic care clinic or a family practice/private care model which incorporates auxiliary workers

Staff	Roles and responsibilities for patient monitoring
Triage worker or Receptionist or Data clerk	• Maintain appointment book and signal missed appointments • Start or retrieve patient card • Record patient data in patient card (and/or register, depending on the NCD service provided)
Triage worker (auxiliary), trained Expert patient or Lay counsellor or Professional counsellor (these are facility-based lay providers)	These tasks may be divided: • Initial triage for emergency signs- if found, call for help from health worker • Fill demographic information in patient card • Measure waist circumference, weight, height, calculate BMI, assess CVD risk %- record on patient card • Record patient data in patient card (or register depending on the NCD service provided) • Adherence counselling, treatment literacy and education, healthy lifestyle (record on card) • Adherence assessment and support • Patient tracking (lost to follow-up)
Nurse or Clinical officer or Other clinician	• Record patient data in patient NCD card • If acute problem – provide acute care and record data on patient-held card, exercise book or 'patient passport' (if used) as well as note on encounter part of NCD card • Conduct patient reviews with clinical team (using longitudinal records) and discuss patient outcomes • Review routine NCD programme reports to track its progress • Review register to assess quality of NCD services • Review quality of NCD patient records and register with clinical or district supportive supervision team
Data clerk or Secretary or Other staff. May be a designated nurse if these are not available.	• Organize and manage patient records and register • Transcribe data from patient records to register • Enter patient data into electronic medical record, register or report (if used) • Link to DHIS2, other HMIS • Tally data and fill in routine reports • Review register to assess quality of NCD services and data • Review quality of NCD patient cards and register with clinical or district supportive supervision team and clinical mentor
Community health workers (based in the community)	• Initiate NCD testing/risk assessment and counselling in community • Monitor adherence and drug pick-up • Follow up and trace lost patients
External clinical mentors and supportive supervisors (e.g. from district team)	• Review quality of NCD patient cards and registers with clinical or district supportive supervision team • Provide supportive advice and recommendations to help improve clinical care and monitoring
Pharmacist, pharmacy technician/assistant	• Dispense drugs - fill out stock cards and dispensing register • Adherence counselling and monitoring

You as the health facility in-charge/manager or the designated NCD focal point should:

- Be responsible for overall internal supervision and quality management for the patient monitoring system
- Be familiar with the patient monitoring tools (both paper and electronic), and how they fit in to the overall patient flow of the health facility (as well as linkages with the community)\ Be familiar with the minimum data set and core indicators and how to report and analyse them;
- Establish operating procedures for country-adapted patient monitoring system:
- Initial close review of assessment forms and initial patient cards
    - Are CVD risk and BMI correctly calculated?
    - Is trained nurse or auxiliary transferring data to longitudinal record correctly?
- Be up-to-date with any changes to the patient monitoring system and ensure the health centre adheres to national standards;
- Be alerted of any stock-out of forms or registers then restock as necessary;
- Be responsible for ensuring adequate training of all staff who are designated to carry out any element of patient monitoring;
- Be responsible for validating and analysing the final monthly reports
- Be responsible for validating and analysing the 6-monthly then annual report before it is transmitted to the next administrative level (model 2) OR, if using model 1, prepare for and participate in the annual clinical audit to produce the outcome and quality of care indicators.
- Lead in the use and interpretation of the patient monitoring data from the facility and facility indicators as they become available;
- Ensure the clinical mentor(s) and supervisor(s) include the patient monitoring system during their routine visits;
- Have a strong relationship with the district health management information team;
- Provide helpful feedback to staff based on feedback received from the district or higher level or observations made;
- Make sure mentoring visits and QI activities address the patient monitoring system and use its data (see QI module)

Integration with other programmes functioning in your health centre:
Collaboration between other related disease control programmes active in your facility (including in particular HIV, TB, MNCH (RCH), other communicable and chronic diseases) and the existing strategic information or HMIS will be important for the success of the NCD programme. Recommended activities might include, based on negotiations between programmes and district stakeholders by the district team (in the context of national strategic discussion):

- Using NCD patient cards and registers at other programme sites; for example, if the HIV chronic care/ART clinic will also provide diabetes, hypertension, high cardiovascular risk treatments to patients on ART, they might additionally start an NCD patient card for each patient with these NCD complications and enter into an interlinked paper or electronic register. The card and register should contain the registration numbers to assure linkages.
- Reconciling programme registers to avoid double-counting
- Integrating service delivery at the facility (e.g. a PLHIV can receive both HIV care/ART and diabetes care at the same place)
- Integrating NCD data into other programme records
- After national and district adaptation work, entering the relevant NCD data into the HMIS (including setting-specific DHIS2)
- Measuring the standardized NCD indicators across programme areas

9. Referral and back-referral

Your facility's referral arrangements need to be clear for both urgent and non-urgent, routine referrals or consultations.

Decisions need to be made on how to establish or strengthen the relationship between your health facility and these hospitals for the purpose of CVD and diabetes. If well-defined referral and back referral process do not already exist, one needs to be established. Often the referral system is focused exclusively on acute and emergency care and back-referral/coordination with the referring health facility is weak.

Urgent referral of seriously ill patients who require hospital management, then back-referral (with record of their hospitalization) to the health centre for ongoing follow-up.

Clearly establish which hospital your seriously ill patient will be referred to and establish standard operating procedures for how to refer:

- Whom to call at the hospital- variation by schedules
  - Phone numbers
- How transport is arranged
- Staff procedures for accompanying a seriously ill patient
- How the urgent referral is entered into the patient record; who tracks the outcome.

Urgent referral of severely ill patients, after pre-referral treatment, requires great care and good communication with the receiving hospital. Urgent referral of a severely ill patient is a very hazardous time for the patient.

How to refer the severely ill patient to a higher level of care

Severely ill patients may require referral to a higher level of care for access to personnel, diagnostic testing, equipment or specialty services not available at the referring health facility. Patients should only be transported if the receiving hospital has the necessary and appropriate resources to care for the patient and is in agreement. Transport is a very hazardous time for a severely ill patient. In many settings, transport may occur over long distances and is of a significant cost to the family. A standard approach to referral in your hospital will help ensure appropriate referrals and minimize patient harm.

- Communicate with the receiving hospital. Make a clear agreement that the receiving hospital has the necessary and available resources to care for your patient and will admit the patient for this care.
- Prepare a short written report that includes the following: vital signs, including those on admission, a brief physical examination, treatments given (e.g. IV fluids, blood transfusion, medications, antimicrobials) and all laboratory and radiographic results. Send this with the patient.
- Decide what accompanying caregiver is necessary.
- Keep patient comfortable. Treat patient anxiety and pain. Cover patient and keep warm.

Modified from *WHO IMAI District Clinician Manual*

Your facility's clinical team should also be provided with a back-referral note with a treatment plan. The record of the hospitalization and treatment plan should be noted in the patient's NCD record. If there is no back-referral note, proactive follow- up to find out what happened is required.

Routine referral of patients— the HEARTS guidelines specify a substantial amount of referral. to hospital for consultation with a more experienced clinician or specialist. These include:

- Patient with prior CVD or kidney disease, for a treatment plan.

- Patients with diabetes for fundoscopic examination, every 2 years

Note that routine referral/consultation can either mean the patient is sent with a referral note, or that an arrangement is made of the experienced clinician to visit the health facility on a scheduled basis – a roster of patients are scheduled for this day. This can be more efficient and saves on burden on the patients and family. These clinicians will usually also serve as clinical mentors for the health centre clinical team (see Chapter 11). This requires that all necessary laboratory and other examinations have been done or can be done by the clinician on the spot. A clinical mentor may also fill this role (see Chapter 11)

Routine referral should be done with a referral and back-referral note and an appointment where possible. The results of the referral- diagnosis and treatment plan- should be noted in the patient's NCD card, record or insert (if PHC record if facility-held and well organized).

Use of routine referrals should be complemented by consultation by phone or email.

Keep track of referrals in a section of the NCD chronic care appointment book.

10. Capacity building to implement HEARTS within an integrated NCD/PHC approach

Managing human resources is a complex task that requires national level policy and planning for long-term sustainable impact. This chapter will outline steps staff that those in charge of primary health centres can take, working with the district team and any partners supporting your health facility.

First-level facility checklist for capacity building for cardiovascular/diabetes case management:

- **Help ensure an adequate number of staff**
  - Review the numbers of staff by cadre assigned to your health centre or hospital outpatient
  - Review the updated job descriptions for each position
  - Facilitate the local hiring process
  - As needed, recruit, train and supervise auxiliaries and expert patient lay providers for your health centre team
- **Make task-sharing, task-shifting effective**
- **Make sure staff have appropriate training.**

Support appropriate training to clinical staff and auxiliaries/lay providers on your staff as needed. At PHC level, cardiovascular/diabetes case management requires staff trained on:

- Carrying out cardiovascular and diabetes risk assessment
- NCD chronic care registration, triage, initial assessment
- HEARTS/NCD acute care/emergency management pre-referral
- HEARTS/NCD chronic care-- clinical management (health workers). This includes filling out parts of the patient card.
- Counselling—on lifestyle behavioural changes; on treatment adherences; this includes filling out counselling sections of the patient card.
- Drug supply management (pharmacy assistant/supply clerk)
- Use & maintenance of equipment
- NCD-related laboratory services
- Transfer of patient data into a longitudinal register and reports
- Other monitoring tasks
- Quality management processes.
- **Keep a training log**

- **Make good use of supportive supervision and clinical mentoring**
- **Improve staff motivation and retention**

Health facility human resource requirements

Your health facility preparation for implementing HEARTS within an integrated NCD/PHC approach will depend on national decisions on task sharing and your district's approach to human resource development—through both training, provision of mentoring after training, and support for quality improvement processes. Often there will be a need to fill posts, add additional auxiliaries/trained expert patients, and to train various cadres to fulfill all the requirements for cardiovascular/diabetes case management.

This chapter discusses key requirements for planning and managing human resources at a primary health centre. Human resources are the essential ingredient for all care delivery. Whether you are delivering basic primary care, HIV services, or NCD services, your health centres need an adequate supply of trained and motivated staff to provide quality services.

The chapter targets the first-level facility "in-charge" provider but is also relevant for the district management team. This person can be the head NCD clinical provider, the nurse in-charge, or another person on the health centre team who is responsible for overseeing and managing the health centre. This person will be responsible for most of the human resource activities described in this chapter. In most primary health centres, this person is the senior nurse. However, the chapter is designed to be helpful to all levels of staff.

10.1 ENSURE AN ADEQUATE NUMBER OF STAFF

Achieving an adequate number of staff by cadre based on team-based care and task-sharing plan. Generally, recruitment and hiring are carried out by the district health office, working with the in-charge providers at health facilities.

Recruitment and hiring

- **Review the number of positions (number and cadre) assigned to your health centre or hospital outpatient which has been chosen for initial expansion of cardiovascular/diabetes case management service**
  - How does the number and cadre of positions actually assigned compare with recommended staffing (see next page)?
  - Are any assigned positions unfilled at the health centres? If so, how many?
  - Which positions are vacant, and for how long have they been vacant?

The chart below presents the "basic" staffing – adapt this to reflect the recommendations of your Ministry of Health (see output from national strategic planning meeting). "Basic" staffing refers to staff required to provide primary care services not including NCD case management and is based on the population served. Adapt this table to reflect your country or district policies. It is important that adequate 'basic' staff which are covered by the district operational budget are filled first.

Adapt this to your updated MOH staffing plan then review the status of recommended "basic" staffing in your primary health centre (or outpatient clinic)		
Small health centre (catchment population of 3,000-7,000 people)	**Clinical staff** • One clinical assistant • Two nurses; one nurse/midwife (N/M) and one emergency nurse • One nurse assistant	**Support staff** • One cleaner • One watchman
Large health centre (catchment population of 7,000-20,000)	**Clinical staff** • One clinical officer • One clinical assistant • Five nurses - one registered N/M, two EN/M, two EN • Two nurse assistants • One pharmacy technician/assistant • One laboratory technician/assistant	**Support staff** • Two cleaners • One watchman

If you have a larger catchment population, you should be allocated more staff. If you have a larger number of patients during some periods of the year, such as during malaria or harvest seasons, add more staff during these seasons, or make sure your staff does not take leave during these peak periods.

Work with the district team to calculate the "additional" staffing required to scale up NCD screening, early disease detection and chronic care at your health centres. These are additional staff needed, beyond the "basic" staffing above.

- **Review the updated job descriptions for each position assigned to your health centre**

  Once staff are hired, job descriptions can be used to help assess employee performance.

- **Facilitate the local hiring process**

Hiring is usually carried out by the district health office.

The health centre in-charge can increase the odds of obtaining the staff that are needed by:

- being informed about the hiring procedures that apply,
- advocating for the health centre team,
- pursuing alternative hiring procedures when needed,
- volunteering (or requesting) to join the selection committee.
- communicating regularly with the local recruiting authorities
- Keep in contact with people in the personnel office at your district health office to be informed about upcoming changes that could affect staffing of positions at the health centre. Keep these people informed of health centre staffing needs and citing the vacancies that exist and the recommended staffing tables above to justify the need for additional staff.

Once the position and its budget have been approved, the district service commission or an equivalent body can advertise it, form a selection committee, and recruit candidates.

Be persistent! If budget ceilings or other limitations prevent a health centre from hiring staff:

- Ask to hire staff on temporary contracts.

- Try alternative procedures. Contact local NGOs and donors to ask if they can hire and pay salaries for new staff or lay providers at the health centres.
- Recruit volunteers. Make sure you develop good relations with local communities and community groups so you can recruit volunteers in times of high workload (see below)

Recruit, train and supervise auxiliaries and expert patient lay providers for your health centre team

Recruiting lay providers can help increase the number of staff at your health centre. *Lay providers are non-professional workers who can serve as counsellors, triage officers, data clerks, community health workers, and laboratory or pharmacy assistants, and more*. Depending on their training and experience, lay providers can work in non-clinical and clinical roles as paid staff or volunteers. See examples of how to include lay providers in the health centre team at the end of this section.

Expanding the workforce through use of expert patients

Expert Patients (EPs) are patients with long-term health conditions who have gained valuable experience in controlling and managing their conditions and are living a meaningful and productive life.

Examples of these chronic conditions include diabetes, hypertension, asthma, and sickle cell disease.

Based on their personal experiences and education at the health facility, EPs support other clients/patients to share ideas, different practices/experiences and support for adherence to treatment. Equipped with the right tools, EPs can therefore be effectively delegated with key tasks in both a clinical and community setting and can be utilized as a liaison between health workers and clients/patients. Health workers in Uganda have gradually task-shifted some areas of health education and counselling as well as minor clinical work such as taking temperature, weighing patients, and pill counting to the EPs. This releases health workers to concentrate and pay more attention to more complex clinical care and urgent issues.

EPs working at the health facility continuously acquire better skills, knowledge and confidence in self-management and this enables them to live more fulfilled lives. This arrangement has increased collaboration and working relationships between health facilities and communities. It also facilitates information transfers from health facilities to communities and other clients. The end result for the EP and other clients is improved physical health and increased ability to live an independent life. This strategy allows clients/patients to participate in their own health care including advocacy for prevention and control of some of the chronic diseases in their communities. They can also be trained to help screen and link community members with cardiovascular risk or existing NCDs.

You should encourage people living with chronic NCDs to apply for lay provider positions because they bring unique skills to your team. They have personal experience with their disease and can help other patients to understand and use the health system, address personal and family issues, and manage treatment and its side effects. Expert patients can be valued members that can facilitate in all levels in the health centre team, from medical officer to lay provider.

In order to encourage the participation of lay providers, including NCD expert patients, at health centres you can:

- **Reach out to community groups in your catchment area**
  Talk with community leaders and associations — to identify the roles and positions at your health centre that could be filled by lay providers, including NCD expert patients.

- **Identify the tasks that could be performed by trained lay providers, based on national/district policy decisions**

Lay providers can perform a range of tasks including helping with triage, taking patients' vital signs and pulling their charts, data keeping, treatment adherence counselling, treatment literacy and education, pill counting and stock management, tracking patients who are lost to follow-up, community outreach, home-based care and follow-up, managing support groups, counselling, basic laboratory testing, and more.

- **Decide how you will recruit and retain lay providers**
  You can recruit lay providers to your health centre team as full- or part-time staff. Whenever possible, they should be paid. If payment is not possible, provide other incentives such meals, gifts, waiving medical fees for their children, or inviting the providers to training and events. Paying for costs associated with the lay providers' work is also important. This can include paying their bus fares or buying/lending them a bicycle.

  Providing opportunities for promotion can also help retain lay providers. An easy approach is to create "junior" and "senior" positions (such as junior and senior community outreach worker) with some difference in compensation and assigned tasks. If you do not provide any incentives to your volunteers, they will likely leave in search of better opportunities. NGOs and FBOs can be approached for help in hiring lay providers.

- **Consider the qualifications and/or training needed for the lay providers**
  Once you identify the tasks you wish the lay providers to perform, identify the training or qualifications needed to perform their roles. Contact your district health office or donors in your area to see what training is available for lay providers (also see 'recommended training' in this chapter).

- **Hiring and orientation**
  Once you hire the lay provider, introduce him/her to the health centre team and provide an orientation to centre rules, procedures, physical layout and services. If possible, have the lay provider accompany another health worker to learn their tasks by watching first. Particularly in the first few weeks, you should also follow-up closely with the lay provider to help answer any questions and resolve any problems.

- **Remember to involve lay providers in all activities of your health centre team!**
  Lay providers, including hypertension, diabetes and other 'expert patients', should be considered "part of the team"; they should attend the same staff meetings, be invited to staff get-togethers and activities, and have the same medical or other benefits whenever possible. Also, when you are conducting quality management activities, such as evaluations, be sure to include the feedback of lay providers, as they have a unique and valuable perspective on how to improve the delivery of health services to patients with chronic NCDs.

10.2 HOW TO HELP MAKE TASK-SHIFTING and TASK-SHARING EFFECTIVE IN YOUR FACILITY

"Task shifting" and "task-sharing" are not new. Many countries have created substitute cadres to take up the tasks of existing professionals, where there has been a shortage of professionals. It is likely you have already experienced this at your health centre with the expansion of the clinical team for other initiatives such as maternal and child health, HIV care/ART, or TB. Decisions on task-shifting policy are usually made at national level. See the sequence of care on page 12 which provides an example of a division of tasks between clinical health workers and auxiliaries.

For facilities with nurse-led teams, prescriptions or standing orders may be required for some treatments.

Steps the in-charge can take to help ensure successful implementation at health centre.

- Make sure that lay providers taking on new tasks are closely supervised, mentored and supported by experienced health centre staff. For example, if lay providers are performing screening for cardiovascular risk, the health centre nurse needs to establish regular meeting times with the lay provider so she/he can observe, supervise, and act as a mentor to that person. Their observations should be verified by a health worker (see section 11).

- Identify the health centre provider's 'clinical back-up' at district hospital and make sure they have regular communications with this back-up staff. Health centre providers need district counterparts who will supervise and act as their mentors, and who will ensure that patients are being adequately referred to the district and returning to the health centre for services. For example, nurses handling hypertension, diabetes and elevated cardiovascular risk diagnosis, treatment and monitoring need to have regular communications with the district medical officer or head clinician. This will ensure that referrals are made correctly for patients with complications and that consultations take place on challenging cases. "Back-up" at district level may also be for laboratory, pharmacy, and supply management staff.

- Establish a clinical "team-based approach" through regular clinical team meetings and good communications between staff. Conduct a weekly meeting of all staff at which you can openly discuss patient cases and issues that arise and work together to solve problems. Encourage regular dialogue between staff about how to improve tasks to increase service efficiency and quality.

- Establish regular performance measurements to assure adherence to clinical and other standards (see *Quality Improvement* QI module).

- Implement strategies to motivate your staff and to prevent 'burnout'. When staff are required to take on new tasks in an already heavy workload, they can suffer increased anxiety, stress, and burnout. Work together as a team to determine how you can keep each other motivated. Section 9.5 on 'employee motivation' provides some tips.

Task shifting can be a real asset at a health centre, but it takes teamwork, supervision and constant communication!

10.3 Support appropriate training for your clinical staff and (as needed) auxiliaries/lay providers

The district team and in-charge (or manager) of a health facility need to play important roles in planning and tracking the training your staff receive. You should ensure that health centre staff have the right training at the right time to provide the quality NCD services outlined in this manual. You also should ensure that training opportunities are provided fairly and do not interfere with service delivery. By helping your staff access training opportunities in an equitable way, you also help promote their career development and improve motivation and morale.

See the *NCD district implementation manual* and work with your district team to estimate the training needs for various cadres within your staff in order to implement all component of cardiovascular and diabetes case management.

Summary of training which may be needed to implement cardiovascular and diabetes case management using a CVD risk-based approach. The provider of the training may be the national team, district team, an NGO, etc or may be provided on-site. Putting a letter code helps keep a simple training log.

	Provider of the training	Code for the training	Comments
Physician training- basic CVD risk and diabetes management			
Physician training- treatment plan for high risk patients, PCVD			
Clinical training including how to fill patient card or record insert (for doctor, nurse, CO)			
Counselling by clinicians- lifestyle interventions, treatment plan for obesity & smoking in high risk, adherence			
Auxiliaries: CVD risk screening for auxiliaries, how to fill pre-assessment, part of card			
Auxiliaries or nurse: Triage, patient registration at NCD chronic care or reception at family practice/ private clinic			
Auxiliaries: lifestyle counselling, adherence			
Basic NCD point of care lab			
Monitoring- fill register, reports			
Interpretation and use of data from monitoring			
NCD medicine and equipment management			
Quality improvement			
Training for in-charge and/or NCD focal point			See *NCD District Implementation Manual*

Keep a Training Log!

The in-charge should make sure a training log is created, and is updated for every training session that an employee receives. A log can take any form, but should include the **name and position of the staff** who received the training (e.g. nurse, clinical officer, pharmacist, etc.- adapt according to your cadres), name of the training course (using a letter code), and the month/year the **course occurred.** A data clerk can be responsible for filling out the log, but a supervisor will need to make sure this is done on a regular basis and that the log is up to date. An example follows:

Training log for CVD risk-based management/diabetes at primary care health facility- enter month/year of training										
Health facility:			**District:**							
	Clinical CVD risk-based management/diabetes			**Auxiliary training**						
Health workers in your facility, organized by cadre*	**Physician training**	**Clinical training including how to fill patient card or record insert**	**Counselling-lifestyle interventions, treatment plan for obesity & smoking in high risk, adherence**	**CVD risk screening for auxiliaries, how to fill pre-assessment, part of card**	**Triage, registration at NCD chronic care or family practice/ private clinic**	**Counselling for auxiliaries-lifestyle, adherence**	**Basic NCD point of care lab**	**Monitoring-fill register, reports**	**NCD drug and equipment manage-ment**	**QI**
Physician-MD/ MO/GP										
Dr M										
Dr O										
Non-physician clinician—clinical officer, PA, etc										
Nurse										
Pharm assistant, nurse, other staff in charge store										
CHW/ Auxiliary/ Expert patient lay provider										
Lab technician/ assistant										
In-charge, NCD focal										

* adapt cadre to country

Cross training of staff
Cross training means you train staff to develop overlapping skills, so that if one staff member is unable to perform a task, another staff member can perform it in his/her place. This limits any interruptions in service delivery and expands the skill set of the health centre team. An example of cross training is a triage worker is also able to provide NCD counselling or a laboratory technician may also do triage. One is available to fill in for another if s/he is not available due to staff turnover, illness or movement. Cross training can happen 'on-the-job' by having training staff 'shadow' or observe experienced staff, or through formal training. As in-charge of the health facility, you should be responsible for arranging cross-training.

Training and retraining Given turnover of staff, an ongoing training process may be necessary. Repeat trainings can incorporate some time for refresher training for more experience staff. Having case books

Refresher training and continuing education
In many countries, health and education ministries are collaborating to integrate many of the above areas of study into pre-service education. Staff who have already received the above training during medical, nursing, pharmacy, or other degree programmes can focus on taking **refresher courses or more advanced training in the form of continuing education** after joining the workforce.
Refresher training and continuing education helps keep staff aware of new developments and policies, helps promote career development, and improves motivation and morale. You should monitor training logs to determine when a staff member could benefit from refresher training and continuing education. However, make sure you balance this need for training with the need for the staff member to provide services.

Other Learning Opportunities
Your staff can also learn through many opportunities that occur outside of formal training. These 'ongoing learning opportunities' can take place in or out of the health centre, and can be managed by you or other members of the centre team, and by non-governmental organizations, district or national health offices or other external groups.

Example of ongoing learning opportunities provided at the health centre	**Example of ongoing learning opportunities provided away from the health centre**
Review of patient cases and facility metrics	Educational presentations
Staff / local experience-sharing	Conferences
Review of latest information and journal clubs	Regional experience-sharing
Clinical mentoring	Cross-site visits
Case books for work in small groups with mentor feedback	

11. How to establish effective supervision, benefit from clinical mentoring and use these visits to support ongoing quality improvement

Clinical Mentoring

A clinical mentor is a clinician with experience and expertise that provides ongoing training and advice to clinical providers with less experience or expertise. The goal is to help the less experienced provider develop skills and experience, grow professionally, and provide higher quality care. Mentors meet regularly with the providers they are mentoring, to review clinical cases, answer questions, problem-solve, and provide feedback and assist with case management. Mentors can be formally assigned to a staff member or they can volunteer based on their personal interest.

A clinical mentor is different from a supervisor, who has formal authority over a staff member and is responsible for evaluating performance. Mentors are instead more like a 'coach', who focuses on improving staff expertise, motivation, and confidence. Clinical mentors should be supportive of the staff person and their growth as a person and a professional.

In a network model of care, clinical mentoring at the heath centre will be conducted through visits by clinical providers from the district hospital, and through ongoing phone and e-mail correspondence where available.

Definition of a clinical mentor

Clinical mentorship is a system of practical training and consultation that fosters ongoing professional development to yield sustainable high-quality clinical care outcomes. Clinical mentors need to be experienced, practising clinicians in their own right, with strong teaching skills.

Mentoring should be seen as part of the continuum of education required to create competent health care providers. As such, mentoring is an integral part of the continuing education process taking place at the facilities where health workers manage patients. It starts at the point where initial training ends.[8]

Telemachus and Mentor

(The term "mentor" has a long history rooted in Greek mythology. During the Trojan war, King Odysseus left Telemachus, his son and heir to the throne in the care of his friend, Mentor.)

A **clinical mentor helps a provider with:**

- Building relationships
- Identifying areas for improvement
- Responsive coaching and modelling of best practices
- Advocating for work environments that improve patient care and provider development and
- Data collection and reporting

What you should know about clinical mentoring visits:

When a primary health centre begins providing cardiovascular/diabetes care and treatment, it will require one mentoring visit from a district hospital clinical provider every month for the first few

months. After six months, the health centre will usually require only one visit every two to three months.

These visits should include the following components:

- Observation of case management and reinforcement of a staff member's skills;
- Review of NCD patient cards and NCD registers or clinical audit forms;
- Clinical case review;
- Clinical team meeting;
- Documentation of each visit (including recommendations).
- Integration of recommendations of mentoring into quality management/ improvement activities at the health centre (see the *Quality improvement module for first-level health facilities)*

The health centre clinical team should prepare for these visits by reserving the dates and selecting patient cases for review (such as cases of people recently initiated on treatment, as well as routine, challenging or difficult cases, or deaths). In some instances, inviting the patient back to the clinic when the clinical mentor is scheduled to be there can facilitate consultation and avoid referral.

Clinical mentor support between visits:

Given task-shifting with increasing responsibilities amongst non-physician clinicians and auxiliaries, ease of access to consult a clinical mentor is important. Ongoing phone and email communication is important to answer clinical questions between visits.

Using clinical mentoring visits to avoid routine referral of patients to hospital:

If possible, assemble a roster of patients who require routine referral for a treatment plan. This requires all the necessary lab work be done and available for the visits. This can be efficient and saves on burden on the patients and family.

Supervision

Supervision is a formal relationship of authority between a more senior ranking health worker and his or her subordinates. Supervisors can be located at the primary health centre or at a higher level facility such as the district hospital. A health centre supervisor is responsible for helping ensure that each staff member is providing adequate service delivery and is following health centre rules and policies.

Supervision is often more hierarchical and managerially oriented. Supervision is mandatory in many organizational settings, and the goals may be pre-determined by the system. The relationship with a supervisor is more hierarchical. Supervision may be more critical and evaluative than the more non-judgmental approach associated with mentorship. Making sure supervision is 'supportive supervision' may moderate this.[9]

The following chart is an example of possible supervision at a primary health centre- modify to reflect your own clinical team:

Recommended supervision at large and small primary health centres	
Level	**Supervisor**
Lay counsellors	Nurse/ midwife/clinical officer/clinical assistant
Laboratory personnel/laboratory assistants	In-charge; district or sub-district laboratory personnel
Pharmacy assistants	In-charge; district or sub-district pharmacy personnel
Nurse/midwife	In-charge; district or sub-district nursing officer or clinical officer
Clinical officer	In-charge; district or sub-district medical officer

Effective supervision is especially important to provide quality NCD services. Expanding quality NCD care and treatment requires health workers to perform continuous learning and problem-solving which demand regular consultations with an engaged and *supportive* supervisor.

Supportive Supervision

Supervision does not mean finding 'fault' in your staff's work. Instead, supportive supervisors focus on making sure their staff has the training, mentorship, guidelines and tools, equipment and supplies, and working conditions they need to perform the job effectively. It means assisting your junior staff to achieve goals, identify problems and challenges, and together find solutions to problems. The supervisory relationship should be compassionate, supportive, and helpful. Good supervisors learn from their subordinates, adapt to their needs, and should be open to suggestions.

A supervisory checklist is an easy way to prepare for your supervisory meeting with staff, because it identifies the issues you need to address during the session and reminds the supervisors during the session of issues that might be overlooked.

12. Develop an implementation workplan for your health facility

Review the major activities needed to implement the priority cardiovascular/diabetes (and other NCD NCD case management intervention), adding these to the implementation workplan for your facility.

Use the same main categories of activities for implementing NCD case management as at district level for the health facility and its local population.

Activity area checklist for implementing NCD case management interventions for work plan

1. Advocacy/Resource mobilization

- Advocate on importance of NCD care and treatment in the local community
- Advocate on importance of integrating NCD case management in the health facility through staff preparation and resource mobilization
- Prepare facility managers to engage with project coordinators to implement and integrate local projects that will take place in the facility

2. Health workforce

- Work with district team to ensure adequate staffing
- Identify and recruit additional workforce
- Arrange for who will go for training from various cadres or receive on-site training
- Keep training log
- Limit staff turnover
- Motivate staff to be proactive for quality implementation (counter burn out)
- Support and allow for staff time for on-going learning after training

3. **Essential medicines, equipment and lab**

- Order, organize and oversee dispensing of essential medicines
- Maintain essential equipment and supplies (BP machines, glucometers, cardiovascular risk wallcharts, adult weighing scales, etc.)

4. Service organization:

- Health facility organization- layout of facility for implementation, expanded clinical team roles, rearranging and/ordering supplies, plan for patient flow, etc.
- Develop locally-supported referral schemes for your facility (working with district team)
- Introduce and adhere to standards for referral care

5. Communication/develop community supports

- Develop community supports (such as health volunteers, groups, essential infrastructure, supervision or oversight of activities)
- Improve knowledge and practices, through communication with individuals and groups, mass media, health workers and CHWs
- Use health education messages and materials in clinic and community- signs, flyers, screening “camps”
- Develop community supports (such as health volunteers, groups, essential infrastructure, supervision or oversight of activities)

6. **Mentoring, QI** (quality improvement), supervision, governance/coordination

- Plan for and make most out of clinical mentoring and supervision visits
- Maintain clear supervisory structure within the health facility and with hospital/district team
- Revise work plan and improve services based on supervisory review and recommendations
- Supervise CHWs, community volunteers

- Coordinate/ communicate with other facilities within district to learn what has worked and not worked

7. Monitoring/HIS:

- Regularly collect data on activities conducted, resources used, results of activities
- Prepare and submit reports in a timely manner
- Analyse data
- Use data to identify problems (so they can be solved)

8. Plan and budget

- Implementation workplan developed, integrated within district implementation plan
- Budget developed
- Implementation plan and budget reviewed regularly

9. Other

Workplan template: Basic

General Instructions:

- **Goals and objectives:** Note the target short-term goals/objectives for this health facility. These goals/objectives should be in line with national and district strategic planning goals and objectives. These may be modified from year to year.
- **Planned activities:** Include all activities for the year for meeting identified goals and objectives. Currently these activities have been broken down into 8 focus areas. It will be helpful for planning, budgeting and implementation support to make these as specific as possible.
- **Activity targets:** Activity targets should be measurable (if possible) e.g. 8 out of 10 health workers at the facility have been trained
- **Timeline:** List which quartile planned activities will take place e.g. if ongoing Q1-Q4.
- **Estimated budget** (add from detailed budget, next chapter)

Health facility implementation workplan – example

Integrated NCD chronic care-CVD and diabetes case management component

Year 1 Reporting Period:_____

Health Facility:_____

GOALS/OBJECTIVES:

PLANNED ACTIVITIES	ACTIVITY TARGETS	TIME-LINE	Who	ESTIMATED BUDGET (see section 13)
1. Advocacy/Resource mobilization				
Identify senior health facility staff to comprise implementation planning team	4/5 have agreed to comprise the team	Q1		
Completed facility assessment survey	4/4 have reviewed survey	Q1		
Senior health facility staff input into work plan	4/4 have reviewed work plan	Q1		
Health facility meeting with staff to share plans about NCD case management	20/20 staff participate in meeting	Q1		
Meet with district managers to review implementation work plan	2/2 have reviewed work plan	Q1		
2. Health workforce				
Identify number of additional health worker staff needed by cadre for quality implementation—see checklist pg.	Based on facility assessment survey review, 12 additional HW needed	Q1		
Identify and recruit additional clinical health workers needed-doctors	0 needed			
Identify and recruit additional clinical health workers needed-clinical officers	0 needed	Q1		

Identify and recruit additional clinical health workers needed-nurses	1/2 nurses hired	Q1		
Identify and recruit additional auxiliary health workers needed-nursing assistants	2/3 hired	Q1		
Identify and recruit additional auxiliary health workers needed-pharmacy assistants	0/1 hired	Q1		
Identify and recruit additional auxiliary health workers needed-laboratory assistants	0 needed	Q1		
Identify and recruit additional auxiliary health workers needed-data records assistant	1/1 hired	Q1		
Identify and recruit additional auxiliary health workers needed- lay provider/health educator/ expert patients/CHWs	5/5 hired	Q1		
Identify cadres needed for training	30/30 need training	Q1		
Create training log and update regularly	Log created and updated monthly	Q1-Q4		
Attend training for health facility in-charges on managing CVD/DM activities including forecasting medicines, using data from patient monitoring system	1/1 trained	Q1		
Identify # clinical health workers trained	8/10 trained	Q1-Q1		
Identify # auxiliary health workers trained	10/10 trained	Q1-Q1		
3. Essential medicines, equipment and lab				
Ensure regular supply management of essential medicines and technologies in facility-see checklist pg 19	4/4 checklist reviewed	Q1-Q4		
Coordinate with district to ensure regular supply of essential medicines and technologies	Attended 3/ 4 meetings with district	Q1-Q4		
4. Service organization:				
Map out facility layout for implementation e.g. location for triage, CVD screening corners, supplies, clinical assessments, etc	4/4 reviewed facility layout	Q1		
Identify current patient flow and what may need to be rearranged for implementation	4/4 reviewed current patient flow	Q1		
Identify current referral protocols and current strengths/weaknesses to implementation. Work with HF team and district to problem-solve perceived barriers	4/4 reviewed current protocols	Q1		
Rearrange/organize for triage, provision of emergency treatments pre-referral, and acute care—see checklist on page 8	Checklist completed	Q1		
Rearrange/organize for CVD risk/diabetes screening corner—see checklist on page 9	Checklist completed	Q1		
Rearrange/organize for CVD/diabetes component of integrated NCD chronic care—see checklist on page page 13	Checklist completed	Q1		
Staff CVR screening corners and ensure regular supplies	4/4 checklist reviewed	Q1-Q4		
5. Communication/Development of community supports				
Meet with staff regularly to discuss implementation activities, case discussions, and to problem-solve	12/12 meetings held	Q1-Q4		
6. Mentoring, QI (quality improvement, supervision, governance/ coordination)				
Identify NCD focal point or "champion"-see QI module, may be a senior HW	1 senior nurse or clinical officer (or doctor) identified	Q1		
Establish regular performance measurements to assure adherence to clinical and other standards—see QI module	Meet quarterly	Q1-Q4		

Prepare for monthly supportive supervision visits	Selected date and identified clinical cases for review	Q1-Q4		
Revise work plan based on supervision visit recommendations with input from senior health facility staff	4/4 reviewed	Q1-Q4		
7. **Monitoring/HIS** (health information system)**:**				
Monitor quarterly proper medicine management practices	4/4 checklist reviewed	Q1-Q4		
Supervise health facility monitoring person (data records person) to ensure preparation and timely submission of reports—see checklist pg. 25	4/4 checklist completed-Meet with data records person and NCD focal person monthly/quarterly/annually before transmitted	Q1-Q4		
Ensure adequate stock of patient forms, registers and reports	Reviewed monthly	Q1-Q4		
Review report results with district team and other health facilities to improve program activities	Attended 2/3 meetings	Q4		
Review report results with staff to improve program practices and patient outcomes	Meeting held at end of Q4 in conjunction with regular staff meeting	Q4		
8. Planning and budgeting				
Estimated TOTAL additional budget costs (add up activity costs that may not have expenditures allocated in current facility budget)				
Coordinate planned additional facility budget expenses with district budget planning-incorporate relevant senior members of clinical team in initial planning phase	4/4 reviewed	Q1		
Include line item in financial reporting	4/4 reports reviewed	Q1-Q4		
9. Other				

13. Make a budget

To estimate total costs for an implementation plan, to add or augment cardiovascular and diabetes case management to your existing PHC activities.

Budgeting includes calculating the amount of funding required, tracking how it is spent, and accounting for having spent it. The budget should be closely linked to the implementation plan.
Each task and activity in the plan should have a cost allocated to it.
Budgets should include:

- A budget timeline. The length of the budget period (long-term, short-term) is determined by regulations from the Ministry of Finance or other government institutions at the national or sub-national levels. Budgets usually have to be submitted to a finance department (or other relevant unit) for approval. It is important that budgets are submitted
  before deadlines.
- Ongoing staff and materials costs (which occur independently of specific activities). These include staff costs for routine services; infrastructure maintenance costs (electricity, heating, mailing, office supplies, telephone); and transportation costs including fuel and vehicle maintenance.
- Costs of activities specified in the implementation plan. A budget line can be attached to each activity, which might include staff, systems (medicines, materials, supplies, transportation), and training costs.
- Estimates of medicines and other supplies and their costs. Some data are based on past experience and estimates from suppliers. Others are supplied by other staff; these need to be checked for accuracy and relevance.
- A standard format. Your budget will often be summed by the district with other health facility budgets, using a standard template.
- An estimate of inflation and an adjustment of budget estimates based on this figure. Estimates of inflation can often be obtained from the ministry of finance. It

Estimating costs of material resources – *WHO HEARTS technical package*
For medicines and equipment, sources of prices include:

If you obtain or purchase good from central level:

- Price lists from government supply agencies and/or the MOH for equipment
- Essential medicine lists and in-house purchasing or ordering catalogues- you may be provided with certain medicines for free and have to budget for others (see Chapter ..).
- A list of international median generic medicine prices is included in Annex X- these prices should be replaced by real, current in-country prices through your central medical store

For local purchase:

- Estimates by suppliers in response to invitation to tender.
  - Usually only national managers/Essential medicine section/central medical store of the MOH will be tendering internationally.
  - You may need to tender some equipment locally.
- Costs of similar goods purchased recently
- Supplier catalogs
- Prices in local shops when you are able to purchase locally or where patients may need to purchase medicines or equipment if not provided free

The total cost is calculated by multiplying the unit price for each item by the number of items needed. The costs of material resources will appear in the overall budget.

Estimating costs of particular events Develop a budget for:

- planned meetings
- attendance at training courses (this may be in district implementation budget with most other training costs)
- community events

Transportation

You should be able to rely on transportation resources already within your primary health-care work. However, there may be special costs for CVD/NCD case management that need to be budgeted such as an additional costs for supportive supervision and clinical mentoring/QI visits; costs for referral of non-ambulatory patients to hospital; community health worker/expert patient transport costs; transport of certain equipment, lab and medicines; etc. If public transport is used for certain activities, staff need money for fares.

When estimating transportation needs consider: [10]

- Distances
- Availability of public transportation, the schedule and cost
- Condition of roads (If roads are in poor condition, or non-existent, motor-bikes might be more useful.)
- Amount of travel (How many staff need to travel regularly? How many staff can share vehicles?)
- Renting vehicles (Renting can be cheaper if the vehicles are not needed all the time.)
- Sharing vehicles between programmes to reduce costs
- Cost of fuel

Finding financing for CVD/NCD case management

See *NCD district implementation manual* chapter ....

- NCD medicines, equipment and laboratory reagents should be available through the essential medicines system/central medical store. However, the quantity may be very limited. If available, it is important place some priority in supply orders for these medicines from your facility or negotiate this through the district team. See also the WHO/PATH Hearts' Toolkit to improve access to essential medicines and technology.
- CVD/NCD activities can often take advantage of general operating funds supporting primary care staff. However, support for additional auxiliaries, nursing aids or trained expert patients may need to be found to expand the human resources and equipment available for both screening and for the provision of NCD chronic care.

Although most financing for additional costs will need to be arranged at the district or national level, local financing may be available for specific needs.

- Some donor funding may be available for your health facility based on relationships with local businesses or associations near or linked with the facility.
- Your catchment community may have an organized health committee that collects funds or contributes equipment or work to support new cardiovascular/DM services (for example, a level concrete base for an adult scale, or carpentry for a reliable height board).
- Some NGOs active in the district may be willing to support services that are not available or in very limited supply at your health facilities or usual referral hospital.
- The health facility clinical team can consider crowdfunding for extraordinary or catastrophic care or specific equipment needs.

14. Review implementation status [11]

In addition to reviewing the patient monitoring and quality indicators (see Chapter .. and HEARTS patient monitoring module), you should review the status of your health facility's planned implementation activities on a regular basis and develop an implementation work plan for your facility that will flow back into the district team's review of implementation and planned program activities.

This review should be based on your implementation work plan.

Review implementation status

Review the major activities in the last plan and assess how well they were implemented, what modifications are needed for the updated plan, are activities still in line with district plan, etc

Complete the following worksheets. These categories can be used to classify the activities:

1. Advocacy/Resource mobilization	**5.** Communication/develop community supports
2. Health workforce	**6.** Mentoring, QI, supervision, governance, coord.
3. Essential medicines, equipment and lab	**7.** Monitoring/HIS
4. Service organizaton	**8.** Plan and budget
	9. Other (specify):

Example WORKSHEETS: Assess How Well the Planned Activities were Implemented[12]

FOR IMPLEMENTING INTERVENTIONS **IN THE HOME AND COMMUNITY:**

Planned activity (Number indicates category of activity)	**Status of implementation**	**Geographic scope** (implemented in _ % of villages/HF)	**How well activity was conducted**	**Reasons for observed implementation performance**
***1**-Advocacy in community-health education and promotion-identify health educator to coordinate advocacy (may be in community or health facility) management*	*Completed*			
***1**-Obtain and distribute educational materials for NCD education and health promotion- posters, flyers, etc*			*Materials should include* *- reduce risk factors* *- early detection and management* *-education about the*	*National or district printing and distribution of materials*
***2**-Trained CHWs from 5 (of a total 10) villages*	*Completed*			
***3**- Procure and distribute blood pressure machines to CHWs in 5 villages*	*Only partially implemented*	*Only 10 in one village have received*		*Inadequate (only 10% of requested were received)*
***4**- Scheme for CHWs/expert patients in 10 villages*	*Not done*	*0*		
***5**-Identify diabetes expert patients*	*Completed*	*100% (health facility catchment area)*	*Health facility hung new posters* *Community dramas well done*	*Donor funding for posters* *CHWs enthusiastic about organizing dramas*
***6**-Develop CHW supervisory checklist*	*Completed, but not yet printed*	*NA*	*Checklist includes* *-health education knowledge (specify)* *- skills (specify)_* *-able to use pre-assessment form*	

FOR IMPLEMENTING INTERVENTIONS AT **FIRST-LEVEL HEALTH FACILITY**

Planned activity	**Status of implementation**	**Geographic scope** (implemented in ___ % of villages/total in HF catchment area)	**How well activity was conducted**	**Reasons for observed implementation performance**
1-*Set revised goals and objectives of planned implementation*	*Completed*	*Health facility*	*Good*	*This should be in line with district*
8-*Develop additional budget- incorporate relevant senior members of clinical team in initial planning phase*	*Completed*	*Health facility*	*Good*	*District priority- donor support*
4-*Map out facility layout for changes in facility organization e.g. location for triage, CVD screening corners, supplies, clinical assessments, etc*	*Completed*	*Health facility*	*Good*	*District priority*
4-*Identify current patient flow and what may need to be rearranged for improved flow*	*Completed*	*Health facility*	*Good*	*District priority*
4- *Identify current referral protocols and current strengths/weaknesses. Work with HF team and district to problem-solve.*	*Completed*	*Health facility*	*Good*	*District priority*
1*-Meet with district managers to review revised implementation workplan*	*Completed*		*Good*	*District priority*
1*-Health facility meeting with staff to share plans about NCD case management*	*Completed*	*# 18 of 20 from facility attended*	*Good attendance*	*Management priority*
1- *Identify and recruit additional health workers for health facility*	*Ongoing*	*Hired 5/5 needed*		*additional HW hired with increased funding*
1- *Coordinate with community supports to identify and train additional CHWs*	*Ongoing*			
2*-Identify cadres for training*	*Ongoing*	*8 health workers trained/ 20 identified*	*Fair*	*Management priority but training in waves for sufficient coverage*
2*-Update training log*	*Completed*	*For 20 health workers in HF and additional hires*	*Good*	
2*-Attend 2-day training for health facility in-charges on management of medicines*	*Completed*		*Practice included; NCD Drug Supply Manual provided*	*Appropriate materials available; Trainer provided by partner*

5*-Ensureregular supply of essential medicines and technologies*	*Ongoing*	*# stock outs per month*	*Use NCD Drug Supply Manual –no stock outs per month*	*National, district priority*
3*-Arrange supplies and coordinate with district. Procure 4 new digital BP cuffs*	*Ordered but not received*	*Health Facility*		*District priority for CHW program*
5-*Meet with staff regularly to discuss implementation activities, cases discussions, and to problem-solve*	*Ongoing*		*Good*	
6*-Prepare for monthly supportive supervision visits*	*Completed*		*Included observation and recommendation*	
6-*Revise workplan based on supervision visit recommendations*	*Partial*			
7*-Monitor quarterly proper medicine management practices*	*Completed*			
6-*Meet with CHWs and/or village health teams to ensure coordination*	*Ongoing*	*10/16 CHWs attended*		
2-*Allow time for staff to obtain on-going learning after training*	*Ongoing*			
7-*Supervise health facility monitoring person (data records person) to ensure preparation and timely submission of reports*	*Ongoing*			
7- *Review report results with district team and other health facilities to improve program activities*	*Ongoing*			
7- *Review report results with staff to improve program practices and patient outcomes*	*Ongoing*			

Annexes

Abbreviations/ abbreviations

ACE	angiotensin-converting enzyme
AFRO	Regional Office for Africa
ART	Antiretroviral treatment
BMI	body mass index
BP	blood pressure
Cap	capsule
CO	Clinical officer
CCU	critical care unit
CHW	community health workers
CKD	chronic kidney disease
COPD	chronic obstructive pulmonary disease
CVD	cardiovascular disease
CVR	cardiovascular risks
DHIS2	district health information system 2
DKA	diabetic ketoacidosis
DM	diabetes mellitus
ECG	electrocardiogram
EMR	electronic medical record
EP	expert patients
FBG	fasting blood glucose
FBO	faith-based organization
GP	general practitioner
HbA1c	glycosylated haemoglobin
HEARTS	global hearts initiative working together to beat CVDs ****
HF	health facility
HIV	human immunodeficiency virus
HMIS	health management information system
HTN	hypertension
HW	health worker
ICU	intensive care unit
IMAI	Integrated Management of Adolescent and Adult Illness
IMPAC	Integrated Management of Pregnancy and Childbirth
INR	international normalized ratio (to express prothrombin time)***
ISH	International Society of Hypertension
IV	intravenous
MI	myocardial infarction
mmol	millimoles
MNCH	maternal, newborn, and child health
MOH	Ministry of Health
NCD	noncommunicable diseases
NGO	nongovernment organization
OPD	outpatient department
PA	persistent albuminuria
PATH	Performance Assessment Tool for Quality Improvement in Hospitals
PCVD	prior cardiovascular disease (MI or stroke, not RHD or congenital)
PEN	WHO Package of Essential Noncommunicable Disease ***
PHC	primary health care
PLHIV	people living with HIV
QI	quality improvement
RBG	random blood glucose
RF	rheumatic fever
RHD	rheumatic heart disease
SpO2	oxygen saturation
Tab	tablet
TB	tuberculosis
WHO	World Health Organization

References and resources

[1] World Health Organization. Operations manual for delivery of HIV prevention, care and treatment at primary health centres in high-prevalence, resource-constrained settings: edition 1 for fieldtesting and country adaptation. Geneva: World Health Organization, 2008

[2] Robert Beaglehole, JoAnne Epping-Jordan, Vikram Patel, Mickey Chopra, Shah Ebrahim, Michael Kidd, Andy Haines: Improving the prevention and management of chronic disease in low-income and middle-income countries: a priority for primary health care. Lancet 2008. 372:940-9.

[3] IMAI-PEN Integrated NCD Chronic Care: Cardiovascular risk-based management of hypertension, diabetes and other risk factors to reduce heart attacks and strokes; management of asthma and COPD; and secondary prevention of rheumatic heart disease, February 2017 draft.
[4] WHO. HEARTS technical package. 25 June 2018. Available at:
https://www.who.int/publications/i/item/hearts-technical-package

[5] IMPAC PCPNC 2016

[6] From IMAI-PEN Integrated NCD Chronic Care: Cardiovascular risk-based management of hypertension, diabetes and other risk factors to reduce heart attacks and strokes; management of asthma and COPD; and secondary prevention of rheumatic heart disease, February 2017 draft.

[7] WHO. Handbook of NCD supply management at first-level health care facilities: 1st version for review then country adaptation. Draft NCD update of the 2006 version which was produced for WHO HIV Department, available at http://www.who.int/hiv/pub/imai/national/handbook/en/]

[8] WHO recommendations for clinical mentoring to support scale-up of HIV care, antiretroviral therapy and prevention in resource constrained settings, Geneva, 2007.

[9] WHO IMAI Clinical Mentoring Participant Training Manual, Geneva, 2008 draft

[10] From module 2c Child Health implementation training

[11] This section draws from the *Managing Programmes to Improve Child Health Module 2A Managing Programs module*.

[12] This section draws on *Managing Programmes to Improve Child Health Module 3 Managing Implementation* module.