HIV/AIDS Programme

FACILITATOR TRAINING GUIDE FOR THE THREE INTERLINKED PATIENT MONITORING SYSTEMS FOR HIV CARE/ART, MCH/ PMTCT, AND TB/HIV

3
INTER**L**INKED
PATIENT
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SYSTEM

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Facilitators' course overview

Target audiences:

- facility-level clinical team members;
- upper level supervisors/managers who oversee the HIV care/ART, MCH/PMTCT and TB/HIV patient monitoring process at facility-level and who aggregate and report data to district and higher levels;
- district/regional coordinators who oversee HIV care/ART, MCH/PMTCT and TB/HIV patient monitoring process, and who aggregate data and report it to higher levels;
- national coordinators who oversee HIV care/ART, MCH/PMTCT and TB/HIV patient monitoring, as well as the collection of data from the districts/regions; and
- other health information personnel.

Training objectives:

- to teach members of the clinical team, supervisors/managers and district/regional coordinators how to complete individual patient records, registers, the cross-sectional report form and the cohort analysis report form ;
- to explain how data flows from the health facility to the district/regional and national levels; and
- to train members of the clinical team, supervisors/managers and district/regional coordinators to calculate a few key indicators, analyse them and identify and solve problems.

Supervisors/managers and district/regional/national coordinators need to be specifically prepared to:

- validate patient monitoring data and use it in supportive supervision;
- aggregate patient monitoring data;
- operationalize a patient monitoring system.

Purpose of this manual:

This manual is designed to help facilitators train staff to prepare patient records. It is to be used in conjunction with the *Participant training manual for three interlinked patient monitoring systems* and the *Participant exercise booklet.* The exercise booklet is a comprehensive collection of exercises that guide participants using a step-by-step process; from the time they register the patient at the facility, through to data aggregation at the district/regional level.

Note to facilitators:

Before each exercise, you should introduce the tool – why it is used, by whom and when. For example, as soon as an HIV care/ART patient card is started for a newly enrolled patient, the receptionist, data entry clerk or nurse/counsellor should transfer key information to the pre-ART register at the end of the day or soon after.

At this point, you may want to have participants read directly from the *Participant training manual.*

Following the course introduction, you should review and explain each data element in the tool, including how to fill it out and any relevant codes. If data are transferred from one tool to another (for example, from the HIV care/ART patient card to the pre-ART register), show participants how this is done. Always provide a demonstration before you ask them to complete the exercise. It is often useful to repeat the exercise using a different set of forms. Use the *Participant training manual* as your guide.

In this manual, before each exercise there is a brief note to help you structure your introduction which you may or may not choose to follow. All notes and answers are written in red, italicized and underlined.

For your presentation, you may use a combination of posters (enlarged versions of the forms which you may write on with white board erasable markers), projected PowerPoint slides (using either an overhead projector with transparencies or a regular projector) or electronic versions of the forms in MS Excel or MS Word, and actual paper forms.

Different exercises will be used for different target audiences. Below is a recommended list for the two main groups of participants:

- **facility-level clinical team:**
  - all exercises except K, L, M, N and O.
- **supervisors/coordinators:**
  - all exercises.

The most important elements of the patient monitoring system for supervisors or coordinators are:

- the HIV care/ART patient card ⇨ the ART register ⇨ the cohort analysis form.

The patient card is the foundation for all subsequent patient monitoring forms. Supervisors need to fully understand it so they know how it is completed, and what potential errors to look for when they conduct supervisory visits. As participants move from the patient card through the registers, and finally to the aggregate reporting forms, filling out the tools becomes increasingly complex.

For example, the concept of the cohort analysis report is often difficult to convey, although the form itself is not that complicated to complete. On the other hand, the concept of the quarterly report is fairly easy to understand, but the form is challenging to fill out. Therefore, when time is limited, it is best to describe the HIV care/ART patient card in some detail, briefly describe the pre-ART register, spend more time on the ART register and the cohort analysis form, and finally cover the quarterly report. Try to follow the flow of data that happens at the facility. That is, take the participants from the sample HIV care/ART patient cards to filling out the pre-ART and ART registers, and then on to the cohort and quarterly report forms.

Depending on how much time you have been given to carry out the training, it is possible to assign some exercises as homework for that evening which will then be corrected the next day. This allows participants to practise in their own time. If you do not wish to assign formal homework, encourage participants – in their own time – to work through the exercises that are not done in the training sessions.

1. Introduction to patient monitoring systems for HIV care/ART, MCH/PMTCT and TB/HIV

Materials used:

- *Participant training manual.*

Facilitator points:

- Patient monitoring involves keeping track of all patient visits over time through regular, accurate data collection of key aspects of patient care and treatment.
- It provides important information for clinicians to manage their patients.
- It provides key information on managing the health facility (e.g. for ordering drugs and supplies or for making quality improvements).
- It provides information on operating and improving HIV/AIDS, MCH/PMTCT and TB programmes at facility, district, national and international levels.
- The paper-based patient monitoring systems described in this manual are designed to facilitate monitoring of integrated HIV care/ART, MCH/PMTCT and TB/HIV services.

The systems include five tools for HIV care/ART:
1. the HIV care/ART card (or other patient record with the same variables) which is kept at the facility;
2. an HIV care pre-ART register;
3. an ART register;
4. a cross-sectional quarterly (or monthly) report;
5. a cohort analysis report.

Six tools for MCH/PMTCT:
1. a patient-held maternal health card (with HIV fields added);
2. a patient-held child health card (with HIV fields added);
3. a facility-based ANC register (with HIV fields added);
4. a facility-based L&D register (with HIV fields added);
5. a facility-based labour record/partograph and postpartum record (with HIV fields added);
6. a facility-based HIV-exposed infant register.

The six tools listed below are used to monitor TB programmes (including TB/HIV elements) and are covered in more detail in the TB recording and reporting training materials:
1. a facility-held TB treatment card (with HIV fields added);
2. a TB suspects register (with HIV fields added);*
3. a TB laboratory register (with HIV fields added);*
4. a TB BMU register (with HIV fields added);
5. a quarterly report on TB case registration;
6. a quarterly report on TB treatment outcome and TB/HIV activities.

* Optional as per country guidelines.

As a facilitator, you will learn how to enter and manage some of the data on the facility-held and client-held tools that clinicians use to manage their patients. You will also learn how to transfer some of these data to registers and reports used to monitor groups of patients cared for by the clinical team.

1. Ask the participants; *Why is patient monitoring important?*
2. Ask the participants to; *Provide examples of patient monitoring done at your health centre.*
3. Draw the participants' attention to the diagrams in chapter 1 of the Participant training manual called:
   a. Fig. 1.1. Overview of data flow from the HIV care/ART patient card to the two registers to the two reports.
   b. Fig. 1.2. Flow of data in interlinked MCH/ PMTCT and HIV care/ART patient monitoring systems
   c. Fig. 1.3. Flow of data in the TB/HIV patient monitoring system.

The participants need to study these diagrams and discuss the extent to which they reflect their work situations.

Notes

2. The HIV care/ART patient card

Materials used:

- demonstration HIV care/ART card (use wall chart);
- *Participant training manual;*
- *Participant exercise booklet;*
- blank HIV care/ART cards;
- sample HIV care/ART patient cards (ART) for exercises B and F1 (on page 40-59 of the *Participant exercise booklet*).

Facilitator points:

- The introduction to the HIV/care ART card is part of the patient record for a patient enrolled in chronic HIV care.
- This record is facility-based.
- The principle of good chronic care is to establish a partnership with the clinical team.
- Take some time to provide an explanation of the importance of a unique number system; you can ask for participants' experiences with using unique numbers for HIV care/ART in their countries.

1. **Have participants read aloud** section 2.2 of the Participant training manual

2. **Show** the participants the HIV care/ART card (or the locally adapted version) and point out that it is the same form that is in the chapter with the bubbles on it.

3. **Go through each section** together using the HIV care/ART card wall chart. Have different participants read the numbered sections aloud (in the Participant training manual, section 2.4) as you point out and explain how to fill out the card.

4. **Do EXERCISE A, Scenario 1** using a blank HIV care/ART patient card and the wall chart. This exercise should be done as a group.

5. Have participants do **EXERCISES A (scenarios 2 and 3) and B** on their own. After Part A of Scenario 2, ask the participants the data elements they need to know, but which are still missing.

6. Make sure that participants fill in the appropriate parts of the back of the HIV care/ART patient card, as well as the summary and encounter pages.

Completed HIV care/ART cards for Exercise A are found on pages 28- 39 of the Participant exercise booklet.

Exercise A

Completing an HIV care/ART patient card

In this exercise, you will read the following three scenarios and fill out a blank HIV care/ART card for each patient.

Scenario 1:

The patient's name is David B. He was born in July about 27 years ago. This is his first visit to the clinic (20 June 2007). He is married to Lydia and has no children. His address is the middle home in Kanut Circle. He is working and delivers mail. His telephone number is 123.456.789. He shows a written confirmation of his HIV test (Type 1) from 30 May 2007. He has had no prior ARV, but comes now on his own (self-referred) because he heard that this health centre has ART available. David has no drug allergies and his weight is 70 kg. He has no TB symptoms, but he has thrush, so his WHO clinical stage is 3. There is no CD4 machine available at the health centre, therefore he is medically eligible for ART.

David is counselled on the availability of cotrimoxazole prophylaxis which is appropriate for him to start right away, and he is started on it. He is also counselled on ART adherence, positive living, the concept of shared confidentiality (which is practised at the clinic) and asked to return in three days for another counselling session. His patient clinic number is 01590 and he is given a unique patient identification number at this time – DS000029. Lydia is going to be his treatment supporter and has the same address; her mobile number is 234.567.891. Lydia is also HIV-positive, but has not yet enrolled in HIV care. She is 26 years old.

Scenario 2:

Part A

The patient's name is Mary Sima. She is a 35-year-old married mother and comes to the clinic for the first time. She shows you written confirmation of her HIV test which was done on 12 January 2007 and indicates that she has Type 2 HIV. At that time, the VCT clinic recommended that she come to the health centre, but she said she felt "fine". She comes today (25 November 2007) because she has had a painful rash on one side of her chest for the last two days, and the cream she has at home has not helped clear it up. Mary tells you that she has never been on ART before but thinks she needs it now. On further questioning, you determine that she lives at the end of Nile Road in the roundabout in Masaka. She carries a mobile phone and her number is 078.231.456. She would like her husband Sam to be her treatment supporter. His mobile number is 078.231.323.

She tells you that she has been married to her husband for five years. They have one four-year old son whose name is Timothy. Her husband is 40 years old, is HIV-positive and has been in HIV care for the last year. On the recommendation of the VCT counsellor, she took her son to be tested in March and found that he was HIV-positive as well. She tells you that she was shocked as he had not been sick any more than other local children. She made an appointment for her son to enter HIV care after she became sick. She and her husband would like to have more children. They use condoms occasionally. Her last menstrual period was over a month ago. She thinks she could be pregnant, but is not sure. She currently is able to do housework, but is not employed.

Mary has had no other medical problems. In fact, she tells you that this is the first time she has had any symptoms which is why she has come today. Her weight is 54 kg. On a physical exam by the health worker, she is found to have herpes zoster which puts her at WHO clinical stage 2. Her rapid pregnancy test is positive. She has no signs of TB. She receives counselling about cotrimoxazole and is started on it. She is also prescribed acyclovir cream to help with the painful rash and is referred for PMTCT. The health worker makes a point of going over the basics of HIV transmission, positive living, the concept of shared confidentiality (which is practised at the clinic) and the importance of consistent condom use. She is to return in one week. Her patient clinic number is 01494 and at this time she is given a unique patient identification number – DS000132.

Part B

Mary returns one week later as scheduled and tells you that her rash has improved. She has no further symptoms. Her weight remains the same and her rash has visibly improved. She has been taking the cotrimoxazole every day and has not missed one dose. You look at her tablet box and agree that she has not missed any doses. She is given a one-month prescription for cotrimoxazole and you ask her to return before it runs out. She is still working at home and has gone to ANC/PMTCT as was recommended at the last visit. Her ANC number is 001234 and her estimated delivery date (EDD) is 2 July 2008.

Part C

Mary returns earlier than her scheduled follow-up because she had developed a cough and fever during the last two weeks. She tells you that she also has night sweats and poor appetite. You suspect she has TB and take a sputum sample. Her weight is now 53 kg. She is now unable to do housework, but she can move around. She has not missed any doses of the cotrimoxazole.

Part D

Mary returns after three days for her lab results. Her sputum results are (-), (++), (++). She still has a cough and fever. Her weight is 52 kg and she is still unable to do work at home. She is started on TB treatment. Her TB registration number is 13967. The centre has no CD4 capability, so she is now medically eligible for ART. The staff provide counselling on ART adherence and Mary is asked to return in two weeks.

Scenario 3:

Part A

Sadiki John is a 39-year-old truck driver. He is not married and comes with his mobile phone with the number: 077 888 999. He lives at Kigogo in Ilala district, but travels frequently due to his job. He comes to the clinic on his own on 23 December 2007 with the results from an HIV test done three years ago (24 September 2005). He is very sick, has lesions, is losing weight and is unable to drive at the moment. He weighs 50 kg. On examination, the physician finds Sadiki has Kaposi's sarcoma; therefore he is at clinical stage 4. There is no CD4 machine at this facility. His haemoglobin is 11gm/dl. Sadiki is sent to the counsellor for positive living information and counselling to prepare for ART. He is started on cotrimoxazole and asked to come back the next day. His patient clinic number is 01651 and he is given a unique patient identification number – DS000147.

Part B

When Sadiki returns the next day as scheduled, he is given further counselling on why complete adherence is necessary once he begins ART. He is asked to come back the next day.

Part C

When Sadiki returns a day later as scheduled, he is assessed as being "ready" for ART. His treatment supporter will be his brother Salim John, whose telephone number is: 077 444 666. Sadiki is asked to come back the next day and to bring his brother with him so his treatment can begin when the doctor makes a weekly visit to the clinic.

Part D

When Sadiki returns a day later as scheduled, he is started on AZT-3TC-NVP and is provided with ARV drugs for 32 days. The counsellor takes the time to make sure he knows how to contact the clinic if he has any questions or if any side-effects occur. His brother has also come with him and is counselled on his role as Sadiki's treatment supporter. Salim is given the Caregiver's booklet which is available at the clinic.

Exercise B

Using data from the HIV care/ART patient cards

Explain to the participants that there is a great deal of useful information for the clinical team on patient cards and various forms and registers, but it often is not reported up through the various medical levels. Some information remains in the registers and some remains on the patient cards. This exercise demonstrates some key information that may be collected and used.

In this exercise, you will analyse and use data from the sample HIV care/ART patient cards labelled Ex. 1-5 on pages 40-59 of the *Participant exercise booklet*.

The exercise will explore the analyses further described in section 8.6 of the *Participant training manual: how to analyse data not on the reporting forms and review cases.* Please refer to this section to help you answer the questions below.

1. How many patients reported poor or fair adherence to ARVs at least once (ever)? *5/5.*

   Why is this information important and how can it be used?

Adherence is crucial for keeping patients on first-line regimens as long as possible, and to delay the development of resistance and the necessity for second-line and higher regimens which are more expensive and less readily available.

2. What is the distribution of side-effects seen among all the patients? List the side-effect and the corresponding number or proportion of patients who have experienced it.

Side Effect	Number of patients	Proportion of patients
Rash	2	2/5
CNS	1	1/5
Anaemia	1	1/5
Fat changes	1	1/5
Jaundice	1	1/5
Nausea	2	2/5

Why is this information important and how can it be used?

It provides a basis for clinicians to improve patient management; it highlights potential problems with treatment and treatment options and provides insight into clinical care needs and drug requirements.

3. What is the distribution of OIs or other problems seen among all the patients? List the OI or problem and the corresponding number or proportion of patients who have experienced it.

OI, other problem	Number of patients	Proportion of patients
Oesophageal thrush	1	1/5
Cough x 3 weeks	2	2/5
Zoster	1	1/5

Why is this information important and how can it be used?

It provides a basis for clinicians to improve management of patients, highlights potential problems with treatment and treatment options. It also provides information on clinical care needs and drug needs.

4. What proportion of patients has received TB treatment during 2009? *1/5.*

Why is this information important and how can it be used?

It can be used to monitor TB/HIV co-morbidity and linkages with the TB programme.

5. What is your assessment of the follow-up education, support and preparation for ARV therapy page on these patients' cards? Are all elements complete? Are there items that would be appropriate to cover with patients that have not been covered?

Why is this information important and how can it be used?

This page is intended to help the clinical team monitor follow-up education, support and preparation for ART for each patient, including the basics of HIV infection and prevention, progression of the disease, treatment literacy, and support and referral to community-based and other services. As facilitators, you wish to promote education, support and counselling for the patient to the extent that resources and time permit. These are needed throughout the patient's care, not only when it starts.

Notes

3. The pre-ART register

Materials used:

- demonstration pre-ART register (use wall chart);
- *Participant training manual;*
- *Participant exercise booklet;*
- blank pre-ART registers;
- sample HIV care/ART patient cards (pre-ART) for Exercise D;
- sample pre-ART registers for Exercise E.

Facilitator points:

- Information for the pre-ART register is obtained from the HIV care/ART patient card.
- **Each row is one patient (longitudinal versus acute register).**
- **The purpose of registers in general:** to collect in one location the same information about an entire group of patients. This allows you to monitor what is happening with your whole group of patients in HIV care, and provides information about starting ART at your facility.
- In contrast, the information on the HIV care/ART patient cards allows you to monitor what is happening with each individual patient.
- **Everyone** enrolled in HIV care will go into the pre-ART register regardless of their eligibility for ART.
- *The **only exception** is for someone who has transferred in **with records** indicating that s/he is already on ART. This would mean that this person has already been entered into another facility's pre-ART register.
- Once started on ART, the data accumulated on the patient are no longer tracked in the pre-ART register, but rather in the ART register (ONLY after writing the ART start date in the pre-ART register).
- If time permits at the clinic, it is best to update the pre-ART register daily. Normally, this means transferring any new information collected on the patient cards to the register at the end of each day.
- Information from the pre-ART register will be used to complete the cross-sectional report, including numbers of new and cumulative patients in care.

1. **Show** the participants the pre-ART register wall chart.

2. **Read** sections 3.5 of the Participant training manual together and go through each section of the pre-ART register.

3. **Show** how to record 'transfer ins' (who are not on ART) – these patients will be entered by their date of enrolment at YOUR facility (not their original enrolment date). If the patient is a pre-ART transfer in patient, write TI and optionally, the original enrolment date at the first facility in column 7 "Status at enrolment".

4. **Do EXERCISE** C together.

5. Have participants do **EXERCISES D and E.**

Exercise C

Knowing which register to fill out

You have just read – or your facilitator has given you – a brief introduction to the registers. Read the following patient scenarios and think about which register you should fill out for each patient. Circle all the answers that apply.

SCENARIO 1: A patient tested HIV-positive last week and comes in today to enrol in chronic HIV care. He is stage 2.

a. *Pre-ART register: first entry for the patient;*
b. Pre-ART register: find the patient's name/row in the register and enter additional data;
c. ART register: first entry for the patient;
d. ART register: find the patient's name/row in the register and enter additional data.

SCENARIO 2: The patient tested HIV-positive last week and comes today to enrol in chronic HIV care. Your assessment shows that he has oesophageal thrush. Therefore, he is eligible for ART, but is not yet ready to start.

a. *Pre-ART register: first entry for the patient;*
b. Pre-ART register: find the patient's name/row in the register and enter additional data;
c. ART register: first entry for the patient;
d. ART register: find the patient's name/row in the register and enter additional data.

SCENARIO 3: The patient tested HIV-positive last year. She enrolled in care last month and comes today to start cotrimoxazole prophylaxis. She is stage 3, but is not yet ready for ART.

a. *Pre-ART register: first entry for the patient;*
b. *Pre-ART register: find the patient's name/row in the register and enter additional data;*
c. ART register: first entry for the patient;
d. ART register: find the patient's name/row in the register and enter additional data.

SCENARIO 4: The patient started on ART two weeks ago and comes back for a follow-up visit.

a. *Pre-ART register: first entry for the patient;*
b. Pre-ART register: find the patient's name/row in the register and enter additional data;
c. ART register: first entry for the patient;
d. *ART register: find the patient's name/row in the register and enter additional data.*

SCENARIO 5: The patient was found to be eligible for ART and completed adherence preparation last week. The patient started on ART today.

a. *Pre-ART register: first entry for the patient;*
b. Pre-ART register: find the patient's name/row in the register and enter additional data;
c. ART register: first entry for the patient;
d. ART register: find the patient's name/row in the register and enter additional data.

The last column in the pre-ART register (ART start date) will be filled out and the patient's data will immediately be transferred to the ART register. From that point on, the patient's data will be recorded in the ART register.

SCENARIO 6: The patient comes in and says he has been buying ARV drugs on the 'street'. He wants to start on ART at your clinic and also wants cotrimoxazole.

a. *Pre-ART register: first entry for the patient;*
b. Pre-ART register: find the patient's name/row in the register and enter additional data;
c. ART register: first entry for the patient;
d. ART register: find the patient's name/row in the register and enter additional data.

SCENARIO 7: The patient enrolled in chronic care last week and was assessed to be stage 4 and therefore medically eligible for ART. She comes in today for her third adherence preparation counselling session and is now eligible and ready to start ART.

a. *Pre-ART register: first entry for the patient;*
b. *Pre-ART register: find the patient's name/row in the register and enter additional data;*
c. ART register: first entry for the patient;
d. ART register: find the patient's name/row in the register and enter additional data.

SCENARIO 8: The patient decides to stop ART because she cannot tolerate the side-effects. She continues to receive INH and cotrimoxazole prophylaxis.

a. *Pre-ART register: first entry for the patient;*
b. Pre-ART register: find the patient's name/row in the register and enter additional data;
c. ART register: first entry for the patient;
d. *ART register: find the patient's name/row in the register and enter additional data.*

SCENARIO 9: The patient has been receiving HIV care (not ART) at another facility and transfers in with records.

a. *Pre-ART register: first entry for the patient;*
b. Pre-ART register: find the patient's name/row in the register and enter additional data;
c. ART register: first entry for the patient;
d. ART register: find the patient's name/row in the register and enter additional data.

SCENARIO 10: The patient has started ART at another facility and transfers in with records.

a. *Pre-ART register: first entry for the patient;*
b. Pre-ART register: find the patient's name/row in the register and enter additional data;
c. *ART register: first entry for the patient;*
d. ART register: find the patient's name/row in the register and enter additional data.

ALL the patients who enrol at the facility, whether they are pre-ART or on ART, must be entered into the pre-ART register. This includes pre-ART patients who transfer in (with records) from another facility. The only time you do not have to enter a patient into the pre-ART register is when s/he transfers in ON ART, WITH RECORDS, such as in Scenario 10.

Exercise D

Completing a pre-ART register

In this exercise, your facilitator will give you a blank pre-ART register.

The facilitator will give you a demonstration of how to fill in the pre-ART register using the completed HIV care/ART card for Exercise A, Scenario 1 (David) on page 2.He or she will enter the data for the first entry on the card and will do this on an enlarged register with the group. You should follow along and enter the data on the first line of your blank pre-ART register. For filling out the quarterly follow-up status for David, assume this as the last visit in quarter two. You should feel free to ask questions at any time.

You will then enter the next entries in the pre-ART register using the completed patient card for Exercise A, Scenario 2 (Mary) and Scenario 3 (Sadiki) on pages 28-39 of Participant exercise booklet. Follow the steps described in Section 3: How to complete the pre-ART register in the manual. For filling out the quarterly follow-up status of Mary and Sadiki, assume these as their last visits in third quarter.

Exercise E

Understanding and analysing data from a pre-ART register

Use the sample pre-ART register pages labelled Exercise E in the *Participant exercise booklet* to demonstrate to the participants can be done with the pre-ART register – for example, count the number of patients, calculate those eligible for treatment, add up females/males, etc. Then, introduce Exercise E.

The sample pre-ART register pages labelled Exercise E cover the period from January to March 2007. Your facilitator will go through the first page of the register (January/February) to demonstrate how to analyse the data. Then, you will answer the questions below.

1. By the end of March how many patients had died before starting ART? 0

    a. Where did you find this information?

    The quarterly follow-up status page. If the patient dies before starting ART, write "DEAD" and the date of death under the appropriate quarter.

    b. What is the purpose of knowing this information? How is this information used?

    Knowing the number of patients who died allows teams to follow and understand what is happening to their patients before they start ART. For example, if many patients die after eligibility, but before starting ART, this could be a quality of patient flow issue, and programmatic adjustments may be needed in order to place people on ART faster. If you subtract the number DEAD from the overall patient count, you can better plan for the patients you do have.

2. How many patients were lost to follow-up after X months*or transferred out by the end of March? 2.

    a. Where did you find this information?

    On the quarterly follow-up status page. Write "TO" if the patient transferred out and "LOST" if the patient did not show up for a scheduled visit.

    b. What is the purpose of knowing this information? How is this information used?

    See 1b above. This information also helps the clinical team to clearly understand their patient load and follow-up. It can be an indicator of the quality of counselling provided to patients in care. It may indicate a need for more counselling about the importance of keeping scheduled visits, and also to track patients who are lost to follow-up.

    **At this time, stress the importance of defining what pre-ART 'lost to follow-up' means in the facilitator's country. How many months or visits missed equals 'lost to follow-up' or 'dropped'?*

3. Of patients enrolled in January and February 2007 how many remained in pre-ART care by the end of March? 14.

   a. Where did you find this information?

      This is the total (count the number of patients in the pre-ART register for the period of interest) minus those who died, were lost/lost to follow-up after X months or transferred out or started ART.*

      **Patients who have started ART will be counted in the ART register.*

   b. What is the purpose of knowing this information? How is this information used?

      It gives the team an idea of patient load and allows it to plan accordingly.

4. Of patients enrolled in January and February 2007, how many are medically eligible for ART, but not yet on it by the end of March? *8*

   a. Where did you find this information?

      It can be found by counting the number of patients with a date in the 'medically eligible for ART' column (12). Subtract those who were eligible but died (0), or were lost to follow-up after X months (0,) or transferred out (0). Count the number of patients who started ART (4) and subtract this from the total (12-4 equals 8).

   b. What is the purpose of knowing this information?

      This is the waiting list. It tells you the number of patients you can expect to start on ART (for drug supply orders and level of effort at the facility). It also gives an indication of bottlenecks in patient flow, e.g. if there are 50 patients eligible for ART, but only two of these have started, what is going on? Is there a drug stock-out? Are there not enough counsellors to prepare patients for adherence? Are health workers overstretched? Are lab results coming back in a timely fashion? Is counselling/adherence preparation going smoothly?

5. What is the percentage of male and female patients who enrolled in HIV care by the end of March? Males *55% (11/20)*; females *45% (9/20)*.

   a. Where did you find this information?

      It can be found by counting the number of males in the "Sex" column. Divide this number by the total number of patients who enrolled in HIV care through March. Multiply by 100. This is the percentage of males. Subtract this from 100. This should give the percentage of females.

   b. What is the purpose of knowing this information?

      It tells you something about the equity in HIV care or the access to HIV care in your population. For example, if only 10% of patients are women, you know that women are likely not able to gain access to care as readily as men. You may also want to calculate the percentage of paediatric patients (who are generally not gaining access to care as readily as adults) for similar reasons.

Notes

4. The ART register

Materials used:

- demonstration ART register (use wall chart);
- *Participant training manual;*
- *Participant exercise booklet;*
- blank ART registers;
- sample HIV care/ART patient cards (ART) for exercises B and F1;
- sample HIV care/ART patient card (ART) for exercises F2 and F3;
- sample ART register pages for exercises G and J1.

Facilitator points:

- The ART register is a tool to monitor patients once they have started on ARVs. Once patients are on ART, relevant information from the pre-ART register is transferred to the ART register, and thereafter, only the ART register is used to track these patients (even if the patient subsequently stops ART).
- Information for the ART register is transferred from the HIV care/ART cards, ideally at the end of every day.
- For patient monitoring and programme monitoring reasons, **the purpose** of the ART register is to collect the information about groups of patients (**cohorts or ART start-up groups**) who start ART at the same time.
- A cohort is a group of patients that starts ART in the same month of the same year.
- Each page of the register represents one cohort of patients, and each row in the register represents a patient. If there are many people who start ART in a month, there may be several pages for this cohort.
- The register is actually two A-3 pages that open up together, and each patient row extends all the way across the register for a 24-month period. The ART register can be adapted to six or more year registers.
- Health workers who provide care and treatment for patients would like to know how their patients are doing on ART. By grouping patients into cohorts or ART start-up groups, you can follow these patients from when they first start ART over specific periods of time. At the end of each month, the patient's status on ART is recorded (as being either on drugs, or dead, lost, dropped, stopped, restarted, or transferred out).
- The register allows us to track important variables such as CD4 count at six months, 12 months, and yearly thereafter.
- Note that the month and year the patient starts ART (if recorded, no matter where this was) always categorizes the cohort to which s/he belongs, and where data are entered. Specifically, patients who transfer in with records and are already on ART, are entered retrospectively by their ART start date (at the original facility) into the correct cohort below the double line. The left-hand side of the register should be completed as best as possible for these patients, while the first entry on the right-hand side of the register will be for the month the patient first presents at your facility. This enables the team to know when the patient transferred in.

1. **Show** the participants the ART register wall chart.
   Describe the left page – this is similar to the pre-ART register with the addition of the patient's status at the start of ART (baseline data) and any change in regimens. Describe the right page – follow the patient across time longitudinally, where at each month, you will put the patient's follow-up status. If the patient is taking drugs, put the regimen code. If not, use one of the other codes written on the bottom of the first page of the register (i.e. DEAD, STOP (plus reasons), LOST, DROP, TO, RESTART) – and explain each of the codes. At months six, 12 and 24, there are three additional columns: two are blank (for country adaptation) and one is for CD4. Explain these additional columns and the purpose of the information.

2. **Read** sections 4.2-4.4 of the Participant training manual together and go through each section of the ART register.

3. **Go through** the cohort example in the Participant training manual. For example, say all patients who start ART in January 2005 will have completed six months of ART by July 2005. In July 2005, you will want to see how these patients are doing, compared with when they first started. Hopefully, they will have picked up their medication regularly, will still be on drugs and have higher CD4 counts. The ART register allows you to see this.

4. **Show** how to record transfer-in patients and explain Month "0" (this is the patient's status at the END of the starting month) as compared with the "baseline" (this is the patient's status at the start point when the patient begins ART).

5. **Do EXERCISE F** together.

6. Have the participants do **EXERCISE G.**

Exercise F

Completing an ART register

1. Look at the completed HIV care/ART patient card for Sadiki John (Exercise A, Scenario 3). Use a blank ART register and answer the following questions:
   a. When did the patient start ART? *December 26 2007*
   b. What was the clinical stage of the patient on that date? 4
   c. What does the month/year mean at the top of each page of the ART register?
   d. On the day that the patient starts ART, the patient's data should be entered into the ART register. The facilitator will enter the data on an enlarged ART register with the group. You should follow along and enter the data on the first line of your blank ART register. You should feel free to ask questions at any time.

2. In this exercise you will transfer the data from the HIV care/ART card into the ART register using a blank ART register and the sample completed HIV care/ART patient cards labelled Ex.1-5 on pages 40-59 of the *Participant exercise booklet.* You should follow the steps described in *Section 3: How to complete the ART register* of the manual.

Exercise G

Understanding and analysing data from an ART register

Give participants copies of an ART register that has been completed up to Month 12 (labelled Exercise G).

1. Read and answer the questions below:

What is Month 0 for this cohort? *June 2007*

What is Month 6 for this cohort? *December 2007*

How many patients started on ART at this clinic (baseline or month 0)? *7*

How many patients were in the cohort at Month 6? *8*

What was the fraction of patients from the original cohort (patients started on ART at the clinic) with CD4 ≥ 200 (of those with available CD4) at the start of ART? 2/2

What was the fraction of patients with CD4 ≥ 200 after 6 months on ART? *2/2*
- Where did you find this information?

It is in the CD4 column at month 6.

- What is the purpose of knowing this information? How is this information used?

A CD4 increase is a measure of a patient's improved immune system and therefore is an indicator of treatment success.

How many patients stopped ART, were dropped or lost to follow up, died or transferred out after 12 months? *2*

2. In the boxes below, list the regimen code, the full name of the regimen, and how many patients are on each regimen at 6 months:

Regimen code	Full name of regimen	Number of patients on this regimen
1a	AZT-3TC-NVP	6
1b	AZT-3TC-EFV	2

How many patients are on any first-line regimen at 12 months? *7*

What percentage of patients are on a second-line or higher regimen at 12 months, of all patients who are on any regimen at 12 months? 1/8=*12.5%*

3. How many patients were also on TB treatment when they started ART? *1*

- Where did you find this information?

It is in the TB treatment column.

- What is the purpose of knowing this information? How is this information used?

It is used to monitor TB/HIV co-morbidity in your patient population, as well as to monitor the linkages between the TB and HIV programmes.

4. For patients on TB treatment or not, has their TB status been systematically checked at each visit? *Yes*

Where did you find this information?

It is in the monthly follow-up columns on the right side of the register.

Notes

5. MCH/PMTCT Records

Materials:

Blank flipchart, marker pens, copies of an ANC-register and maternal cards.

Facilitators point

It is important to have organized ways to record patient information and to track pregnant women when they return for care at each stage during pregnancy, childbirth, and the postpartum period. In addition, patient information is passed from one point of care to the next, e.g. from the outpatient ANC clinic to the maternity ward, in order to ensure continuity of care.

Explain that recording patient information ensures continued care for HIV-positive pregnant women during pregnancy, labour and childbirth, and in the postpartum period. By closely tracking the woman, the health worker can ensure that she and her baby receive the appropriate care and treatment at the correct times. Emphasize that for HIV-positive women, the ANC service is an entry point to life-long chronic HIV care. Health workers play an important role to ensure that HIV-positive pregnant women and babies receive timely care across different points of maternal services (i.e. ANC, labour and delivery, postnatal outpatient services) and HIV care/ART services.

1. Ask a volunteer to read through the learning objectives aloud.

2. Ask participants, what are the benefits of keeping patient-related record? Write down the list on the flipchart.

3. Show participants the ANC register, and the maternal and HIV care/ART card, and explain that during this session they will learn how to complete them and will have time to practise filling them in. Hand over enough copies of the ANC register and maternal and HIV care/ART cards for each participant so they can complete the exercise.

4. Go through the maternal card, explaining its use. Ask participants to turn to the instructions on how to fill out the card (section 5.3 of the *Participant training manual*). Start reading through this together with participants. Then, ask for volunteers to read out each line. Answer any questions.

5. Run through the section 5.4 of the *Participant training manual* on the ANC register, pointing to the relevant parts of the register as you speak.

6. Ask participants to turn section 5.5 of the *Participant training manual* instructions on how to fill out the ANC register. Start reading through this together with participants. Then, ask for volunteers to read out each line. Answer any questions.

7. Explain that you will now guide participants through completing the ANC register and the maternal card. Do exercises on page 62-65 of the *Participant training manua*l together

8. Show participants examples of the labour and postpartum record, and the labour and delivery register, and explain that we will learn how to complete these cards and will have time to practise filling them in. Explain that they have copies of the cards and instructions for filling them out in their participant manuals.

9. Run through the section 5.6 of the *Participant training manual* on the labour and delivery records, pointing to the relevant parts as you speak.

10. Ask participants to turn to the instructions on section 5.7 and 5.8 of the *Participant training manual*. Start reading through this together with participants. Then, ask for volunteers to read out each line. Answer any questions.

11. Tell participants that we will now look at how to record the administration of ARV drugs. Explain that it is very important to the woman and her child to carefully record the administration of ARV drugs on both the maternal and child cards, the labour record, and the labour and delivery register [ask participants to read through the examples of the cards in their manual].

12. Ask participants to read through the instructions on section 5.10 of the *Participant training manual* for completing the labour and delivery register. and then have them do the exercise on page 81 of the *Participant training manual* - filling out the labour and delivery register and the maternal card

13. Facilitators should look at the register and cards as they are filled in. Ask one of the participants who has completed them correctly to explain how he/she filled them in. Check to see if other participants agree and discuss any discrepancies.

14. Ask them to look at the postpartum section of the mother's card and child health card.

15. Ask for volunteers to read through section 5.13 and 5.14 of the *Participant training manual* the instructions for filling out the HIV-exposed infant register, with the participants following along. Answer any questions.

16. Ask participants to complete the HIV-exposed infant register exercise on page 85 of the *Participant training manual*.

Notes

6. The cross-sectional report

Materials used:

- demonstration cross-sectional report form (use wall chart);
- *Participant training manual;*
- *Participant exercise booklet;*
- two blank cross-sectional report forms;
- sample pre-ART register pages for Exercise E;
- sample pre-ART register pages for Exercise H1;
- sample ART register pages for exercises H1 and H2;
- sample ANC, labour and delivery registers pages for Exercise H3.

Facilitator points:

- This form is a cross-sectional report that provides information about your patients at one period in time (the reporting period) which may be quarterly or monthly.

HIV care/ART (Tables 1 to 4)

- The quarterly reporting form is designed as a summary of patients enrolled up until the end of the previous reporting period; those newly enrolled in the current reporting period; and the cumulative total at the end of the current reporting period.
- You use the data from the pre-ART and ART registers to fill out the HIV care/ART sections of the form.
- In each reporting period, you will only have to tally the middle columns (column 3) of Tables 1 and 3.
- The form also gives a current picture at the end of the reporting period of the ART regimens followed by all patients at your facility; the information is disaggregated by age and sex. The total number of these patients provides a tally of those currently on ART at your facility, as well as the proportion on first-line and second-line regimens (Table 4).
- Other important information collected includes the number of patients who are medically eligible but not yet on ART; this is the waiting list of patients who will be starting ART.

MCH/PMTCT (Tables 5 to 7)

- The quarterly reporting form contains summary information on:
  - pregnant women enrolled in ANC in the current reporting period (Table 5);
  - pregnant women who delivered at a facility during the current reporting period (Table 6);
  - HIV-exposed infants that turned 12 months of age in the current reporting period (Table 7).
- You use data from the integrated ANC register, the L&D register and the HEI register to fill out these sections of the form.

1. Show the participants the cross-sectional report wall chart.
2. Read section 6.4 of the *Participant training manual* together and go through each section of the cross-sectional report form.
3. Do EXERCISE H1 together.
4. Have participants do EXERCISE H2 after you demonstrate how to complete Table 4.
5. Have participants do EXERCISE H3 after you demonstrate how to complete Tables 5 to 7.

Exercise H1

Transferring data to the quarterly report Form - Tables 1, 2 and 3

Review the structure of the quarterly report form with the participants, making sure they understand the difference between new, cumulative and current patients (in all of care and the subset on ART).

Provide an explanation of how to fill out Tables 1, 2 and 3 of the quarterly report, referring to the example in section 6.4 of the Participant training manual for HIV care/ART patient monitoring.

Make sure the participants have two blank quarterly report forms each. They will need one for the reporting period between January and March, and another for the reporting period from April to June.

Demonstrate how to transfer data from the registers to the quarterly report form using the pre-ART register pages you used for Exercise E, and the sample ART register pages at March 2007 for Exercise H. Ask participants to follow along using a blank quarterly report form. The reporting period will be the quarter from January to March, 2007.

For this exercise, you will use the sample pre-ART register labelled Exercise H, the sample ART register at June 2007 for Exercise H and a blank quarterly report form. The reporting period will be the quarter from April to June, 2007. You should follow the steps described in Section 6.5 of the manual: How to complete the quarterly reporting form and calculate indicators using these data.

1. You look at your last quarterly report, Table 1 and find that the cumulative number of persons ever enrolled in HIV care at the end of last quarter was:

Males (>14 years):	48
Females (>14 years):	62
Males (0-14 years):	2
Females (0-14 years):	6

   Where do you write these data in this quarter's report? *In Table 1, column 2.*

   Transfer these data to the appropriate column in the quarterly report.

2. Look at the sample pre-ART register pages and count the number of persons enrolled in HIV care this quarter, disaggregated by sex, age and pregnancy status; total the rows and columns. Write this on the quarterly report.

   There should be 10. Se ethe answer file for a breakdown. You should count every patient. Since they just enrolled, it is unlikely that they will have died, been lost to follow-up or transferred out. But even if they did, they still count as having newly enrolled in HIV care in the previous quarter. If they already started on ART, they should still be counted as newly enrolled in HIV care in the previous quarter.

3. What is the cumulative number of persons ever enrolled in HIV Care?

   This should equal the total from column 2 and the total in column 3 = 118+10=128.

4. How do you find the number of patients eligible but not yet started on ART?

   This number includes ALL medically eligible patients, regardless of whether they are ready or not. Count the number of patients in the medically eligible column (4). Subtract those who were eligible but have died (0), been lost to follow-up or transferred out (0). Then subtract those who have started ART (3).

How many patients are there? 1

Review the tally tool in annex 2 of the Participant training manual for HIV care/ ART patient monitoring at this time. Explain that this simple tool can be used during the course of updating the pre-ART register to keep a running tally of patients who are eligible but not yet started on ART without having to go through the entire pre-ART register each month. The reason that either the tally tool needs to be used or you need to go through the entire pre-ART register to tally this number is that patients are constantly moving in and out of being eligible, but have not yet started ART. They move in by becoming eligible; they move out by dying, becoming lost to follow-up, transferring out or starting ART.

5. Excluding the newly enrolled patients, 50 pre-ART patients were seen during the reporting period. Of these 50 pre-ART patients, 40 have their TB status assessed and then filled in on the quarterly follow-up status, 5 of them were on TB RX (treatment).

   What is the total number of pre-ART persons seen during the reporting period? *60*

   What is the total number of pre-ART persons seen during the reporting period whose TB status was assessed at their last visit? *50*

   What is the total number of pre-ART persons seen during the reporting period who are
   on TB RX? *5*

6. You look at your last quarterly report, Table 3 and find that the cumulative number of persons ever enrolled in ART at the end of last quarter was:

Males (>14 years):	9
Females (>14 years):	7
Children (5-14 years):	0
Children (1-4 years):	0
Children (<1year):	0

   Where do you write these data in this quarter's report? *In column 2.*

   Transfer these data to the appropriate column in the quarterly report.

7. Look at the sample ART register pages and count the number of persons enrolled in ART this quarter, disaggregated by sex, age and pregnancy status, totalling the rows and columns. Write this on the quarterly report.

8. What is the cumulative number of persons ever enrolled in ART? *39*

Exercise H2

Transferring data to the quarterly report form – Table 4

Provide an explanation of how to fill out Table 4 of the quarterly report, referring to the example in section 6.4 of the Participant training manual.

Demonstrate how to fill out Table 4 of the quarterly report by using the sample ART register pages at March 2007 from Exercise H1.

First, identify which register pages from the sample ART register book you would use (all cohorts which started BEFORE and including the reporting month; i.e. 02/2007 and 03/2007).

Second, identify which column of information you would use in each register (all columns labelled March 2007). There should be a total of two columns which will be used for tallying – one each on the February cohort page and the March cohort page.

Third, begin a tally of the different ART regimens by age and sex by going down the rows in the March column and identifying the type of regimen, and if it is being taken by a female/male and adult/child. This is best done with two people. One person takes the tally, and the other reads out the regimen, age and sex. Do this for all relevant register pages. Be sure to include patients below the double line who have transferred in since the beginning of the cohort if they have regimen data in the appropriate month column.

Fourth, total the tallies and place these in the appropriate cells in the quarterly report form. Total the sub-totals and the grand total. Now, have the participants do this exercise in the same way, but for reporting period of April to June 2007, using the sample ART register pages at June 2007.

Ask participants to do Exercise H2 using the sample ART register book at June 2007 from Exercise H, and filling in the same quarterly report from Exercise H1. Participants should follow the steps described in *Section 6.5 of the manual: How to complete the quarterly reporting form.*

1. What is the reporting period?

   It is April to June 2007.

2. If your clinic started offering ART in February 2007, which cohorts' registers will you be using to fill in Table 4 for this reporting period?

   You will use all that have April to June columns full of outcome data.

3. Which columns of the registers will you be using to fill in Table 4 for this reporting period?

   You will use the *April to June columns.*

4. You look in the February and March cohort pages and you find that 17 patients are on a first-line regimen during April to June:

   Males (> 14): 8
   Females (>14): 9

5. Start tallying ART regimens by going through the registers one row at a time, looking down the appropriate columns. Tally regimens by type, age and sex. It is easier if there are two people doing this. One can call out the regimen, age and sex, and the other can keep tally. You can keep tally directly on the quarterly report form, but be sure to leave space for the eventual totals. Noting sub-totals per page is also helpful.

6. How many adult female patients are on any 1st-line regimen? *21*

7. What is the total number of children on ARVs at the end of June? *0*

8. What is the total number of patients on second-line regimens? *0*

9. What is the total number of patients currently on ARVs? *41*

   Why is this number important and how is it different from cumulative number of patients ever started ART?

   It takes into account those who have stopped, died, dropped, or are temporarily lost at the end of the reporting period and is a more accurate number. The cumulative number does not take into account these subtractions from the original number of patients who started on ART.

Exercise H3

Transferring data to the quarterly report form – Tables 5, 6 and 7

*Provide an explanation of how to fill out Tables 5 of the cross-sectional report.*Ask participants fill in the cross-sectional report, Table 5 , using the completed ANC on pages 99-102 of *the participants exercise booklet.*
The reporting period will be January- March, 2008.

1. How many new ANC clients were during the reporting period? *Sixteen*

2. How many of the new ANC clients were HIV-positive at enrolment? *Three*

3. How many of the ANC clients were HIV tested and received results during reporting period? How many of these were HIV-positive? *Ten pregnant women were HIV tested and received result during the reporting period and two were HIV-positive*

4. At the end of the quarter how many of the ANC clients were with known HIV status? How many were HIV-positive? *Thirteen women were with known HIV status and five were HIV-positive*

5. How many of the HIV-positive ANC clients were assessed for ART eligibility during the reporting period? *Two*

6. How many of the HIV-positive ANC clients received ARV prophylaxis?
   a. *Received AZT- One*
   b. *Received Triple ARVs: None*
   c. *Received ART- Four*

7. How many of the ANC clients received IPT1 and IPT2 during the reporting period?
   Sixteen of the ANC clients received IPT1and ten received IPT2.

8. How many of the ANC clients were provided with ITN during the reporting period? *Sixteen*

9. How many of the ANC clients were screened for syphilis at least once at any visit during the reporting period? How many tested positive for syphilis test? *Sixteen were tested for syphilis and two were positive.*

10. How many of the ANC clients received at least TT2 during the reporting period? *Ten*

Ask participants fill in the cross-sectional report, Table 6, using the completed L and D register on pages 99-102 *of the participants exercise booklet. The reporting period will be April to June.*

11. How many mothers delivered in the facility during the reporting period? How many had normal vaginal delivery? How many had assisted vaginal delivery? How many had caesarean section? *Ten mothers delivered in the facility during the reporting period. Seven had normal vaginal delivery, one assisted vaginal delivery and two had caesarean section.*

12. How many of the mothers had a live baby? How many had still birth?

    Live birth- Nine
    Still birth- One.

13. Of the live births how many had birth weight ≥**2,500gm? How many had birth weight < 2,500 gm?**

14. How many of the mothers had obstetrics complication? *Two* _____

15. How many of the mothers were known HIV-positive on arrival to L&D? *Four*

16. How many of the pregnant women seen in L & D with unknown HIV status were HIV tested and received results during the reporting period? How many were tested HIV-positive? *Five were tested and received result and none were HIV-positive*

17. How many HIV-positive pregnant women were seen in L&D during the reporting period? *Four*

18. How many pregnant women received maternal ARV prophylaxis or ART during the reporting period? *Four*
    - AZT only during the reporting period- *none*
    - Triple ARV during the reporting period- *none*
    - ART during the reporting period- *three*

Notes

7. The cohort analysis report

Materials used:

- demonstration cohort analysis report form (use wall chart);
- *Participant training manual;*
- *Participant exercise booklet;*
- sample ART register pages for Exercise G;
- sample ART register page for Exercise J2;
- blank cohort analysis report forms.

Facilitator points:

- This form is a collection of key indicators for ART start-up groups (monthly cohorts) with their status at six months, 12 months, and yearly.
- The cohort analysis form is different from the cross-sectional report form – the cross-sectional report looks at one point in time and patients are mixed in their durations on ART (some have three months, two months or 12 months of treatment).
- This form provides information to the clinical team and district that shows how well the programme is doing, such as the proportion of patients who are surviving, the number of patients on an appropriate first-line regimen, and the median (or fraction > 200) CD4 count at six and 12 months after starting ART.
- The reason cohorts exist is so that we can follow these patients' outcomes over time; using the same duration of time for all members of the cohort.
- It allows us to compare patients with six months of treatment with other patients with the same duration of treatment.
- Remember each cohort has FOUR columns to fill out eventually – Month 0, 6, 12 and 24. The month and year written at the top of each column in the cohort analysis form are equivalent to the reporting period for which you should fill it out.
- The first four rows provide details about the number of people in the cohort. The following rows tell you what has happened to your cohort (still on ARVs, dead, lost, lost to follow-up (dropped), etc.). It is important to emphasize that once a patient starts ART at a facility, the only way to leave the cohort is to transfer out to another facility. That patient's outcomes are then followed up in another ART register and cohort analysis report. For example, if the patient dies, s/he remains part of the original cohort and will remain in the denominator when calculating "alive and on ART"; otherwise the indicator would be biased by excluding those who have died.
- Emphasize that although the cohort analysis may be the responsibility of district-level coordinators, it advisable that facility staff fill out this form as well, since the information obtained is valuable at the facility-level too.

1. **Show** the participants the cohort analysis report wall chart and mention that there are 12 cohorts represented.

2. **Ask** the participants, *What is a cohort?* Remind them that a cohort is a group of patients who start ART in the same month of the same year.

3. **Explain** that depending on when the HIV care/ART programme started, each month there may be more than one column in the cohort analysis report to fill out. Every month one cohort will have baseline data. After the programme has been in operation for six months, every month a cohort will also have six-month data available, and so on.

4. **Provide** the following example: the programme started in January 2004 and we are now at the end of March 2004. At the end of this time, there will be three cohorts for which we will have baseline data to complete.

5. **Ask** the participants, *How many cohorts are there between January and July? Seven.*

6. **Ask** the participants, *How many cohorts are there between January and December? 12.*

7. Explain that each grey column represents the Baseline (Month 0), or the month in which the cohorts start ART. The information in this column serves as the comparison baseline for all other outcomes.

8. **Explain** that each cohort has four columns: Month 0 (baseline) which is grey; Month 6; Month 12; and Month 24.

9. **Explain** that these durations correspond to internationally agreed indicators. For example, Core National Indicator 9 asks for survival on ART at six, 12 and 24 months on treatment.

10. **Explain** that they also correspond to the months in the ART register that have additional columns of data (CD4) that participants have already seen.

11. **Explain** that once a cohort has completed 24 months of treatment, it will be necessary to transfer it to another cohort form containing 36-, 48-, 60- and 72-month columns, and to append that to the original form or to expand the original form.

12. **Point out** that while it is possible to fill out at least one column of the cohort analysis form each month (with baseline data), reporting of outcomes will not start until six months after the first cohort has completed six months of treatment.

13. **Give** the following example. If Month 0 for a cohort is January 2004, then Month 6 is July 2004. Also, if it is now February 2005, the group of patients or cohort who started ART in January 2004 has just completed 12 months of ART. The cohort that started in July 2004 has now completed six months of ART.

14. **Give** the cohort example in the manual. For example, say that all patients who start ART in January 2005 will have completed six months of ART by the end of July 2005. In August 2005, you will want to see how these patients are doing, compared with when they first started. Hopefully, they will have higher CD4 counts by this time, and will be systematically screened for TB at each visit. The ART register allows you to see this.

15. **Read** chapter 7 of the *Participant training manual for the three interlinked patient monitoring systems* together, and go through each section of the cohort analysis report.

16. **Do EXERCISES I and J1** together.

17. Have participants do **EXERCISE J2**.

Exercise I

Recording and analysing outcomes on the cohort analysis form

Explain to participants that once the programme is six months old, it will be necessary to fill out more than one column of the cohort analysis form each month. It may be helpful for participants to be looking at a sample or blank cohort analysis form while doing this exercise.

Participants may find this exercise confusing as they will have to count backwards. For example, for each reporting month – subtract six months (this is the most difficult to calculate), then 12 months, and two or more years thereafter.

Use the blank cohort forms to illustrate this exercise.

1. For the cohort of patients starting ART in February 2006, which month do we use to analyse how many are still on the original first-line regimen (and other indicators)? Write in the month and year:
   Month 6: *August 2006.*
   Month 12: *February 2007.*

It is now the beginning of March 2007, and you have to fill out the appropriate columns in your cohort analysis form for the reporting period **February 2007**. If the ART programme started in January 2006, which cohorts have outcomes for February 2007?
Cohort: *February 2007* at Month 0.
Cohort: *August 2006* at Month 6.
Cohort: *February 2006* at Month 12.

2. For the cohort of patients starting ART in November 2006, which month do we use to analyse how many are still on the original first-line regimen (and other indicators)? Write in the month and year:
Month 6: *May 2007.*
Month 12: *November 2007.*

It is now the beginning of July 2007, and you have to fill out the appropriate columns in your cohort analysis form for the reporting period **June 2007**. If the ART programme started in January 2006, which cohorts have outcomes for June 2007?
Cohort: *June 2007* at Month 0.
Cohort: *December 2006* at Month 6.
Cohort: *June 2006* at Month 12.

3. For the cohort of patients starting ART in July 2006, which month do we use to analyse how many are still on the original first-line regimen (and other indicators)? Write in the month and year:
Month 6: *January 2007.*
Month 12: *July 2007.*

It is now the beginning of November 2007 and you have to fill out the appropriate columns in your cohort analysis form for the reporting period October 2007. If the ART programme started in January 2005, which cohorts have outcomes for October 2007?
Cohort: *October 2007* at Month 0.
Cohort: *April 2007* at Month 6.
Cohort: *October 2006* at Month 12.
Cohort: *October 2005* at Month 24.

Exercise J1

Transferring data to the cohort analysis report

This exercise should be done as a demonstration. It will be useful to do the calculations using the sample cohort analysis report form on the wall chart with class participation. Use the sample ART register pages for Exercise G.

Look at the sample ART registers labelled Exercise J, and fill out the baseline (Month 0), Month 6 and Month 12 columns in the cohort analysis form for this cohort. You should follow the steps described in *Section 7 of the manual: How to fill out the cohort analysis form and calculate indicators using these data.* Make sure you write in the fractions (numerator and denominator) for all percentages and proportions. Answer the following questions using the specific registers (for Month 0 (to answer questions pertaining to baseline/month 0); for Month 6 (to answer questions pertaining to month 6), etc.).

1. What cohort is this? Month _____ Year _____

2. What month is Month 6 for this cohort? _____

3. What month is Month 12 for this cohort?_____

Once you have completed the appropriate columns in the cohort analysis form, read and answer the questions below:

4. What month and year did the cohort start ART? _____

5. What fraction of the cohort is alive and on ART at baseline? _____

6. What fraction of the cohort is alive and on ART at 6 months? _____

7. What fraction of the cohort is alive and on ART at 12 months? _____

   What does this information tell you and why is it important? *It is an indicator of treatment success.*

8. What fractions of the cohort were still on their original appropriate first-line regimen at 6 months? _____

9. What fractions of the cohort were still on their original appropriate first-line regimen at 12 months? _____

   What does this information tell you and why is it important? *It reveals concerns about adherence, resistance to and availability of second-line and higher regimens.*

10. What fraction of patients have a CD4 count ≥ 200 at baseline? _____ At 6 months? _____ At 12 months? _____

    What does this information tell you and why is it important? *It demonstrates that patients show improvement over time when they are on ART.*

Exercise J2

Transferring data to the cohort analysis form

Have the participants go through this exercise question by question, and review the answers after they have completed each question.

In this exercise, you will use the sample ART registers labelled Exercise J2 to fill in a blank cohort analysis form.

1. The ART programme in your district started in February 2007. It is now the beginning of March 2007. As the district ART coordinator, you are conducting a site visit to help Green Hospital fill in their cohort form. Use the ART register labelled sample ART register at February 2007: Exercise J2.

   Which column will you fill out on the cohort analysis form? _____

   Fill this out.
   How many people are in the net current cohort? _____

   How many people are on original first-line regimens?_____

   Remind participants of the difference between the "Original Regimen" column on the left side of the ART register and the "Month 0" column. There can be a change during the first month of treatment. The Original Regimen is the baseline and Month 0 is the outcome at the end of the first month of ART.

2. It is now September 1, 2007, and you are visiting Green Hospital 6 months after the programme started. Staff are still unable to complete the cohort analysis form themselves. Using the sample ART register pages up to August 2007 for Exercise J, fill in the appropriate columns in the rest of the cohort analysis form you used in question 1.

   For this exercise, encourage participants to go through the register pages to figure out what month outcome it is possible to record for each cohort.

   Which columns are you filling out on this cohort analysis form? Record the cohort and the outcome Month.
   Cohort_____ Month_____
   Cohort_____ Month_____
   Cohort_____ Month_____
   Cohort_____ Month_____
   Cohort_____ Month_____
   Cohort_____ Month_____
   Cohort_____ Month_____

How many cohorts have started treatment by the end of August 2007? _____

How many people are in the net current cohort for the February 2007 cohort at month 6?_____

How many of them are still on the original appropriate first-line regimen?_____

Are the patients in the February 2007 cohort improving on treatment? _____
List two ways in which you can tell, and give comparison outcomes in the following table:

Outcome/indicator	Month 0	Month 6
1.		
2.		

3. You return to Green Hospital at the beginning of March 2008 (at the completion of February 2007). By now, staff have been providing care and treatment to patients for an entire year, but are too busy to fill out the cohort analysis form and have asked for your help. Using the sample ART register pages until February 2008 for Exercise J2, help them fill in the appropriate columns in the rest of the same cohort analysis form.

   Which columns are you filling out on this cohort analysis form? Record the cohort and the outcome Month.
   Cohort_____ Month_____
   Cohort_____ Month_____
   Cohort_____ Month_____
   Cohort_____ Month_____
   Cohort_____ Month_____
   Cohort_____ Month_____
   Cohort_____ Month_____
   Cohort_____ Month_____
   Cohort_____ Month_____
   Cohort_____ Month_____
   Cohort_____ Month_____

   You note that not all the data from the register will fit on this one form, and you remind yourself to bring an updated cohort analysis form with you during your next visit. Which columns are missing? Record the cohort and the outcome Month.

   Cohort_____ Month_____
   Cohort_____ Month_____

   How many cohorts are on treatment by the end of February 2008? _____

   How many people are in the net current cohort for the February 2007 cohort at month 12? _____

   How many of them are still on the original appropriate first-line regimen?_____

   Why is this important and what does it tell you? *It demonstrates adherence, resistance to and the need for alternative regimens (second-line, more expensive, less available).*

   What is the approximate average percentage of patients alive and on ART of all 6 month cohorts recorded on this cohort form? *Look at all the cohorts with six-month outcomes and note the percentage of patients who are alive and the percentage who are on ART. Add these together and divide by the number of cohorts.*

Notes

8. Reporting and use of data from the HIV care/ART patient card and the registers

Materials used:

- *Participant training manual*
- wall charts.

Facilitator points:

- The data collected in these registers and reports have meaning.
- They provides important information on what is going on at the facility and at the district/regional and national levels.
- It is important to use the data at all levels – not just to collect and report it up as required by the national level, but to help improve care and treatment, and to manage both patients and the facility.

1. **Ask** the participants, *what are some of the important indicators we have seen in the reports?*

2. With the participants, **read** the summary table, "Calculating indicators or other aggregated data" on page 112 of the *Participant training manual*. Explain how we have calculated many of these indicators in the reports and where they came from. Go through the national ART programme core indicators. You can use the cohort analysis forms from Exercise J1 or J2 to demonstrate how to obtain the core indicators.

3. **Now read** section 8.6 of the *Participant training manual* together. Facilitate a discussion on the usefulness of analyses that are not on the reporting forms (some of this has been covered in earlier exercises using the cards and registers).

Notes

9. Analysing indicators and identifying problems

Materials used:

Participant training manual.

Facilitator points:

- Make sure participants fully understand the indicators in the table on page 113 of the *Participant training manual,* and how they can be generated from the patient monitoring system.

1. **Ask** the participants the following:

   What value or direction constitutes a "problem" for each indicator?

   What they would do with the information provided by these indicators?

   Choose the "best" indicator in each section – "Access", "Success", "Drug resistance".

2. It is important for the clinical team to understand the explanation behind the numbers, so that besides reporting the ART cohort data, the team will be able to use them to improve both care and data quality.

   Discuss how to analyse indicators and to identify problems using the following example:

   Proportion of a cohort alive and on ART at 6, 12, 24 months [(H + I + J) / N * 100]:

   This indicator measures the performance of the ART programme and the quality of care. The proportion of a cohort alive and on ART is influenced by both the number of deaths and lost to follow-ups, or intentional treatment interruptions. In instances where this has been analysed, current national data shows a 12-month retention at around 70-95%.

   Many factors related to the patient, the health care delivery system, and other issues can affect this indicator. Understand the reasons behind the proportion. Look at trends across the different months in the same cohort, and across different cohorts.

   For instance, if the proportion is lower due to a high number of deaths, go to the HIV care/ART cards of those patients (who died) to understand what caused the deaths – was the reason late initiation of ART? Mortality is highest in the first three months after initiation of ART among patients who are in a very advanced stage of HIV infection (i.e. CD4 count< 50). Or did they have an OI; has it been managed correctly and in a timely manner? Was there any unnecessary delay before these patients received appropriate interventions? If there was a delay, was it because health workers have difficulty in recognizing and managing ARV drug side-effects, OIs or IRIS?

   Or was it adverse effects to or the toxicity of ARV drugs? Were these effects managed?

   If the low proportion is due to high lost to follow-up patients; understand if these patients are really lost to follow-up, or could they be dead or transferred out to other facilities? All facilities should have strong mechanisms to routinely recognize and trace lost to follow-up patients and should maintain an updated log of which patients need more support, with links to the community.

   The clinical and district team should develop an action plan to reduce the number of patients who die while on ART, or are lost to follow-up, etc. For instance, you might agree to do public education on the advantage of HIV testing and counselling, or to recommend PITC to all sick patients at your facility, etc.

Notes

10. Problem solving

Materials used:

Participant training manual.

Facilitator points:

- If monitoring reveals problems, investigate the causes and try to solve them.
- For example, you may find that the number of patients who stop ART is increasing, or that adherence is not as good as it needs to be. Or, you may find that the proportion of patients with almost perfect adherence is remaining steady, rather than increasing as you had hoped.
- Steps to take include:
  - describing the problem;
  - investigating the causes;
  - identifying solutions appropriate to the cause. These solutions should remove the cause of the problem, be feasible and not create another problem.

1. **Explain** how to solve common problems.

2. **Ask** the participants, what if there are two projects at one facility?

3. **Explain** that if there are two clinical teams and separate ARV supply and reporting requirements, a solution would be to keep separate registers. You can fill out a monthly report and cohort analysis report from each team, and then total the two facility reports together in order to report to the district.

Notes

11. Validating patient monitoring data

Materials used:

- *Participant training manual*
- *Participant exercise booklet*
- sample HIV care/ART patient card
- sample quarterly report form
- sample cohort analysis form.

Facilitator points:

- Data that have been collected must be verified for accuracy. This may be done first by the person who has filled in the forms, and later by a supervisor. This should be done before data analysis is carried out.
- The following are common errors found in data collection:
  - gaps (missing data – never leave anything blank – use zero or N/A);
  - values outside the normal range (i.e. a patient's weight entered as 500 kg, a percentage > 100, or 400 patients enrolled in one day when generally there are 10-15);
  - internal inconsistencies (the total number of patients on ART should not exceed the total number of patients enrolled in care and treatment at the CTC);
  - duplication of values (the same information is transferred twice);
  - data present where there should none (a male patient is ticked as being pregnant);
  - writing or typing errors (a patient's weight entered as 500 kg instead of 50 kg);
  - poor calculation (3+1 = 5);
  - data entered in the wrong boxes (a patient's weight entered in a date-of-birth box);
  - preferential end-digits (people who manipulate data often use numbers ending in 0 or 5).

1. Have the participants do **EXERCISES K, L and M.**

Exercise K

Validating the HIV care/ART patient card

Find the errors in the sample HIV care/ART patient card labelled Exercise K. There are at least nine errors.

The answers correspond to the keyed boxes on the card.

1. *The date of birth is missing.*
2. *The "Prior ART" box is not completed.*
3. *When the patient became eligible for ART on 1 January 2004, a CD4 count was recorded on the encounter page, but not on the summary page.*
4. *On the encounter page, the scheduled visit box is ticked for the first visit when the patient first enrolled in care.*
5. *The last visit on 5 September 2004 is a scheduled visit, so the box in the "Date" column should be checked.*
6. *The "Follow-up" date is not filled in for the 5 September 2004 visit.*
7. *There is an extra "0" on the value of weight (it should be 50 kg, not 500 kg).*
8. *The patient is noted as having side-effects before the beginning of treatment. If diarrhoea is an OI, it should appear in the "New OI, Other Problems" column, not the "Potential side-effects" column.*
9. *The clinical staging is missing and is likely clinical stage 3.*

10. *The TB status column is blank. The patient's TB status should be checked at all visits. If no signs or symptoms of TB are detected, the clinician should write "No Signs".*

11. *The reason for fair (F) or poor (P) adherence to ARVs should be noted with a why code after the "F" or "P".*

12. *Adherence to ARVs or cotrimoxazole can only be assessed during a subsequent visit. Therefore, there should not be an adherence code for the 5 September 2004 visit.*

13. *Regimens should be written out. Dose dispensed (64) and number of days.*

After giving the search for errors a try, if you need help, the keyed quarterly report shows you where to find them.

Pass out the keyed card AFTER the participants have tried to find the errors themselves.

Exercise L

Validating the cross-sectional report

Find the errors on the quarterly report example labelled Exercise L. There are at least eight errors.

The answers correspond to the keyed boxes on the form.

1. *The year of the reporting period is not completed.*

2. *The blank cell (c) should be 95.*

3. *The number of patients on the waiting list is greater than the cumulative number enrolled.*

4. *There is an extra "0" on the pre-ART persons seen for HIV care during the reporting period.*

5. *The "New" on ART" total is 35, not 45.*

6. *The "Total adults and children on first-line regimens" is not completed.*

7. *The information about "Adults and children on second-line regimens" is not disaggregated by sex and age – only the total is.*

8. *The numbers of adults on second-line regimens are exactly the same as those on first-line. This is likely too much for the number of patients on second-line regimens!*

9. *The "Total currently on ART" is not correctly added up.*

10. *None of the percentages have been calculated.*

After giving the search for errors a try, if you need help, the keyed quarterly report shows you where the errors are.

Pass out the keyed report.

Exercise M

Validating the cohort analysis report

Find the errors on the cohort analysis report example labelled Exercise M. There are at least five errors. In reality, you will validate the cohort analysis report by recalculating all the data from the ART register during your visit. This validation exercise allows you to spot additional errors.

1. *There are only four CD4 counts available for the February 2004 cohort when this number should have been filled out in March 2004. The transfer-in patient with the CD 4 count at baseline arrives in July 2004, so the CD4 is available when looking at the register in August 2004 (but not March 2004). This highlights the importance of updating the cohort analysis on a monthly basis. The supervisor must pay attention to these time-related issues if, for example, he/she only comes to the centre twice a year.*

2. *The baseline values entered in row G ("Started on ART in this clinic-original cohort") are carried over for the six, 12 and 24 month outcomes. There should be a "9" for the missing value.*

3. *There is a transcription error. "Started on ART in this clinic-original cohort" remains constant across the life of the cohort. There should be an "8" instead of a "9".*

4. *In the register, (use the ART register pages from Exercise J2) there are no transfer-ins in the June 2004 cohort, but the cohort report says that there are two transfer-ins.*

5. *There is an addition error for the six-month outcome for the May 2004 cohort for "Total on appropriate first-line regimen".*

6. *There are multiple errors on the six-month outcome for the July 2004 cohort. First, the cohort analysis says there is one transfer-in patient in the July 2004 cohort, but there are no transfer-in patients recorded in the register. Second, "Net current cohort" is incorrect. It should be "8" because there were no transfer-in patients. Even if there were transfer-in patients for that cohort, the calculation used for "Net current cohort" is incorrect (the person who did the calculation subtracted transfer-ins instead of adding them to the original cohort). Third, because of the incorrect figure entered in "Net current cohort" the "Percent of cohort alive and on ART" is also incorrect.*

   After giving the error search a try, if you need help, the keyed cohort analysis report shows you where the errors are.

   Pass out the keyed report.

   Use the sample registers for Exercise J2 to reiterate the source of the numbers in the cohort analysis report, and also review how to validate the ART register as well.

Notes

12. Aggregating patient monitoring data

Materials used:

- *Participant training manual;*
- *Participant exercise booklet;*
- sample quarterly report forms for Exercise N;
- sample cohort analysis forms for Exercise O;
- blank quarterly report forms;
- blank cohort analysis forms.

Facilitator points:

- One of the main tasks of the district coordinator is to validate and aggregate the cross-sectional and cohort analysis report forms across facilities at the district level, and then to report the results up to the regional and/or national level.
- The district coordinator is also responsible for supervising the facility patient monitoring system.
- Aggregation is basically the task of compiling the reports into one summary report.
- Cross-sectional reports can be aggregated quarterly, semi-annually and/or annually, depending on needs.
- Cohort analysis forms are generally aggregated less frequently and may be compiled every six to 12 months.

1. **Read** together section 12.3 of the *Participant training manual* about aggregating the cross-sectional report, with particular emphasis on which cells can be added up. Also note which cells require taking either the earliest values or the latest values available when aggregating across time.

2. **Do EXERCISE N.**

3. **Read** together section 12.4 of the Participant training manual about aggregating the cohort analysis report.

4. **Do EXERCISE O.**

Exercise N

Aggregating cross-sectional reports

Explain how to aggregate the multiple quarterly reports using the sample quarterly reports labelled Exercise N. Show participants how to aggregate Q1 and Q2 reports to make a semi-annual report from the same facility, and how to aggregate two Q1 reports for two different facilities. Ask participants to follow along, using blank quarterly reports. This is also described in section 12.3 of the *Participant training manual.*

In this exercise, you will aggregate quarterly reports for three facilities (Kitanda, Mirambi and Butenga) for the first two quarters of 2004 (1 January 2004 to 30 June 2004) in a semi-annual report. You should have six quarterly reports in all – two each for the three facilities. Use three blank quarterly report forms to help you summarize these data.

1. Summarize data for each quarter. For the first reporting period, 1 January 2004 to 31 March 2004, add up numbers across all three facilities using one quarterly report form. For the second reporting period, 1 April 2004 to 30 June 2004, add up numbers across all facilities using a second separate quarterly report form.

2. Aggregate the two summarized quarterly reports using the third quarterly report form. Remember which cells can be added together and for which cells you will transfer information from the last quarter in the reporting period (1 April 2005 to 30 June 2005).

See key.

After you have completed the aggregate quarterly report form for all three facilities in the semi-annual reporting period, use it to answer the following questions:

3. What is the total number of patients who are eligible but not yet started on ART for this semi-annual reporting period? *156.*

   How did you calculate this number? *It was arrived at by adding up numbers across facilities for the LAST quarter.*

   What is the total number of patients currently on ART? *365.*

   How did you calculate this number? *It was arrived at by adding up numbers across facilities for the LAST quarter.*

   What is the total number of new patients enrolled in HIV care? *700.*

   How did you calculate this number? *It was arrived at by adding up numbers across facilities and quarters.*

4. What is the cumulative number of patients ever started on ART at the end of the reporting period? *414.*

   How did you calculate this number? *It was arrived at by adding up numbers across facilities for the LAST quarter.*

Exercise O

Aggregating cohort analysis reports

Explain how to aggregate the cohort analysis form using the first two columns of the sample cohort analysis form labelled Exercise N. Ask participants to follow along with a blank cohort analysis form. This is also described in section 12.4 of the Participant training manual.

In this exercise, you will aggregate cohort analysis forms for two facilities (Kitanda and Mirambi in Bukomansimbi county in the Masaka district) through October 2004. Use one blank cohort analysis form to help you summarize these data.

Encourage participants to use the third tally tool in Annex 2 of the Participant training manual for HIV care/ART patient monitoring. This tool is designed to facilitate the manual aggregation of several cohort analysis reports.

1. Aggregate the cohort analysis forms for both facilities by producing a summary cohort analysis report through October 2004.

   Once completed, read and answer the questions below:

   a. Which cohort had the largest number of patients in the net current cohort in Month 0? *October 2004.*
   b. Which cohort had the largest number of patients in the net current cohort in Month 6? *April 2004.*
   c. What was the total number of patients on a second-line regimen for all cohorts at Month 6? *2.*
   d. *What was the total number of patients who died, stopped, or dropped for all cohorts at Month 6? 6.*

Notes

13. Operationalizing and adapting the three interlinked patient monitoring systems

Materials used:

- *Participant training manual.*

Facilitator points:

- A patient monitoring system is a single but critical component of any integrated HIV, MCH and TB programme.
- It should be started in conjunction with the roll-out of the programme.
- Recommended actions in a multi-step process must be taken in adapting an appropriate system to any setting:
  - Gather key stakeholders to discuss the adaptation, development, revision or strengthening (as appropriate) of the national patient monitoring system.
  - Compile an inventory of current and potential patient monitoring tools and other information systems linked to HIV care/ART, MCH/PMTCT and TB/HIV patient monitoring.
  - Obtain a consensus on the indicators to measure and the corresponding minimum data elements to collect. Review and standardize definitions for each data element and indicator.
  - Identify an appropriate system and tools to collect these data for each type of facility. Adapt tools based on country resources and information needs (for example, data on when cotrimoxazole prophylaxis is started or stopped may be omitted from pre-ART and ART registers if this information is not required for drug supply management).
  - Obtain a consensus on the required patient monitoring tools from all key stakeholders.
  - Plan who will carry out, supervise and support patient monitoring at facility, district, regional and national levels.
  - Develop (or adapt existing) training materials to prepare staff at all levels on the use of patient monitoring tools. Then train and retrain them as necessary.
  - Provide systematic post-training follow-up and supportive supervision to ensure quality data collection and effective use of the data at facility and district levels.
- Experience has shown the tremendous importance of providing post-training follow-up and supportive supervision.
- This supervision can be done by the district team, clinical mentors or other personnel who can effectively oversee, troubleshoot and solve problems.

1. **Discuss** with participants their experience so far with adapting, implementing, reviewing and revising patient monitoring systems in their countries. Have participants share the particular challenges they may have encountered and how they overcame them. Some challenges and possible solutions may include:
   - *working with multiple partners and systems which requires:*
     - setting up a (monitoring and evaluation) technical working group with participation from all major stakeholders in order to support the ministry of health which has the ultimate responsibility for national monitoring and evaluation;
     - regular and uniform reporting from all sites;
   - *integrating paper and electronic systems:*
     - establish a strong system of filing on paper using cards, lists, registers, etc. Determine where and how an electronic system may be implemented at your facility or all facilities, and at the district and national levels if these systems do not already exist;
     - encourage sites with electronic systems to print out registers for data use by the clinical team and make uniform reporting (see point above) mandatory.

- *coping with inadequate human resource capacity (at all levels) to carry out patient monitoring activities:*
  - Develop innovative strategies to shift tasks; e.g. using PLHAs to act as triage/receptionist/data entry clerks.
  - Create pre-service curricula or certificates to create a cadre of data entry clerks.
  - Use existing human resources such as EPI surveillance officers (for polio) who currently make regular site visits to carry out some tasks.
  - Advocate for the allocation of (national and donor) funding to hire more data entry clerks at all high-volume (e.g. 1000+ patients) facilities, as well as dedicated national M&E staff, and district or regional HIV/AIDS, MCH and TB coordinators to cover patient monitoring activities. For example, health funding experts recommend that 10%-15% of funds dispersed by the Global Fund to Fight AIDS, Tuberculosis and Malaria should be allocated to monitoring and evaluation activities.

Notes

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