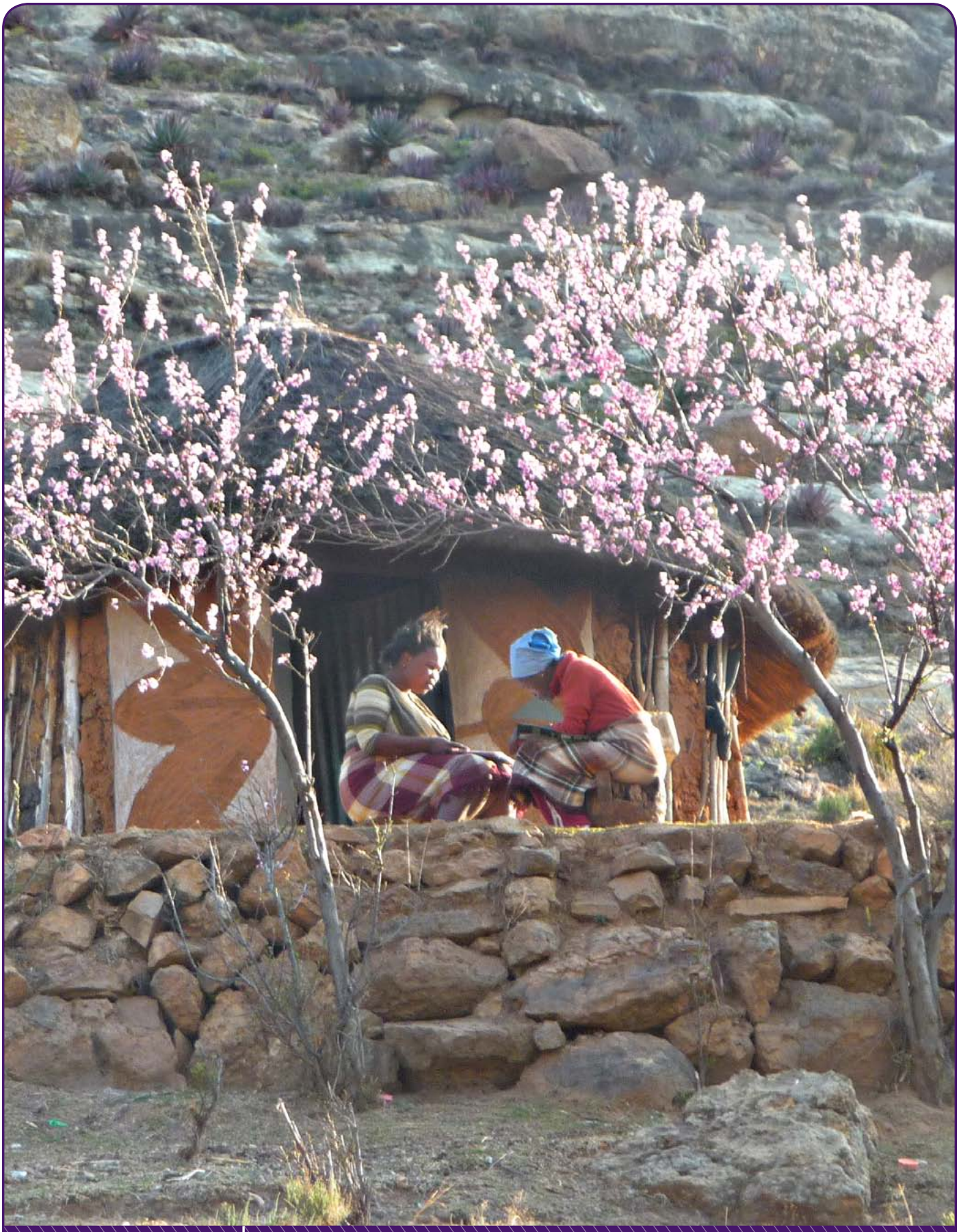

Unit 12

Using monitoring and evaluation for action

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Cover photo: A village health worker in Nohana, Lesotho records information in her patient's personal health record
Courtesy of Max Bearak

Unit 12

Overview

Unit 12

Using monitoring and evaluation for action

> *"The critical practice of self-reflection and analysis is the best—perhaps the only—way for us to improve the quality of our services and to remain viable as long as we are needed by the people we seek to serve."*
>
> – Ophelia Dahl, Executive Director, Partners In Health

INTRODUCTION

Monitoring and evaluation (usually called M and E) is the process organizations use to assess how well and whether their programs are being implemented as planned, delivering services as expected, and achieving their goals and objectives. A strong M and E system is a vital ingredient in your organization's accountability to stakeholders, who include patients, the community you are serving, donors, and national governments. However, effective M and E extends far beyond simple reporting. To use M and E in a way that facilitates clinical service delivery, you will need to know how to make the data that your organization collects as useful as possible for decision-making within the organization itself. Regular review of program data makes it possible for staff to identify areas for improvement in service delivery or quality, and equips decision makers with the facts they require to safely discontinue or change practices in order to better help patients.

This unit provides a practical overview of basic monitoring and evaluation concepts. Based on PIH's experience, the unit suggests how a small nonprofit operating in a resource-poor setting can make specific M and E decisions. These include decisions about what to monitor versus what to evaluate; how to integrate reporting demands into an M and E structure to decrease the data collection burden on staff and maximize use of existing data; how to choose appropriate measures; how to use results; and how to communicate the findings effectively.

You will need human, material, and financial resources to carry out M and E activities, but this effort, if it is dedicated, consistent, and well planned, will be worth the investment. The pay-off will be delivering more effective and efficient services, which will ultimately improve health outcomes for your patients and those that live in your target catchment area.

This unit is not an in-depth guide for establishing an M and E system. Many materials exist on how to set up a strong monitoring system, ensure data quality, and design an evaluation, some of which are listed at the end of this unit. These and other resources should be used to expand on the basic principles outlined here.

1. WHAT IS M AND E?

Monitoring and evaluation is a structured approach that you can use to assess the quality and effectiveness of a program. It helps you identify, understand, and improve the links between your inputs (resources), outputs (products or systems), outcomes (effects on behavior) and impacts (for example, a change in mortality). (See *Section 3.3*, *Logic models.*) People often use the terms *monitoring* and *evaluation* interchangeably, but they have different meanings.

1.1 *Monitoring*

Monitoring of a program involves the "collection of routine data that measure progress toward achieving program objectives."[1] The purpose of monitoring is to assess how resources are used, what services are being provided, and how well they are being delivered. Monitoring can help you answer questions that might include, for example:

Figure 1: A nurse midwife performs a sonogram in Cange, Haiti

- What percentage of women delivered in a health center?
- What percentage of women were offered family planning services?
- What percentage of patients were satisfied with the services they received while at the health center?

Monitoring is an ongoing, continuous process. It requires data collection at multiple points in time, including data you collect at the beginning of the process. These first or "baseline" data will give you a measure for comparison as you proceed. Clinical and nonclinical staff are usually responsible for monitoring activities.

[1] Frankel, N. & Gage, A. (2007). *M and E Fundamentals: A self-guided minicourse.* Chapel Hill, NC: MEASURE Evaluation, p. 3.

TIP: *Monitoring should be a part of normal program management. By periodically reviewing the data that you collect on a routine basis you can identify problems, make changes, and suggest program improvements.*

1.2 *Evaluation*

Evaluation refers to "a more systematic review of the program, or certain features of it, after a period of time."[2] The purpose of an evaluation is to find out to what extent, if any, the program achieved its intended objectives. Unlike monitoring, evaluation is not usually an integrated and continuous process. The timing of an evaluation depends on the timing of your program's implementation activities. Evaluation can occur at set interim points (to see if the program is working before you go too far down the wrong path), at the end (if evaluating a time-limited intervention), or both. In a time-limited intervention, data are generally analyzed at the start, at an interim point, and at the end of the program.

If you are evaluating an HIV treatment program, for example, an evaluation might address the following questions:

- Was there a measurable decrease in mortality?
- What does this measurable decrease in mortality indicate?
- Did your program make a difference? If yes, what does the evaluation help you identify as the program's potential contribution?
- What parts of the program worked and what did not work?
- What best practices can be shared?

This unit includes discussion of what is called "process evaluation." Process evaluation is evaluation that focuses on the implementation and service delivery *process*.[3] Monitoring makes process evaluation possible. The information that results from a process evaluation can help you understand whether the program is being implemented according to plan, or if adjustments are necessary in activities and services to ensure that they are delivered as planned. The person or team that performs the evaluation can use this information to understand how and why interventions led to the results they did and, ideally, what components are making a difference. To examine outcomes and impacts without assessing the program implementation process might result in misleading information or false conclusions about the intervention's effectiveness.

TIP: *To be useful, try to plan your evaluation far in advance and make sure that strong monitoring systems are already in place. Make sure the evaluators have the skills they need to carry out an evaluation, be clear on the evaluation plan, and be sensitive to the local context.*

[2] Lankester, T. (2007). *Setting up community health programmes: A practical manual for use in developing countries.* 3rd ed. London & Oxford: Macmillan Education, p. 336.

[3] Described in Frankel & Gage (see note 1 in this unit).

All successful evaluations must have a well-planned design. One important component of such a design is a comparison group. You cannot be sure that your program made a difference unless you can compare the results with a similar group that did not participate in your services and/or interventions. Comparison groups allow researchers to assess whether changes that result are really outcomes due to the program itself, or if they result from other factors. You may or may not have the resources to identify and measure a comparison group during your program's implementation, but you may be able to find outside resources to help you with this process. Due to the complexity of some evaluations and the extensive planning that they require, external experts are often the ones to carry out evaluations. Certainly your organization may be able to carry out an internal evaluation if it has the capacity. In some contexts, however, an external evaluation may be seen as more credible, particularly if you are reporting on your program's effectiveness to a larger audience. If you want to persuade others that your program can make a difference, you need to be sure that other experts find your results sufficiently convincing. Outside consultants may provide the necessary expertise and perspective to help you reach this goal.

1.3 *Defining goals and SMART objectives*

M and E is directly linked to your programs' goals and objectives. You should be able to clearly distinguish your goals from your objectives (see below). Both goals and objectives must also be easy to measure. M and E will be more efficient if you write your goals and objectives in a way that facilitates the M and E process. Below are some guidelines to help you write clear goals and objectives.

1.3.1 Goals

A goal is a statement that describes the desired result of a program in a general way. Goals are achieved over the long term (5–10 years) and through the combined efforts of multiple programs. *"To decrease malnutrition in children under five"* is an example of a goal.

1.3.2 SMART objectives

An objective is a specific statement that details what you hope to accomplish through a program, project, or intervention. An objective is narrower in focus than a goal. Objectives should be stated in terms that define the quantity, quality, and time frame of a particular aspect of the program. This use of terms that can be measured will allow you to examine whether your program achieves its desired outcomes. Think of objectives as addressing the questions "what" and "when," rather than "why" or "how."

The mnemonic "SMART" may help you define objectives useful for monitoring, evaluation, and research, and may also be useful in communicating with agencies and donors. That is, develop objectives that are: **S**pecific, **M**easurable, **A**ttainable, **R**elevant, and **T**ime-bound.[4] SMART objectives are a popular concept with many agencies and donor organizations because they make it possible to account for a program's successes in terms of concrete results. One example of a "smart" objective might be "To increase the number of children on

[4] Family Health International. (2001). Introduction. In *Strategies for an expanded and comprehensive response to a national HIV/AIDS epidemic.* Arlington, VA: Family Health International. SMART objectives are also defined in this Guide in Section 5.1 of *Unit 13: Conducting Research.*

antiretroviral therapy (ART) receiving food support by 50 percent within five years." This objective is SMART because it is:

- **Specific**: "Increase number of children on ART receiving food support"
- **Measurable**: "Increase…by 50 percent"
- **Attainable**: It identifies a change that has been attained in other locations
- **Relevant**: It relates to overall goal of improving the quality of life for children on ART
- **Time-bound**: "within five years"

TIP: *Do not assume that program goals and objectives are clear or realistic, even if an intervention activity has been in place for a number of years. As part of the M and E process, you may need to refine the program objectives to attain measurable outcomes.*

1.4 *How to ask effective M and E questions*

Based on your organization's goals and objectives, what are the most important questions that M and E activities can answer? Developing such questions is a crucial aspect of effective M and E activities.

Good questions are those that:

- Your organization would like to be able to answer
- Will allow you, when answered, to show progress toward your program goals and objectives
- Lead to specific answers that can be reported to donors

Some examples of useful M and E questions might include:

- How many service providers have been trained?
- How many people were served?
- Did the activity reach its target populations?
- What percentage of women delivered in a health center?
- How many patients received a home visit?
- What is the cost of the first-line ART drug regimen per patient per year?

2. WHY DO M AND E?

Monitoring and evaluation takes work and requires resources. In a setting of extremely limited resources and pressing human needs, your staff may ask why they should take time away from patient care to meet M and E requirements. While M and E is vital for any good program, it is especially important precisely in such resource-limited settings. This is because, if it is done correctly, M and E allows you to learn if your programs are doing what you said they would, if services are being delivered according to your program's standards,

and if programs are making a difference. Where resources are tangibly scarce, you will want to be sure that your patients are actually benefiting from your program's activities and services. In addition, you may be able to use M and E data to prove your effectiveness to your donors and other relevant agencies.

Figure 2: Mothers bring their babies to a pediatric clinic in Malawi

To integrate M and E into clinical service delivery is to use it for action. In other words, M and E can inform programmatic decisions and help you answer the following questions:

- Is the activity being carried out as planned?
- Are you reaching the target population?
- Are you meeting these patients' needs in a way that complies with your program's standards?
- Are there disparities in how the program is being used?
- Are there benefits of the program?
- Are resources being used effectively?
- Are there new areas of need you had not originally anticipated?
- What prevention activities can reduce the burden of illness in your target population?
- In what areas can you strengthen the program?
- What successes can you document and share?

2.1 *Closing the information loop*

Many organizations spend a large proportion of time and resources collecting data to report to their donors and to national programs. Yet the benefit of doing M and E can and should go far beyond reporting to external stakeholders. An efficient M and E system can build the potential capacity of your organization by evaluating both performance and interventions. This internal use of M and E is sometimes called "closing the information loop." Supervisors can generate regular summary data reports, analyze the results, and share these findings with relevant staff in order to create internal feedback mechanisms.

Feedback mechanisms enable valuable information to be shared internally that can then help improve the quality of your data, the quality of service delivery, or both. The quality of service delivery versus the quality of your data is an important distinction. Good data accurately reflect the services that patients receive. For example, perhaps a monthly health center reports shows that 50 percent of infants were weighed, but you know that actually 90 percent were weighed. Therefore, the quality of the *data* is not good. Alternatively, if the data show that only 50 percent of infants were weighed and your data are accurate, this should signal that there is a problem with the quality of *care*.

Depending on your program's objectives, feedback mechanisms can also enhance the activities that improve access to care and prevention. For this process to work best for the impact and efficiency of your program, however, your staff must be equipped with the knowledge and tools they need to use the data that are collected. You can help build organizational capacity by implementing training, mentoring, and supervision for your M and E program, on-site monitoring, off-site evaluation, and feedback to staff. (See *Section 4, Building capacity for M and E.)*

Figure 3: A staff member weighs an infant at the under-five outpatient clinic in Neno, Malawi

"Management by exception" is one way to put feedback mechanisms into practice. In the management by exception principle, each level of review examines data from the level that came immediately before it in the sequence or process. Action from a manager would take place only when the data analysis identified that particular units have not met minimum achievement levels or "trigger points." The management by exception principle may be explained by the following hypothetical scenario.

Suppose, for example, that leadership at Inshuti Mu Buzima, PIH's sister organization in Rwanda, decided that at least 95 percent of community health workers (CHWs) working at the village, district, and sector levels must receive their monthly salary payments on time. In the course of their routine monitoring, the report for June, drawn from data aggregated at the umudugudu (village) level, indicated that on-time payments to CHWs fell from 98 percent to 96 percent. In this case, if we apply the management by exception principle, no action should take place, since the percentage of on-time payments did not fall below the trigger point of 95 percent. However, suppose that reports for the next month show that only 60 percent of CHWs received their payments on time. When the manager or supervisor responsible for overseeing this program at the district level reviews this report, she should investigate why this has occurred. Her investigation might ask, for example: Is this a performance issue (i.e., is there a problem getting enough cash that month to pay all CHWs on time)? Or, is this a data quality issue (i.e., did the new data entry officer record the data differently from how they had been recorded in previous months)? Once the problem is identified, the manager or supervisor can make sure steps are taken to address it.

2.2 *Accountability to stakeholders*

While M and E should benefit program staff and the target population of your intervention, it can also benefit national and regional governments, donors, and other types of partners, such as community-based organizations (CBOs), faith-based organizations (FBOs), and/or other nongovernmental organizations (NGOs). For example, the local community can use results of M and E to better understand how the program is working and recognize both its benefits and any persisting problems.

The Ministry of Health (MOH) at the district or provincial level can also use results to assess individual programs, coverage across targeted areas, and variability in service needs and delivery. The MOH can also identify effective practices for future scale-up. Collaborating with the MOH when planning for M and E will help align your efforts with those of your host country, which may have, or be working toward, a unified national-level M and E system.[5]

TIP: *Share M and E results with the communities you serve. Listening to the community's concerns and incorporating its feedback is an often neglected but critical aspect of the M and E process, and will make your program stronger and more effective.*

3. PLANNING FOR PROJECT M AND E

Simply because they lack staff capacity and resources, many small nonprofit organizations find it necessary to take some pragmatic shortcuts when planning for monitoring and evaluation at the project level (called "project M and E"). Even if this is true for your program, however, a solid and broad understanding of program planning will save you time and resources later on. Project M and E is closely linked to your programmatic goals and objectives. Planning your project with M and E practices in mind will strengthen your potential for success in promoting and supporting health. A solid monitoring program will also facilitate program management.

3.1 *M and E Matrix*

An "M and E matrix" is a graphic chart or table that describes your M and E questions, information gathering requirements (including indicators), reflection and review events with stakeholders, as well as resources and activities required to implement a functional M and E system. This matrix is important because it shows how data will be collected, where, when, and by whom, for each project you are monitoring and evaluating. Resources that provide examples of different types of matrices are included in the *Resources* at the end of this unit. An M and E matrix usually includes the following information:

- Activities/resources
- Definition of indicators
- Frequency of reports
- Data sources
- Data collection methods
- Individual(s) / team(s) responsible for collection
- Reporting requirement (who is asking for the information)
- Quality/problems with the data

[5] Joint United Nations Programme on HIV/AIDS (UNAIDS). (n.d.). The three ones. Retrieved online at: *http://www.unaids.org/en/CountryResponses/MakingTheMoneyWork/ThreeOnes/default.asp.*

You can maintain an ongoing update of these details as they relate to your matrix by using a spreadsheet for each of your program's objectives.

3.2 *Developing an M and E work plan*

The M and E work plan is a framework that describes how the M and E matrix (described above) will be put into practice. Having your work plan in writing has at least three benefits: It establishes accountability and transparency for how your program will measure its achievements, it guides M and E activities in a standardized and coordinated way, and it preserves institutional memory.

Think of your M and E work plan as a living document. Changes in your program will affect the original plans for monitoring and evaluation, so it is important to review and update the plan on a regular basis. There are many resources available to help you develop a comprehensive M and E work plan; some are listed in *Resources* at the end of this unit.

Components of an M and E work plan will differ depending on what model you use. Plans typically include:

- Purpose and scope of the M and E work, as driven by the program goals and objectives
- M and E questions, indicators, and their feasibility
- M and E methodology for monitoring the process and evaluating the effects
- Specific details about how you will implement various steps: Who will conduct the monitoring and evaluation? How will you use existing M and E data and data from past evaluations (if applicable)?
- Internal and external M and E resources and capacity
- M and E matrix and timeline
- Plan to disseminate and use findings[6]

3.3 *Logic models*

A "logic model" is a tool that will help you carry out M and E by thinking through the steps that will enable you to achieve your program's objectives. It should be a simple blueprint for how the program is supposed to operate. A good logic model also includes the type of operational information that will be useful for developing an M and E matrix and an M and E plan (described above). A good logic model also identifies the population you aim to reach.

A typical logic model has four specific measurement-related components: inputs, outputs, outcomes, and impacts (defined in the table below).[7] While quite broad, the definitions that are given below are widely accepted and should help you gain a general understanding of the components of a logic model. Keep in mind, however, that experts debate the precise

[6] Family Health International. (2001). Module 3. In *Strategies for an expanded and comprehensive response to a national HIV/AIDS epidemic.* Arlington, VA: Family Health International.

[7] Centers for Disease Control and Prevention. (in press). *Monitoring and evaluation for program managers: Participant manual.* Atlanta, GA: Centers for Disease Control and Prevention.

meanings of each component, and it is easy to focus too much on the definition of each when you are building your logic model. Most important is that you understand how the components relate to one another and how the results of each can be measured.

Logic model component	Definition
Inputs	The resources used in your program, such as money, staff, materials, and supplies
Outputs	The direct products or deliverables of your program, such as the number of trainings completed, people reached, and materials distributed
Outcomes	The results that occur both at intermediate intervals and sometime after the activities are completed, such as changes in knowledge, attitudes, beliefs, skills, behaviors, access, policies, and environmental conditions
Impacts	The long-term results of one or more programs over time, such as changes in HIV infection, morbidity, and mortality

Figure 4: Definitions of logic model components

Below is an example of a logic model for a project that aims to improve adherence to ART through a CHW program. The model of this program shows the relationship between events where it is assumed that one event leads to another.

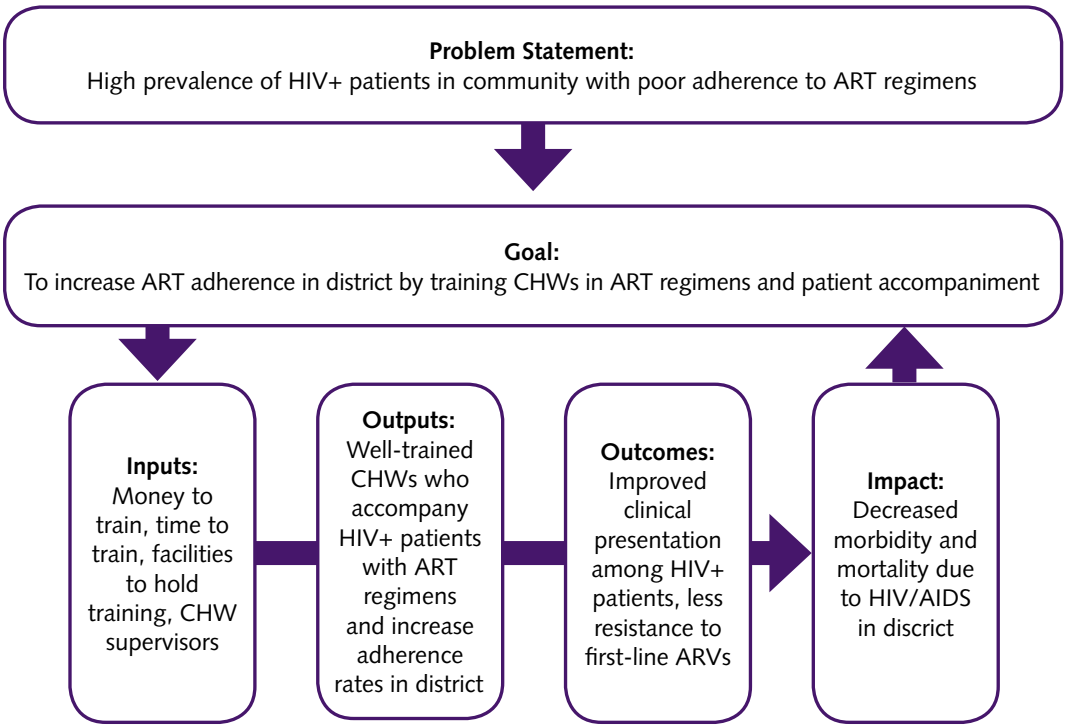

Figure 5: Logic model for monitoring and evaluating adherence to ART using a CHW program

M and E generally becomes more complex as you move from left to right in the logic model, that is, from inputs toward impact statements. At the input and output levels, tracking which activities have been completed and their immediate results is relatively straightforward. This type of operational information that results from monitoring input and output activities is useful for day-to-day management decisions. Monitoring most commonly occurs at these levels, particularly in settings with limited resources. If consistent monitoring is implemented during program implementation, it will be much easier to revise program activities as needed in order to achieve the desired impact.

Statements at the outcomes and impact levels are generally used for program evaluation. To identify and measure the outcomes that result from the synergy of outputs, you will often need to integrate qualitative and quantitative data. When M and E confirms that a desired improvement has taken place—perhaps, for example, that morbidity and mortality levels in the target population declined—this finding does not prove that the intervention itself—in this case, the CHW training program—was the cause of that change. Declining morbidity may result from other factors. The same would be true for the opposite result, that is, if mortality and morbidity were to rise or if there were no change in outcome. An increase or no change in morbidity levels in the target population does not prove that the intervention was the cause of these events.[8]

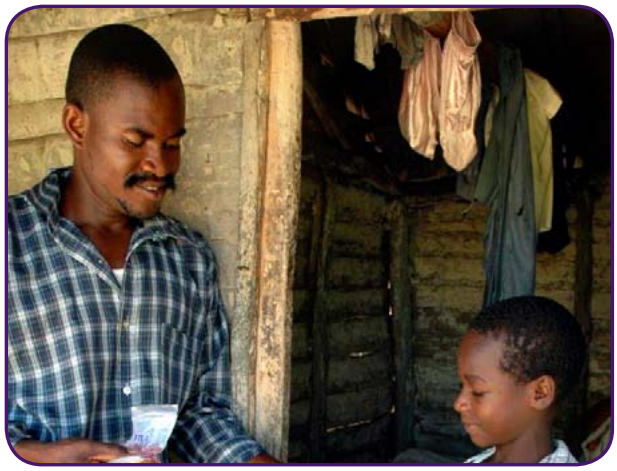

Figure 6: A community health worker gives a young patient his medication in rural Haiti

When developing your own logic model, determine its purpose in your program, including who will use it and why. A logic model will help you think through a series of "if-then" relationships that express the program's explicit assumptions about why a certain change will occur. Arrows and feedback loops can show the links between inputs, outputs, outcomes, and impacts. When building a logic model, it is often easier to begin by constructing the model in reverse, starting with your desired impact, that is, what you expect to achieve. Impacts are longer-term effects of the program that you hope will occur. Decreased mortality as a result of an adherence program is one example of an impact; another might be decreased HIV transmission as a result of a condom promotion program.

Figure 7: Community health workers in Rwanda work on a problem during a pilot training session for PIH's Accompagnateur curriculum

[8] Management Sciences for Health. (2010). Health systems in action: *An e-handbook for leaders and managers.* Cambridge, MA: Management Sciences for Health.

Once your desired impact is clearly stated, establish what activities and outputs are needed to achieve the impact. Finally, what inputs are required to conduct the activities that lead to the outputs? Check your logic model for each step by asking:

- Is it meaningful?
- Is it doable?
- Does it make sense?

If you can answer "yes" to each of these questions, you can start to brainstorm to create a list of possible "indicators" (defined and discussed below) for each stage of program implementation. Or, you may find it easier to develop or borrow indicators from other examples as you build your logic model.

TIP: *Recognize that logic models have limitations. For example, if developed at the start of operations, the model represents your best intentions. Logistical constraints may limit what your program or intervention can readily accomplish.*

4. BUILDING CAPACITY FOR M AND E

In order to do effective M and E, you may need to build capacity within your organization. Building capacity will require 1) the support of your organizational leadership; 2) enough personnel to carry out M and E tasks; 3) training, mentoring, and supervision; and 4) adequate infrastructure. Each of these four ingredients is discussed in more detail below. Investing in capacity at these levels will lay the foundation for M and E activities and will save you time, money, and resources in the future. Having an M and E system in place will also increase organizational capacity, because the data you are collecting should assist the site to evaluate and improve both performance and program interventions.

4.1 *M and E leadership*

A sustainable M and E system requires the support of leadership within your organization, including engagement in data utilization so that staff can see the value that M and E adds to programs. Leaders also need to support M and E with adequate resources and participate in the M and E planning and review process. In addition, they must make sure that staff have enough time and resources to carry out their M and E duties, put a system in place to train, mentor, and supervise M and E staff, and review the quality and utilization of the data. Finally, it is critical that leadership acknowledge the importance of all M and E staff at every level and recognize them for a job well done.

Figure 8: Zanmi Lasante staff in Haiti attend a training session on using spreadsheets

PIH NOTE

Zanmi Lasante (ZL), PIH's sister organization in Haiti, had been collecting and reporting monitoring data on HIV/AIDS patients there for many years, but lacked the resources, organizational capacity, and buy-in from all levels of staff to monitor other programs. However, as ZL expanded and as interest in M and E grew countrywide, ZL needed an integrated and cross-site feedback system to ensure quality across other programs areas such as women's health, community health, and nutrition, and align its efforts with those of the MOH. ZL decided to address these needs by expanding its M and E team. What had been a small department increased its capacity by hiring M and E data officers and data managers to work across all 11 sites in Haiti. Support for this broader M and E agenda did not happen overnight; many site directors were clinicians who had no prior M and E training or experience. The head of the M and E department arranged on-site personal meetings with site directors and managers to explain how examining the data could help them make programmatic decisions that would ultimately improve the quality of care. He then worked with site directors to develop M and E plans and to put into place ongoing staff training in statistics, the use of spreadsheets, and general reporting. Once senior leadership was convinced that M and E would benefit ZL's programs, it was then much easier to scale up the M and E team and activities to measure these other programs, with leadership providing strong support for the staff's collection and use of data in their day-to-day work.

4.2 *M and E roles and responsibilities*

If your organization is very new or small, it may not be immediately possible to hire dedicated M and E staff. In the meantime, everyone within the organization will need to assume M and E responsibilities, and each staff member should be aware of how M and E fits into his or her job. As you map out M and E roles and responsibilities for your program, consider:

- What M and E activities need to be accomplished?
- What program staff will be involved in M and E activities? Will external consultants be used (primarily for evaluation)?
- What will be the extent of each person's involvement?
- How much time will each person need to complete their M and E-related activities? How many days/hours per week/percentage of their time will be spent on M and E?
- What are the training and supervision needs? How will performance be measured and improved?
- How will administrative staff support M and E activities?

When your organization is able to hire a full-time M and E manager, it should seek someone with specific M and E skills and experience. The role of the manager is also to create a culture where M and E is valued and the utilization of data for program reflection and improvement becomes the norm. This is particularly important when staff are unfamiliar with what M and E is and how it works. The primary responsibilities of the M and E

manager will be to oversee M and E activities and provide training and support for data collection and utilization by local staff. Other activities include developing and updating planning tools (such as an M and E matrix, described above), the development of reports, feedback on how data are being used, and help with integrating M and E into training activities.

As the demands for M and E increase and you are able to hire a team for the necessary monitoring activities, a collaborative approach is especially important. Collaboration between the M and E team and your staff helps to ensure accurate routine data collection, reporting, data analysis, and feedback of results to stakeholders. It also ensures that the data are used to the utmost within your organization.

The evaluation team should also possess a range of skills in evaluation and should know and understand the program's various interventions. Your evaluators' skills and training needs will depend on the type of evaluations you plan to perform. For some evaluations, you may need to build capacity within your program or ask for support from external partners. For example, a *cost-effectiveness analysis* is an evaluation that might assess whether program priorities should be changed or expanded, or to what extent program expenses should be reallocated. If the team plans to do *impact evaluation*—that is, rigorous assessment to learn what and to what extent changes are attributable to your specific program activities—you may require additional outside support if your staff is not already equipped with the necessary formal evaluation skills. In settings where it is difficult to find people with the necessary skills to conduct rigorous impact evaluations, it may be helpful to partner with an academic institution or to use skilled consultants. Collaboration with an external partner can also benefit your program by minimizing bias in interpreting your results. Keep in mind that there are also drawbacks to using external evaluators; these include economic cost, lost opportunity for capacity building within the organization, and an outside team's potential unfamiliarity with the context of your program and the community culture. If you are using an external evaluation team, you should work closely with this team to make sure that their goals are aligned with yours.

TIP: *Make sure that the evaluation team has the necessary skills and strong data collection systems in place before carrying out an evaluation.*

4.3 *M and E training*

Routine data collection can best help your organization evaluate performance and interventions when staff at the site have the capacity to use the data. Some staff may need training and on-site mentoring to develop the necessary knowledge and skills they need to perform monitoring responsibilities such as data collection, data entry, data quality assurance, basic data analysis, and communication. Your program managers may also need training in skills to help them, for example, develop indicators, create M and E matrices, ensure data quality, and feed back results. More specialized skills can include higher-level data analyses, programming for accessing electronic data, and evaluation design. If at all possible, set aside funds in your budget for training and identify in-country sources for training (such as other NGOs, academic institutions, and national centers of statistics).

These resources will allow staff to develop the skills necessary for effective implementation of M and E activities. Remember that training costs for staff can sometimes be high, and may include training course fees, transportation, food, and lodging, as well as time away from the site.

TIP: *If your site is near a university that offers a graduate program in statistics or epidemiology, consider inviting graduate students from those programs to lead training sessions for your staff.*

4.4 *M and E infrastructure*

Other costs for vital components in any successful M and E system include computers, software, communications systems such as phone and Internet access, and transportation. Once you know what M and E activities are required for your program, include the relevant communication systems and material costs in your budget. As part of your M and E activities, you will develop documents and materials that you will need to share with various people. You will also need to communicate with various stakeholders by phone, email, fax, and letters. Associated costs for these communications include:

- Postage, telephone service, Internet access, fax transmissions
- Printing and duplication for preparation of various documents, such as data collection instruments and reports
- Printed materials, such as library resources
- Other necessary materials, including supplies and equipment (such as computers, software, toner, pens, and paper)

Figure 9: Village health workers in Nohana, Lesotho travel on horseback to reach patients

5. UNDERSTANDING INDICATORS

An indicator is an objectively verifiable measurement. An indicator has two functions: 1) it reflects the activity, assumption, or effect being measured and 2) it allows for comparisons between different populations or individuals (for example, the infant mortality rate of two different countries) and between measures of the same population or individual at different points in time (for example, the changes in one country's infant mortality rate from decade to decade). Indicators are used at each level of the monitoring and evaluation process. Indicators focus on a single aspect of a program, such as an input, output, outcome, or impact, discussed below.

5.1 *Types of indicators*

There are several different types of indicators, depending on what is being measured. Whether the indicators' results—from inputs, process, outputs, outcomes, and impacts—are actually feasible will depend on the type and scope of the intervention, available resources, and time frame for implementation.

Type of indicator	What they measure
Input indicators	The specific resources that go into carrying out a program (for example, staff, finance, materials, time)
Process indicators	The activities carried out to achieve the program's objectives (for example, trainings given, clinics held, referral system established) (sometimes merged with outputs)
Output indicators	The immediate results obtained by the program (for example, number of patients treated, number of health centers strengthened, percent children weighed, percent women tested for HIV)
Outcome indicators	The effect of the program on clients or target population (for example, percent eligible on cotrimoxazole, percent malnourished children who were given supplements)
Impact indicators	The long-term effects or end results of a program (for example, percent children under age five with severe acute malnutrition)

Figure 10: Definitions of types of indicators[9]

Input indicators and output indicators are generally used to monitor the program implementation process. These results are generally expressed as numerical values. In the example in Figure 10, input indicators measure the money, time, or training that are put into monitoring and evaluating an HIV/AIDS program to achieve national objectives. The inputs may result in outputs. Output indicators might measure new resources, such as the availability of condoms, or staff with new knowledge and skills. This example does not show the actual processes that created the outputs, such as training, procurement, implementation practices, or other processes. Since smaller programs tend to focus more on monitoring than on evaluation, you could add these processes that created the outputs and then develop process indicators accordingly.

At the evaluation stage of M and E, indicators might measure behavioral changes and associated changes in morbidity and mortality. The events that follow immediately as a result of your program's outputs are called outcomes. For instance, outcome indicators might measure the number of bednets used for malaria prevention or the number of unprotected sexual encounters. Short-term outcomes lead to long-term impacts that can also be evaluated to measure overall program effectiveness. For example, impact indicators might estimate the incidence of malaria and the incidence of sexually transmitted infections that would result from program implementation.

[9] Adapted from the Centers for Disease Control and Prevention. (in press). *Monitoring and evaluation for program managers: Participant manual.* Atlanta, GA: Centers for Disease Control and Prevention.

5.2 *Expressing indicators*

To understand how effectively the program can deliver services and achieving outcomes, you must be able to define your indicators and how they will be measured. An indicator should be defined narrowly, in a way that captures one aspect of the program as precisely as possible. The indicator should measure change from the baseline level, at the time the program began. An indicator can be a number, a percentage, discrete categories (for example, *negative, sub-clinical,* or *positive*) or dichotomous (for example, *yes* or *no*; *present* or *absent)*.

Indicators that are numbers measure "how many x," where x might be people, products, or costs. Indicators that are percentages have a *numerator* and *denominator*. For example, the numerator might measure the number of patients who received a specific service or achieved a specific outcome among those patients who were eligible or targeted. The denominator is the number of patients who were eligible or targeted, for example, the population covered by a health facility. The denominator may be either measured or estimated, depending on the size of the number as well as the feasibility of direct measurement. The following is an example of an indicator used for measuring the proportion of children who received nutritional supplements:

> *Numerator*: Number of children who received a nutritional supplement, including ready-to-use food or a food basket in the last month
>
> *Denominator*: Number of children seen at the facility with newly diagnosed malnutrition or already enrolled in the program in the last month.

Indicators should include

- Time frame, for example, *in the last month*
- Definition of who qualifies as eligible, for example, *number of children seen at the facility with newly diagnosed malnutrition*
- Any other required definitions, for example, *a nutritional supplement which included ready-to-use food or a food basket*

Figure 11: A child diagnosed with malnutrition receives ready-to-use therapeutic food at Zanmi Lasante in Haiti

5.3 *Choosing indicators*

Choosing what to measure—and what not to measure—is a critical step in project M and E, and will be much easier if you have "SMART" goals and objectives, as described above. A logic model can help you think through the type of indicator you will use for decision-making at a given stage of program implementation (see *Section 3.3, Logic models* in this unit). For this reason, you may find it easier to choose indicators as you develop your logic model.

There are many tools and examples available to help you identify the most useful indicators for a wide range of program activities. The Global Fund to Fight AIDS, Tuberculosis and Malaria publishes a toolkit that provides a selection of standard disease-specific indicators and defines a minimum set of indicators that should be collected by all programs.[10] These indicators are specifically for HIV care and treatment in resource-poor settings and can be generated at the local level. Funders, international agencies, and governments may have standard indicators to collect and report. For example, the United States President's Emergency Plan for AIDS Relief (PEPFAR) has its own indicators reference guide that outlines the minimum set of program-level reporting requirements.[11]

Standard indicators that are recognized internationally include those developed by UNAIDS and those included in the Millennium Development Goals (MDGs).[12] Not only are these indicators important for programmatic evaluation, but they may also be reported to national data collection efforts. In most cases, the indicators are consistent with the World Health Organization's (WHO) M and E strategy for HIV care and treatment, which emphasizes evaluation at the national level.[13]

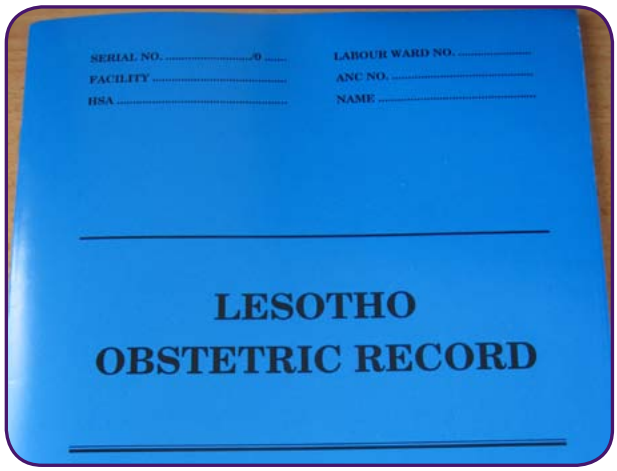

Figure 12: Ministries of health often require that providers use official health records to collect and report certain types of data

In short, there are many activities you could monitor or evaluate, and knowing what other organizations do can help you choose the best indicators to monitor and evaluate your program. However, if your organization is small, it is important to choose only a few key activities, those that will be most helpful to the needs of both the providers and the population that you serve.

TIP: *Before you initiate collection for a specific report, check to see if data are already being collected for another purpose. If you are applying for grant funding, try to incorporate into the proposal indicators for which you are already collecting data rather than adding new indicators.*

[10] The Global Fund to Fight AIDS, Tuberculosis and Malaria. (2009). *Monitoring and evaluation toolkit: HIV/AIDS, tuberculosis and malaria and health systems strengthening. 3rd ed*. Retrieved online at: *http://rbm.who.int/toolbox/tool_MEtoolkit.html.*

[11] The United States President's Emergency Plan for AIDS Relief. (2009). *Next generation indicators reference guide*. Retrieved online at: *http://www.pepfar.gov/documents/organization/81097.pdf.*

[12] Official list of MDG indicators is available online at: *http://unstats.un.org/unsd/mdg/Host.aspx?Content=Indicators/OfficialList.htm*. The list of UNAIDS indicators are available online at: *http://www.measuredhs.com/hivdata/ind_tbl.cfm.*

[13] World Health Organization, United States President's Emergency Plan for AIDS Relief, & UNAIDS. (2009 revision). *A guide to monitoring and evaluation for collaborative TB/HIV activities*. Geneva: World Health Organization. Retrieved online at: *http://www.pepfar.gov/implementer_resources/126232.htm*.

When you choose your indicators, first consider the feasibility of collecting data that staff can use quickly and easily at specific points in the project management cycle.[14] Gather an inventory of indicators that your program is already collecting to help you prioritize which indicators to use for your planned M and E activities. This exercise prevents duplicate assessment, helps streamline data collection and use, and saves staff time and resources. Another good planning tool is a spreadsheet application or database that lists the data and indicators your organization is currently required to collect, the donor who requires this information, any other data and indicators you are collecting, and for what purposes. Can any of these indicators be combined or eliminated? Remember that data should come from existing sources and be integrated into reporting systems that are already in place insofar as possible. For example, if the health team keeps routine antenatal care (ANC) logs, you can extract data from these logs that may be required for reporting to the MOH. Or, if you are already monitoring your maternal health program, decide what existing data can be used for other purposes, rather than initiating a new collection activity.

PIH NOTE

At Zanmi Lasante (ZL), PIH's sister organization in Haiti, cross-site workshops with clinicians help staff discuss how to prioritize and combine indicators to reduce their reporting burden. ZL finds it difficult to keep up with an increasing number of indicators as the MOH implements new health programs. One way that we address this problem is to request that we attend meetings the MOH holds with other development partners. Through these discussions, we can identify for the MOH when and on what points we lack capacity to meet all the reporting requirements. As a result, we have successfully negotiated the quantity of indicators required for MOH reports.

The checklist of questions in Figure 13 can help you assess whether you have chosen appropriate indicators for your M and E efforts.[15]

Operational	Is it measurable or quantifiable using tested definitions?
Reliable	Does it produce the same results when used more than once to measure the same condition or event?
Valid	Does it measure the condition or event it is intended to measure?
Feasible	Can it be carried out in the proposed data collection system?
Specific	Does it measure the only condition or event being monitored?
Sensitive	Will it change over time?
Affordable	Are the cost and other resources needed to measure it reasonable?
Relevant	Is it related to the goals and activities of the project?

Figure 13: Indicator checklist

[14] World Bank. (n.d.). *What do we want to know: Selecting indicators*. Retrieved online at: *http://gametlibrary.worldbank.org/FILES/141_Guidelines%20for%20selecting%20indicators.pdf*.

[15] International Fund for Agricultural Development (IFAD). (2002). Module 5. In *Managing for impact in rural development – A guide for project M&E*. Rome: International Fund for Agricultural Development.

Once you choose your indicators, you may find it useful to develop an indicator matrix that details the following for each indicator:

- A definition of the indicator (be sure this definition is detailed enough that different people at different times can collect identical types of data for the indicator)
- The denominator
- The numerator

PIH NOTE

PIH is now standardizing certain indicators that are used across all PIH-supported sites. We realized that this would improve the effectiveness of our collaborative cross-site sharing of goals and activities for specific programs, including HIV, maternal and child health, and tuberculosis. As we work together with site leaders, our goal is to identify simple, relevant indicators that will not require additional data collection. We plan to use these data to measure performance, identify gaps in data quality and quality of care, identify areas for strengthening to improve effective practices, and understand the variations that may exist within or between sites in performance or data quality.

6. COLLECTING DATA

Collecting baseline data for each indicator is one of the most important steps in the M and E process because it allows you to identify the starting point from which you can assess progress. Baseline data collection takes place *before* activities begin. Many organizations that begin operations in resource-poor settings do not collect baseline data because doing so would likely delay immediate service provision. Indeed, there is a trade-off between opting for the "service first" approach and investing time and resources collecting baseline data. One method is to use retrospective data, or those that have been collected from archival records. This approach is helpful for monitoring but will limit your ability to attribute the final results to the specific program or intervention being evaluated.

TIP: *If you start with retrospective data, know exactly how the data were collected. Differences in data collection methods can affect resulting interpretations. Knowing how staff collected earlier data may help your program's M and E activities identify inconsistencies and opportunities to make small but important changes in current practice.*

At different points during implementation, you will collect follow-up data for each indicator for comparison. This will allow you to assess whether services are being delivered according to plan to reach desired results and make required changes if necessary. If an intervention is time-limited, you will need to collect data on your indicators to compare final levels to your baseline. Depending on what indicators are selected, follow-up data may be required at an agreed-on time to determine whether the changes are maintained after completion of the intervention.[16]

[16] Management Sciences for Health. (2010). *Health systems in action: An e-handbook for leaders and managers.* Cambridge, MA: Management Sciences for Health.

TIP: *If you haven't collected baseline data, you can start collecting at mid-term, which will still allow you to assess changes in the data over time.*

6.1 *Data sources*

In the planning stage, consider what data sources you will use for your indicators and what tools and methods will be used to collect the data. Examples of data sources include patient records, CHW logs, or MOH reports. When identifying these sources, it is important to remember that they must be reliable and support *routine* data collection.

Cost is a consideration when identifying data sources. There is often a trade-off between the level of detail of the data and the resources required to collect them. Collecting data with a higher level of detail often requires more staff, time, and expertise than more general information, so it is important to make sure that you are not collecting more information than you are using. Using existing data as opposed to initiating new data collection efforts may be easier and less costly, but they may not be as accurate. If using existing data, make sure that it captures the information you need at the level—community, district, or national—that you are monitoring.

Figure 14: Data collection tools in Malawi

6.2 *Data collection methods*

Data collection methods are the tools, systems, or processes used in data collection. Take an inventory of the data collection tools and systems that you are currently using before you create new ones. This simple step can help streamline the data collection process by allowing you to see where you can coordinate with other departments to combine data collection efforts. For example, if you are using patient registers to collect data on the prevention of mother-to-child transmission (PMTCT) of HIV, you probably do not need to have CHWs also collect this information at the household level. If you are already entering data into an electronic medical record (EMR) system, consider if this can also be used for new M and E efforts.

If a new data collection instrument is required, consider how the collected data will be analyzed and used before designing the tool. In designing a questionnaire, report form, or other type of instrument, take the following steps:

1. Draft the content of the instrument based on pre-determined information. needs; if feasible, rely on existing data collection tools (such as those available through UNICEF and other organizations).
2. Pay attention to language and craft questions carefully (i.e., phrase items as positive questions rather than negative questions).
3. Optimize the sequence of questions.
4. Make the format easy to follow.
5. Check for consistency among instruments.
6. Pre-test the instrument among those in your target community.
7. Revise the instrument.

PIH NOTE

When doing M and E, staff can quickly become overworked. In the past, PIH has incorrectly assumed that local staff were able take on yet another task, such as data collection, in addition to their regular duties, when they already had a full workload. One way to minimize additional work is to integrate the data collection system for M and E into the one used in service provision. Figuring out in advance what data we need to collect helps us design and implement data collection protocols so that patient data collected in the electronic medical record (EMR) can be used to inform clinical care, M and E, and research (with patients' consent). Aggregate data are also used for internal and donor reports. As a result, we now design all of our PIH patient forms to include important clinical data, the information required for donor and government reporting, and data for research analysis.

7. IMPROVING DATA QUALITY

M and E is only useful to your programs if the data you collect are of high quality, that is, the data should be accurate, reliable, with enough detail on your indicators to help you understand the data relationships in a way that will help your patients. You may need to improve the quality of the data you are collecting and reporting as a routine part of monitoring in order to know what quality of care you are providing and where you can make improvements. Information about your health programs can also inform advocacy efforts. (See *Unit 14: Maximizing impact through advocacy*.) Accurate data are

Figure 15: An ART Clerk at the site in Malawi pulls an "early infant diagnosis" file for the baby on her back, whose mother is being assisted in the next room

important for influencing public health policy if you are reporting to government agencies, and such data can also justify current funding levels or demonstrate the need for additional funds.

7.1 *What are high quality data?*

How can you determine if the data you are collecting are of high quality? Characteristics of high-quality data include:

- **Accuracy.** Do the data reflect what actually occurred? Are the data valid?
- **Precision.** Are the data reliable? Is there consistency in how data are recorded?
- **Internal consistency.** Are responses consistent within a questionnaire? (e.g., if weighing infants, make sure they are in a feasible range)
- **Assignment of identifiers.** Are the unique identifiers (IDs) truly unique for each patient or measure? Be sure there is no redundancy in assignment of IDs and that there is consistent assignment for the same individual across time.
- **Completeness.** Are there missing data?
- **Timeliness.** Are data collected and recorded in an established time period?
- **Relevance.** Are the appropriate data being collected?
- **Use.** Are the data being used?

TIP: *Make sure that you are using routinely collected data. This is the best way to ensure that people will be invested in maintaining high quality data. This also helps to ensure that the data remain useful, so you do not waste time and resources collecting unnecessary information.*

Accuracy is only one ingredient in high quality data, but it is very important. Your data officers should take the time needed to enter data in a manner that avoids introducing and subsequently overlooking errors. Encourage them to think carefully about how they can balance the inevitable trade-off between data accuracy and the most effective use of their time to achieve this goal. How can you minimize the risk of error in your data? One useful approach is to put into place a number of strategies for both staff and systems to catch errors and correct them easily. Such systems must be reviewed often enough to be sure that they are working, and to avoid reinvesting in costly new system development. Good recording systems that use the resources you have available will help you lay the foundation for more comprehensive evaluation in the future.

7.2 *Data quality roles and responsibilities*

Everyone in the organization has a responsibility to improve data quality. This includes your organization's leadership, clinicians who are collecting data from patients, and the staff who enter data. Leadership should support resource allocation that promotes data quality, and should ensure that there are enough staff to collect, enter, review, analyze, and

communicate findings. Leadership should also recognize and communicate to staff the importance and role of data clerks, the importance of producing and maintaining high quality data, and how the quality of data affects the quality of services your organization provides.

Create a learning environment by encouraging both the health team and data entry staff to work together to achieve high quality data. For example, leadership within your organization might support data officers' efforts to follow up directly with clinicians if patient data are illegible, incomplete, incorrect, or do not make logical sense (one example might be a patient who is recorded as weighing 500 kilograms). A supportive learning environment encourages everyone to be invested in data quality and to hold one another accountable in a positive way.

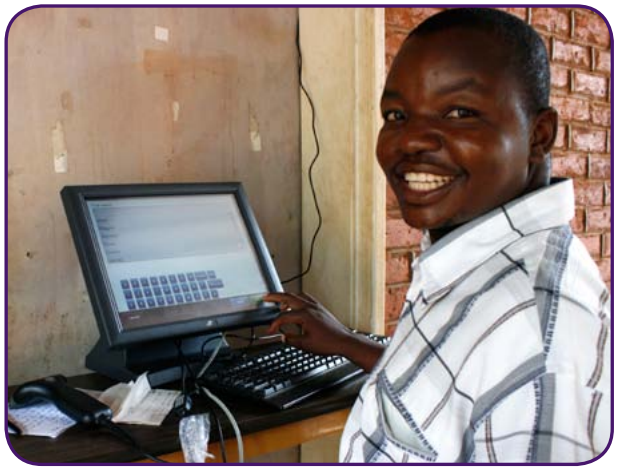

Figure 16: Registering patients in the EMR system outside the ART clinic in Neno, Malawi

PIH NOTE

PIH creates incentives to promote accuracy by using a mix of individual and collective approaches at our health centers in Rwanda and in Haiti. For example, once a week, our data manager receives an automatic report stating which site in Rwanda corrected the most data errors that week. She uses this information to praise that team's initiative by sending out a widely circulated email regarding the team's progress, highlighting individual sites that have put in the greatest effort. At our project site in Haiti, this same approach has fostered teamwork and a friendly rivalry among staff. Celebrating the team and acknowledging what has been accomplished can have very powerful effects.

7.3 *Training and supervision*

To keep data quality consistent requires ongoing training and supervision. Leadership should make this a priority by instituting an ongoing data quality assurance system in tandem with continuous, organization-wide training and supervision. Provide ongoing training and mentoring on site, if you can, so that data collectors always know how to extract and record the data. If you do not have the capacity within your organization to provide such training, consider asking for help from organizations in your area that have these resources, such as a university, a research institution, or another NGO. Web-based resources on data quality may also be useful for your staff. Some of these resources are listed at the end of this unit.

7.4 *Standardization of operating procedures and forms*

To minimize errors, be sure the collection and recording systems for the activities that you want to measure routinely is simple and accurate. For example, if using an EMR, streamline the data entry user interface so that the sequence of steps is intuitive and easy to navigate.

TIP: *Have a standard operating procedures manual that outlines clear and consistent procedures for data collection and recording. Be sure it is conveniently located and in a format that is easy for your staff to find and use. This document helps keep processes consistent even when staff leave, by retaining a record of institutional knowledge.*

Minimize time delays between data collection and data entry. Reducing existing delays can decrease the number of errors that typically occur. Often, for example, data are entered into an EMR from paper forms after the clinic visit is over. This delay can compromise data quality if, for example, the writing is illegible, forms and/or data entry are incomplete or incorrect, equipment errors have occurred, forms were lost or overlooked, or if the data were recorded for the wrong patient. If clinicians are not the ones entering the data into an EMR, make sure that data clerks receive these records very soon after the clinic visit in case they need clarification on certain details.

Figure 17: Boston and Malawi staff work on PIH's electronic medical record system, OpenMRS

An effective alternative to the risks of such delay is "point of care" data entry. This is when data are captured during the patient visit. Although this method is not foolproof, it can help improve data quality by avoiding such common errors. "Real-time data validation" is another key step for improving quality at the data entry phase by ensuring that data make sense, are in the right place, and conform to expected formats. In this process, data are checked at the point of entry against a written, printed, or on-screen list of acceptable options. Validation checks help identify *outliers*, or values that lie outside the normal range of options and are far from most of the other values. Validation check options may take the form of a dropdown list, where the person entering the data is limited to a range of choices that you have already established as valid.

PIH NOTE

PIH uses several data validation techniques as part of EMR, which is a web-based open-source system called Open MRS (medical record system). An open MRS allows the user to develop a universal concept dictionary to define ranges for specific terms. One example is how we measure blood pressure. The open MRS allowed us to set up an absolute high and low (values must be inside this range), a critical high (range of values that will be flagged), and a normal high and low (values that fall within the normal range). These options help to guard against data entry errors. When using this type of system, however, all staff involved in data collection and entry must be trained to use the same concepts on paper and electronic forms. At our PIH-supported project in Rwanda, for example, clinicians were indicating 12/8—shorthand for 120/80—to record blood pressure on paper forms. Since the EMR would not "understand" this measurement, we had to train clinicians on how to record data in a way that is consistent with the concept dictionary.

7.5 *Data quality summary reports*

Your data team will want to know if the quality of the data is good, and if not, what changes are required to improve it. Producing and sharing data quality summary reports with the team is a collaborative way to help keep the team motivated. Graphs that show improvement in data quality over time can be very affirming to your staff. Similarly, your team will have an incentive to improve if the group could see, for example, that they were only recording 30 percent of the required data! At some PIH project sites, a friendly competition among staff offers a small reward, financial or otherwise, to the individual or group that achieves 95 percent accuracy for all entries in a week. When the organization recognizes every individual for the group's performance, each person on the team is encouraged to help others improve.

7.6 *Reviewing data over time*

Longitudinal data are data in which the same units are observed over multiple time periods.[17] Changes over time may legitimately indicate the trends that match your program's M and E goals, but sometimes changes in the data may not reflect what is actually occurring. When such discrepancies appear, you will need to look at the data collection and ask: What problems with how data are collected or reported may have compromised the integrity of the data? Such problems need to be identified and addressed as quickly as possible.

[17] United States Department of Labor. (2008). *Glossary: Longitudinal data*. Retrieved online at: *http://stats.bls.gov/bls/glossary.htm#L*.

8. COMMUNICATING AND USING M AND E RESULTS

Communicating your findings to your team and to others is vital for accountability to stakeholders and to ensure that the program is using actual results to take effective action. However, M and E can only help improve your program in a substantive and sustainable way if you share results widely and strategically. The chance that your results will be used (for example, in policy and funding decisions) is often directly proportionate to how involved decision-makers feel in regard to the data dissemination process. If decision-makers have a strong sense of involvement, they are more likely to incorporate the results into ongoing or future activities.[18] You can influence their sense of involvement by how you share your data.

You will also need to engage people in a way that will allow them to work with your organization to create improvements. For example, use monitoring reports for management purposes, employing the principle of management by exception (see *Section 2, Why do M and E?*), and to compare outputs, outcomes, assumptions, and impact snapshots from one period to another. Use endpoint evaluation reports together with baseline data and midterm evaluations to identify changes that may have resulted from the project or program over time.[19]

Figure 18: Journalists visit the Tomsk prison as part of a media tour for The Global Fund to Fight AIDS, Tuberculosis and Malaria
Photo: Steve Turner

Good communication requires transparent honesty. Those who communicate M and E results need to understand and acknowledge the roots of health problems in the community. They must also be committed to genuine two-way communication between those who are affected by the problem and those who will be affected by the chosen solution. If a solid communication and feedback process is in place, this will help to ensure that M and E results are presented clearly to the people who need them, at the level they need them (village, district, national), and when they need them. Plan to communicate feedback by taking the following actions:

- Analyze data and review the results
- If historical data are available, compare them for trends
- Display a summary of the data in patient waiting areas, in staff meeting rooms, or at a community forum to communicate findings and results
- Discuss program successes
- Identify areas for improvement
- Select a quality improvement project

[18] Levinson, F.J., Lorge-Togers, B., Hicks, K.M., Schaetzel, T., Troy, L., & Young, C. (1999). *Monitoring and evaluation: A guidebook for nutrition project managers in developing countries.* The Human Development Network, World Bank. Retrieved online at: *http://siteresources.worldbank.org/NUTRITION/Resources/Tool8-frontmat.pdf*.
[19] Idem.

8.1 *Identifying your audience*

When planning to present M and E information for feedback to each stakeholder, review the stakeholder's goals for the specific intervention, and outline what information will be important to them. When you provide feedback data to stakeholders:

- Make the message clear for the specific audiences. Ask yourself:
  - What is their background knowledge of the topic?
  - What level of literacy or numeracy is required to understand the information?
  - What language will findings be presented in?
- Agree on the frequency for communicating information.
- Consider location for your meetings with stakeholders. Where will people feel at ease?

Make sure that you aggregate the data at the level of interest so that they are relevant for decision-making. Aggregate data are those that are combined from several measurements. For example, the MOH at the national level may only want data that are aggregated at the district level or higher. But if your organization operates out of multiple sites, staff may be interested in data at the health center level. Also keep in mind that it is not just the timing of feedback of results that will inform decision making, but also the *order* in which you share results; this is particularly true if you are collaborating with the MOH or another public sector partner.

Before you present final data, prepare a draft of your M and E findings to discuss with relevant groups in order to get their input on accuracy, agree on conclusions about what the data mean, and decide on next steps. Incorporate these discussions into your draft as you prepare the final report for broader dissemination. Final findings can then be communicated to the relevant groups for accountability and action.

Remember that stakeholders who benefit from your M and E findings include the community, your staff, government officials, and donors. What stakeholders need to know will depend on how they connect with your work.

Program staff will need to understand the findings and be involved in future planning. Staff will feel invested in M and E only if everyone sees the impact that it has on patient care. M and E findings at this level are often communicated most effectively by oral presentation and discussion. Speaking directly with a target audience will help to provide a quick and flexible way to convey your message. Use different communications media to support your oral delivery; you may wish to create graphs, charts, or maps that show trends or summarize what is happening (see below).

The community in which you work should learn about your key M and E findings so that they can use them to better understand how the program is working, the benefits that it brings the community, and the challenges that remain. Identify the most important information as you would present it to leaders, health committees, or community meetings, and prepare your oral reports in a way that is meaningful to each group.

Government officials may want details of any reports, figures, or findings directly relevant to their own department or program. The MOH may already have reporting channels or protocols that you should follow.

Donors will want to know your findings. Written reports are common for this purpose. Reports for donors might include formal progress reports, special studies, or informal briefs in the form of memorandums that highlight a current issue. In some cases, visiting experts may write a report on evaluations based on information that you provided to them or allowed them to obtain during their visit. Ask for a copy of this report and follow up as needed to be sure you receive it.

8.2 *Choosing the best reporting format*

The format of your reports—whether oral or written—will depend on the audience and what you want them to know or learn. Using this information, identify the goal of your presentation. Is it for information only, that is, just to summarize the facts? Do you want audience input on your results? Is your presentation part of a required reporting process? Do you want the audience (whether discussants or readers) to use the results to improve performance? You should also determine how "public" the presentation will be and what information you are willing to make available for more widespread circulation.

With these audiences and purposes in mind, next highlight important findings and present them in a way that each target group can understand and ask questions. It is always a good idea to keep your presentation simple, limiting what you provide to a necessary minimum, and include a summary of your major findings. Be prepared to discuss obvious questions about your results. For example, are there trends or spikes in the data? If so, what might they mean? If possible, avoid qualifying findings as all "good" or all "bad." People will likely be more receptive to the information if you convey some good news as well as some areas for improvement. Sometimes uncovering an unrecognized "bad" problem that gives you new insight into needed improvements is actually a positive result.

Charts, graphs, and tables are useful if the data are presented clearly, but remember that your audience may include a range of skill levels with regard to reading and understanding these tools. A few simple tips may make quantitative information as accessible as possible:

Figure 19: A facilitator explains slides to nurses participating in Socios En Salud's MDR TB research study in Peru
Photo: Socios En Salud

- If your audience likely contains many individuals with low literacy, make sure that labels on diagrams, charts, or graphs use simple common words and are easy to understand.
- Before you give your presentation, view charts and graphs in black and white to make sure gray-scale gradations tell the story clearly; costs often limit the ability to present data in color.
- Avoid small axis ranges on graphs; too much detail makes it harder to see differences or changes in the data.

- Labels should be large enough for people to understand from the back of the room.
- Explain charts, graphs, and what the numbers mean using simple language.

CONCLUSION

M and E are indispensable components of effective program management. Program managers who are faced with limited resources and local capacity face difficult choices with regard to where they should focus their M and E efforts. As a result, many organizations either do not monitor and evaluate their programs, or limit the use of programmatic data to generate reports to donors or national governments. Yet, M and E need not be thought of as an inflexible regimen that outsiders impose on overworked program staff, but an adaptable and participatory process. By equipping program staff with the knowledge, skills, and confidence to develop an M and E system, you can begin using M and E for decision-making within your organization, to assess and improve the care that patients receive, to share effective practices, and to advocate for unmet needs in the target population.

Unit 12

Resources

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The United States President's Emergency Plan for AIDS Relief. (2009). *Next generation indicators reference guide*. *http://www.pepfar.gov/documents/organization/81097.pdf.*

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World Health Organization, United States President's Emergency Plan for AIDS Relief, & UNAIDS. (2009 revision). *A guide to monitoring and evaluation for collaborative TB/HIV activities*. Geneva: World Health Organization. *http://www.pepfar.gov/implementer_resources/126232.htm*

SELECTED RESOURCES

Building Capacity for M and E

Adams, J. & Dickinson, P. (2010). Evaluation training to build capacity in the community and public health workforce. *American Journal of Evaluation*, *31*(3):421–33. Thousand Oaks, CA: SAGE Publications.

Brown, L. & LaFond, A. (2003). A guide to monitoring and evaluation of capacity-building interventions in the health sector in developing countries. Chapel Hill, NC: MEASURE Evaluation. *http://www.cpc.unc.edu/measure/tools/monitoring-evaluation-systems*
This guide helps the reader understand the core concepts of capacity and capacity building; evaluate the strengths and limitations of current approaches to capacity measurement; and design a capacity-building M and E plan.

Planning for Project M and E

Centers for Disease Control and Prevention. **Program evaluation resources**.
http://www.cdc.gov/healthyyouth/evaluation/resources.htm
This site provides access to tools for program evaluation including the CDC Framework for Evaluation, 22 evaluation briefs, evaluation tutorials, and handbooks and guides.

U.S. Department of Health and Human Services & Centers for Disease Control and Prevention. Office of the Director, Office of Strategy and Innovation. (2005). **Introduction to program evaluation for public health programs: A self-study guide**. Atlanta, GA: Centers for Disease Control and Prevention.
http://www.cdc.gov/eval/evalguide.pdf
The focus of this guide is planning and implementing evaluation activities, including assessing and documenting program implementation, outcomes, efficiency, cost-effectiveness of activities, and taking action based on evaluation results to increase the impact of programs.

Frankel, N. & Gage, A. (2007). **M and E fundamentals: A self-guided minicourse**. Chapel Hill, NC: MEASURE Evaluation.
http://www.cpc.unc.edu/measure/publications/pdf/ms-07-20.pdf
This mini-course covers the basics of program M and E in the context of population, health, and nutrition programs. It also defines common terms and discusses why M and E is essential for good program management. The course is available free online in a pdf download.

International Fund for Agricultural Development. **A guide for project M&E**.
http://www.ifad.org/evaluation/guide/index.htm
This free online guide focuses on how M and E can support project management and engage project stakeholders in understanding project progress, learn from achievements and problems, and agree on how to improve both strategy and operations. The guide is also available in French, Spanish, and Arabic.

Management Sciences for Health. (2010). **Health systems in action: An e-handbook for leaders and managers**. Cambridge, MA: Management Sciences for Health.
http://www.msh.org/resource-center/health-systems-in-action.cfm
Chapter 8, "Managing information: Monitoring and evaluation," explains the role and function of an effective health information system. It describes M and E as key program management functions, explains the difference between the two, and offers considerations for making each function more useful to you for learning and action.

United Nations Population Fund. (2004). **The programme managers planning, monitoring and evaluation toolkit.**
http://www.unfpa.org/monitoring/toolkit.htm
This site includes a glossary of M and E terms, information on stakeholder participation, planning and managing an evaluation (including defining measurement standards, data collection and communicating results), and program indicators. It is available in English, French, Spanish, and Arabic.

Improving Data Quality

Joint United Nations Program on HIV/AIDS. **Country monitoring systems**.
http://www.cris3.org/
The Country Monitoring Systems work on the following M and E data tools: The Country Response Information System (an indicator data collection and analysis tool); the Global Response Database (a database for warehousing and reporting data); and the Indicator Registry (a central repository for management of AIDS indicator metadata).

MEASURE Evaluation
http://www.cpc.unc.edu/measure/tools/monitoring-evaluation-systems
This site provides access to core tools to stimulate data demand and capacity building and enhance evidence-based decision making, as well as methods for assessing M and E plans and systems that collect and report data for program management and reporting.

M and E for Infectious Disease Programs

Family Health International. (2001). **Strategies for an expanded and comprehensive response to a national HIV/AIDS epidemic**. Arlington, VA: Family Health International.
http://www.fhi.org/en/HIVAIDS/pub/guide/ecrhndbk/index.htm
Designed for key stakeholders and program managers, this handbook consists of eight modules; each provides an overview of the module's content, technical information, key implementation questions for planners and managers, country-specific case studies, and additional resources.

Family Health International. (2006). **Evaluating programs for HIV/AIDS prevention and care in developing countries**. Arlington, VA: Family Health International.
Developed for program managers and decision makers of service delivery programs, this handbook discusses evaluating programs related to the sexual transmission of HIV.

The Global Fund to Fight AIDS, Tuberculosis and Malaria. (2009). **Monitoring and evaluation toolkit: HIV/AIDS, tuberculosis and malaria and health systems strengthening**. 3rd ed.
http://rbm.who.int/toolbox/tool_METoolkit.html
The M and E toolkit consists of two parts: Part 1 provides general guidance on M and E systems and the steps needed to strengthen them, and information on Global Fund M and E requirements in the context of performance-based funding. Part 2 includes four independent sections with lists of recommended indicators and indicator descriptions for HIV/AIDS, tuberculosis, malaria, and health systems strengthening.

Global HIV M and E Information

http://www.globalhivmeinfo.org/Pages/HomePage.aspx
This site is designed for M and E specialists supporting HIV/AIDS initiatives in countries, headquarters and regional organizations. It includes resources for surveillance, health information systems, M and E systems management, and capacity building.

Joint United Nations Program on HIV/AIDS (UNAIDS) Monitoring and Evaluation (EVA) Division
http://www.unaids.org/en/dataanalysis/tools/monitoringandevaluationguidanceandtools
The UNAIDS Monitoring and Evaluation (EVA) Division supports countries in strengthening national M and E systems for HIV/AIDS by leading the development and harmonization of tools. This site includes access to publications, tools, and guidance on capacity building for HIV/AIDS M and E.

The United States President's Emergency Plan for AIDS Relief (PEPFAR). (2007). **Monitoring and evaluation system strengthening tool**.
http://www.pepfar.gov/documents/organization/79624.pdf
First signed into Congress in 2004 and reauthorized with renewed funding in 2008, PEPFAR (*http://www.pepfar.gov/*) is a global health initiative that aims to fund and strengthen sustainable health programs worldwide that address HIV/AIDS, tuberculosis, and malaria. This M and E strengthening tool includes three groups of checklists: 1) Assessing the M and E plan, 2) Assessing data management capacities, and 3) Assessing data reporting systems by program areas.

World Health Organization. **Surveillance, monitoring and evaluation**.
http://www.who.int/malaria/surveillance_monitoring/en/
This site offers access to publications and reports related to the M and E actions of WHO's Global Malaria Programme.