Chapter XII

Monitoring and Evaluation

OVERVIEW

The goals of the HIV and AIDS care and treatment plan are to reduce HIV-related mortality, reduce the morbidity of HIV-infected people, and improve the quality of life of the HIV-infected. The success of this operational plan requires the establishment of a monitoring and evaluation (M&E) system at the outset, to monitor implementation and ensure these goals are met. Ongoing monitoring will be critical to inform activities and allow adjustments to implementation. The M&E system will collect data relevant to all resources invested in the programme, services provided by the programme, outcomes related to the programme, and the overall impact of the programme on public health and quality of life.

The national M&E unit will coordinate M&E units in each of the provinces that link with M&E efforts at the district level. Programme staff at each level will manage M&E processes and data, and will be placed nationally, in each of the nine provinces, and in the districts. Data collected by clinicians at service points will be aggregated at the district level, and incorporated into central databases housed at the provincial M&E units. Existing staff will be used to the widest extent possible. As enrolments grow over the course of the programme, additional support will be brought into the system. The overall objective of the M&E system is to provide information to maximize the programme's likelihood of success, and the achievement of the basic goals emphasised throughout this plan.

BACKGROUND AND RATIONALE

The standard public health M&E framework describes a straightforward relationship among factors that lead to the achievement of a programme's goals. Indicators associated with these factors can be measured, and then used to document how successfully goals are accomplished. These factors can be segregated into four levels: Inputs include basic personnel, consumables, equipment, and other infrastructure dedicated to support activities

or services. Outputs comprise those activities and services, and might include patient care, staff trainings, education campaigns, and support services. Changes in behaviour, skills, or health status as a result of the programme's activities and service constitute Outcomes. Over time and from the perspective of a population rather than an individual, the composite effect of outcomes results in major shifts in health patterns. These shifts are identified as Impacts, and in this case might include decreased mortality and morbidity, improved quality of life, or reduced transmission of HIV. Each of these factors can be subjected to monitoring and evaluation that can rapidly inform the future inputs, outputs, outcomes and impacts and lead to enhanced care delivery and programme effectiveness. Existing surveys and other research studies will be utilised as evaluation tools.

The ultimate success of an M&E programme depends on the ability to access and evaluate the above data. In this regard, M&E is dependent on the quality of data collection. The proposed national plan provides a unique opportunity to gather data efficiently, and on an unprecedented scale, and to use the M&E effort to inform the future direction of this programme, and of similar programmes emerging elsewhere.

APPROACH

Reaching the goals of the HIV and AIDS care and treatment programme requires the successful coordination of a diverse array of activities, and their timely, ongoing evaluation. The data relevant to monitor the critical health care indicators will derive from information gathered routinely in the course of care, and, when necessary, by appropriately designed studies. These uncomplicated data can also be used to monitor the large-scale accomplishments, to manage national programme activities, and to guide adjustments to national programme components.

Input and Output Indicators

The national M&E unit will define a core list of indicators, consistent with this operational plan and with the delivery of HIV care. Recommended output indicators for each plan component, representing the national and provincial implementation of services and activities, are listed in Table 12.1.

Table 12.1: Output Indicators for Monitoring and Evaluation

Care and treatment	Percent of functional programmes; health outcomes
Nutrition	Percent of programmes providing nutrition support
Traditional medicine	Number of service points with referral linkages
Strengthening and accreditation of service points	Number of accredited service points
Drug procurement	Level / percent of drug procurement systems in place
Drug distribution	Level / percent of drug distribution systems in place
Laboratory services	Number of accredited labs performing CD4 and viral load testing
Human resources and training	Number of certified health professionals; percent of posts filled
Communications	Percent of communication programmes completed
Community mobilisation	Percent of community mobilisation programmes completed
Patient information systems	Percent of facilities with functional systems
Pharmacovigilance	Number of pharmacovigilance monitoring systems in place
Research priorities	Number of research projects initiated
Programme management	Number of provincial management structures in operation

Input data will not be collected routinely at the national and provincial levels, given the tremendous quantity of information involved. Input data are available at the district level and will be abstracted to address specific evaluation questions.

The results of the programme's activities and services constitute outcomes, and the composite effect of these activities on health patterns constitutes impacts. For example, outcomes might include the change in the number of trained health care professionals who demonstrate improved skills, the change in the number of labs producing higher quality results, or the change in the number of HIV-positive persons in care and treatment. While the potential number of outcomes and impacts that might be evaluated is large, the national M&E effort will focus only on those associated with the delivery of care and its consequences, as listed in Table 12.2.

Monitoring of outcomes and impact

Table 12.2: Outcome and Impact Indicators for Monitoring and Evaluation

Indicators
• Number of people tested • Percent of people testing HIV-positive • Number of HIV-positive people in care and staged • Number of eligible patients receiving ARVs • Number of persons on ARVs with undetectable VL • Time between meeting staging criteria and receipt of ARVs • Mean change in CD4 among persons on ARVs • Rate of opportunistic infections among HIV • Average weight gain of patients on ARVs • Percent of patients on first, second regimen • Number of adverse events* • Prevalence of resistant strains (sentinel study) • Number and duration of inpatient visits • Number of casualty visits • Quality of life and score on Karnofsky Index • Number of AIDS-related deaths

*Note: Numbers collected on these indicators can be used with appropriate denominator data to calculate percentages. *Data will be collected by the Pharmacovigilance Unit and shared with the M&E office.*

At a national level, the composite picture reflecting these health improvements will document the level of achievement of the operational plan's goals. For example, prevalence of OIs, average weight gain, mean change in CD4 counts, quality of life scores, and mortality rates will be used to document realisation of the goals of reduced morbidity, increased quality of life, and decreased mortality. National profiles indicating improved survival and a better life for South Africans will represent the principal impacts of this programme.

Training

It will be essential to ensure that there are adequately trained personnel to manage the M&E function. National and provincial M&E unit members will collaboratively define their specific training and technical assistance needs during the onset of programme implementation. Expert training in establishing M&E systems is readily available. A team from the national M&E unit responsible for maintaining straightforward curricula

will oversee the development of provincial M&E teams. The provincial teams will be responsible for basic skills development for providers and data managers within each district and service point. The national office will conduct annual training for provincial teams; as the programme unfolds, these sessions will focus on updates and issues pertinent to programme success.

The national M&E unit will conduct training for the provincial teams early during implementation. At this time, the framework of the entire project will be reviewed, and issues specific to the M&E effort addressed. Relevant curricula will be introduced for use by the provincial teams when working with district and service point staff, which will be modified based on feedback from initial trainings to reflect local needs. Provincial teams will use these revised materials to begin training sessions at the district and service point level. These sessions for both care providers and other staff will address the principles of monitoring and evaluation and describe the assistance available from provincial and national M&E units.

Data Management

The management of data at national and provincial levels will require establishment of appropriate IT and database capabilities. An extensive use of information technology is projected, and full implementation over time will require considerable resources. The proposed electronic Patient Information System will require time to implement successfully, and this delay may result in initial data collection on paper at the district and health facility levels.

Data Collection Processes

Implementation plan goals and core indicators identified at the national level will guide the M&E activities in the provinces and the districts. Additional indicators might be monitored at the provincial or district level, to address local questions, but only data for national indicators will be submitted to the national M&E unit. Health care indicator data will be abstracted from the Patient Information System, while programme implementation indicators will be obtained from aggregated administrative data summaries.

The majority of primary data will be gathered from service point patient and administrative records. Patient data will be linked on the basis of unique, confidential identifiers, whereas programme information will be summarized into monthly totals. This information will be submitted to the provincial office and consolidated with data from other districts. Provincial M&E units will gather data on implementation activities, including training and other programmes based at the provincial level. These data will be submitted to the national office, where all provincial information will be combined. Other primary data will also be gathered at the national level, tied to the activities conducted within the national venue.

The actual data collection process will evolve in conjunction with the development of the Patient Information System (see Chapter XI, *Patient Information Systems*). Consequently, the initial data collection system will be a combination of paper forms and electronic media, the latter linked to existing patient data systems.

The M&E data system also will become the basis for more concentrated work, providing a foundation for sentinel or other surveillance studies and for formal research. These latter studies will build upon the M&E system and augment inferences obtained from this evolving health care system. Decisions regarding access to these data and to service points will follow the formal procedures outlined by the national SMT and the Health Information, Evaluation and Research Cluster, which coordinates the research agenda (see Chapter XIV, *Research Priorities*). Research findings that impact the M&E systems will be made available and utilised to fine-tune the M&E framework; this will create a productive bi-directional relationship between M&E and research.

SPECIAL CONSIDERATIONS

In conjunction with this M&E programme, one priority sentinel study will need to be introduced at the outset of the implementation plan to function as an early warning system for the emergence of drug resistance. This early warning system will, in turn, provide a measure of the success of the ARV treatment programme. The significant negative consequences associated with drug resistance are profound and require very close monitoring as the care and treatment programme rolls unfolds across the country.

This sentinel study, which represents a link between the research, pharmacovigilance, and M&E programmes, will be situated in a number of sentinel sites, chosen for their potential to rapidly yield resistance information. Two different cohorts are to be monitored in this study. The first group will include individuals who are currently receiving ARV treatment. These persons will be monitored for the emergence of resistance, as indicated by treatment failure. A second group will include persons who are verified as recent infections, through the use of detuned assays to identify new infections. These persons will need to undergo specialized resistance testing to ascertain the presence of, and by inference, the recent transmission of resistant strains.

ADMINISTRATIVE STRUCTURE

The general configuration of the M&E system follows the tiered structure of the national health care system. Overall coordination and support for M&E will rest with the M&E Unit and with the national Department of Health.

Within the M&E system, roles and responsibilities are defined according to the level of the health care system and the programme activities. Overall responsibility rests with the national M&E unit. While the various roles taken by the national office are replicated at each lower level, the scope of responsibilities will differ. The national M&E unit will define the core indicators to be used for national programming. Aggregate M&E data will be collected and managed by this office, and regular reports will be disseminated to, and reviewed with, the provinces and other appropriate agencies of government. This feedback will prove vital to programming, offering guidance for the modification of provincial activities. The national M&E office will create and sustain a training and technical assistance capacity, offering support to provincial and district offices. Partnerships with external entities will be emphasized both to increase capacity for care delivery and research, and to utilise additional expertise for training and technical assistance activities. When appropriate, national dissemination activities will target national and international outlets and journals.

Comparable roles and responsibilities will be situated at the nine provincial M&E units. The scope of these activities will be smaller, although the primary roles will remain the same. Each province will work with district and other local constituencies to define any additional indicators to supplement those developed by the national SMT. Provincial aggregate data will be collected and maintained at this level, and reports will provide feedback to the districts and to the national office. Ongoing dialogue and feedback between the national and district M&E units will ensure the successful implementation of programme and M&E activities. The province will provide training and technical assistance to the districts when requested, although some requests will be better served by national training and technical assistance programmes.

At the district level, M&E responsibilities include support for service point activities and for submission of information to the provincial office. Districts will work closely with service points to support programming and M&E, and to define specific aspects for the local effort. Some districts may choose to add indicators to those defined by the province and by the national office. Districts will manage data for their administrative areas, conducting the first phase of electronic data entry and initial stages of aggregation for the provincial office. Training and technical assistance requests to the district will be screened according to the capacity of the district, and many of these requests are expected to receive support from the provincial and national offices.

In addition to the M&E structure integrating the national programme, provinces, and health districts, the national M&E office will coordinate linkages with PLWHA groups; the private sector; NGOs; bilateral, multilateral and private funders; South African universities and research institutions; and international universities. These additional linkages will serve as a platform to share information, to standardize and coordinate effort, and to provide a framework for more focused research. This part of the M&E system is designed to facilitate partnerships to expand the delivery of care.

Human resource needs for the M&E system target two primary areas: programme management and data management/analysis. Programme management personnel requirements occur throughout the system. Data management requirements are tied to the evaluation of the large data sets. Specific personnel requirements of the M&E programme

include an M&E specialist in the national office. This person will be supported by a data manager, an epidemiologist/statistician, and a behavioural/social scientist. The provincial units will be led by an M&E specialist and supported by an epidemiologist/statistician and a data manager/data entry person. At the district level, a single person will oversee the M&E system. This individual should manage the local M&E effort, manage the data collection process, and act as liaison with the province. Preceding the implementation of the new Patient Information System, the M&E coordination office, with NHISSA representatives, will ensure that appropriate data hardware and software are in place. The district M&E officer will circulate among the service sites to enter information into an electronic format. This procedure will permit the retention of forms at the service sites, and limits the data entry process and need for specialised skills until an electronic system is fully implemented.

Data forms will include only unique patient identifiers, ensuring confidentiality above the district level. One additional staff position is required at the district level, although some exceptions might be made where districts include only a small number of service points. Under these circumstances, an existing district staff worker can initially assume these duties. It is anticipated that this process will evolve as growing enrolments lead to a greater need for dedicated positions.

Personnel requirements at the level of individual service points will be limited. An existing staff person can assume responsibility for the assembly of information for submission to the district office. In the future, this responsibility may demand considerable time and, consequently, the creation of a new position.