A guide to monitoring and evaluation for collaborative TB/HIV activities

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Abbreviations

ART	antiretroviral therapy
CBO	community-based organization
HIV	human immunodeficiency virus
MCH	maternal and child health
NACP	national AIDS control programme
NGO	nongovernmental organization
NTP	national TB programme
PEPFAR	United States President's Emergency Plan for AIDS Relief
PMTCT	prevention of mother-to-child transmission
TB	tuberculosis
UNAIDS	Joint United Nations Programme on HIV/AIDS
WHO	World Health Organization

1. Introduction

People living with the human immunodeficiency virus (HIV) are 29 times (26-31) more likely to develop tuberculosis (TB) disease as people without HIV and living in the same country *(1)*. TB is a leading cause of death among people living with HIV, accounting for one in five HIV-related deaths globally. As a corollary, one in four TB deaths globally were associated with HIV in 2013. The World Health Organization (WHO) has recommended the package of interventions collectively called "collaborative TB/HIV activities" since 2004 (Table 1). There has been significant progress in global implementation of this package, which contributed to an estimated 1.3 million lives saved between 2005 and 2011.

Table 1. WHO recommended collaborative TB/HIV activities

A. Establish and strengthen the mechanisms for delivering integrated TB and HIV services
A.1 Set up and strengthen a coordinating body for collaborative TB/HIV activities functional at all levels
A.2 Determine HIV prevalence among TB patients and TB prevalence among people living with HIV
A.3 Carry out joint TB/HIV planning to integrate the delivery of TB and HIV services
A.4 Monitor and evaluate collaborative TB/HIV activities
B. Reduce the burden of TB in people living with HIV and initiate early antiretroviral therapy (the three I's for TB/HIV)
B.1 Intensify TB case finding and ensure high-quality antituberculosis treatment
B.2 Initiate TB prevention with isoniazid preventive therapy and early antiretroviral therapy
B.3 Ensure control of TB infection in health care facilities and congregate settings
C. Reduce the burden of HIV in patients with presumptive and diagnosed TB
C.1 Provide HIV testing and counselling to patients with presumptive and diagnosed TB
C.2 Provide HIV prevention interventions for patients with presumptive and diagnosed TB
C.3 Provide co-trimoxazole preventive therapy for TB patients living with HIV
C.4 Ensure HIV prevention interventions, treatment and care for TB patients living with HIV
C.5 Provide antiretroviral therapy for TB patients living with HIV

Source: *WHO policy on collaborative TB/HIV activities (1).*

Ongoing monitoring of implementation and scale-up of collaborative TB/HIV activities and evaluation of their impact is critically important. This requires an effective and efficient monitoring and evaluation system. National programmes and other stakeholders need to demonstrate how they are progressing towards their goals and whether they are failing. Effective monitoring and evaluation facilitates establishment of accountability mechanisms between programmes, the population they serve, and donors. *The Guide to monitoring and evaluation for collaborative TB/HIV activities aims to facilitate this process*.

The first version of the *Guide to monitoring and evaluation for collaborative TB/HIV activities* was developed in 2004 and sought to place collaborative TB/HIV activities as an integral part of national and international TB/HIV responses. The guide was revised in 2009. This revision helped to harmonize the approach to and indicators for monitoring and evaluation for collaborative TB/HIV activities across key stakeholders, including the United States

President's Emergency Plan for AIDS Relief (PEPFAR) and the Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund). It also proposed reduction of the overall number of monitoring indicators from 20 to 13.

The current revision of the monitoring and evaluation guide builds on the remarkable progress made in the implementation of collaborative TB/HIV activities globally and the experiences garnered in monitoring and evaluation of these activities. It aims to further strengthen implementation of activities and improve quality of care.

1.1 Key changes in the current revision compared to 2009 version

The last decade, since the launch of the first WHO guide on the monitoring and evaluation of collaborative TB/HIV activities in 2004, witnessed successful implementation and scale-up of collaborative TB/HIV activities globally. Large numbers of countries now achieve particularly high coverage of HIV testing in TB patients, TB screening in people living with HIV and ART in HIV positive TB patients. This revision of the monitoring and evaluation guide aims to consolidate these gains and renew the focus on quality of the data and its utility for the programmatic response.

This revision of the monitoring and evaluation guide broadly categorizes indicators into core global and national, core only for national monitoring and optional indicators for use at national level (Table 4). The number of core indicators required for monitoring global progress has been reduced from 13 to seven. Core indicators recommended for use at national level are drawn from the 2009 guide with the addition of four new indicators; indicators to measure the cascade of intensified TB case finding, access to rapid TB diagnostic tests and early antiretroviral therapy (ART), and compliance with the treatment for latent TB infection. Optional indicators are suggested to measure implementation of activities that are desirable and adopted based on country-specific context and needs. Indicators to measure management of multidrug-resistant TB among people living with HIV, integration of TB, HIV and other services, and community engagement in collaborative TB/HIV activities are included as optional.

Some indicators in the 2009 guide are modified in this version to enhance accuracy and usefulness of reported data. One important change is the denominator for core indicators measuring the proportion of TB patients with documented HIV status, the proportion that are HIV-positive, the proportion that have started ART and mortality during TB treatment (new indicator). While all registered and re-registered TB patients were considered as the denominator for these indicators in the past, it is suggested to include only the incident TB cases (registered new and relapse TB patients) as the denominator for the purpose of global and national reporting in this version. This eliminates the problem of double counting of patients who have already been HIV tested in the past, when they are newly registered as retreatment cases following treatment failure, treatment default or a clinical decision to treat smear/bacteriological negative or extrapulmonary TB cases again. Double counting artificially inflates the true testing coverage levels and contrarily underestimates true burden of HIV among the incident TB cases. This is because HIV negative individuals are more likely survive and return to facilities for re-registration than the HIV positive who often die. This also implicates the estimation of HIV associated TB burden, especially in countries where retreatment rates are high, as these variables provide the input into the model that is used to estimate the burden of HIV associated TB globally and nationally. However national programmes should continue to emphasize HIV testing for all registered and re-registered TB patients.

The national programmes are encouraged to incorporate these changes in the reporting formats and standard operating procedures for reporting at the national, district and basic management unit level.

1.2 Aim of the guide

This guide is developed to assist TB and HIV programme managers and other stakeholders in monitoring and evaluation for collaborative TB/HIV activities. It is intended to facilitate collection of standardized data and to help in interpretation and dissemination of these data for programme improvement at national and subnational level.

It also aims to ensure consistency of data systems across all the agencies and stakeholders involved in HIV, TB and collaborative TB /HIV activities and avoid duplication of efforts by providing a set of internationally accepted and standardized indicators for monitoring and evaluation of programme performance.

Therefore, revision of this guide is harmonized with the revision of PEPFAR TB/HIV indicators (2013), development of the consolidated HIV strategic information guide for the health sector (2014), and the monitoring and evaluation

toolkit of the Global Fund to Fight AIDS, Tuberculosis and Malaria (2014). In addition, it is harmonized with the generic data collection tools recommended by WHO for data collection and reporting for the integration of TB, HIV, and maternal and child health programme interventions at country level, namely the three interlinked patient monitoring systems for HIV care/ART, maternal and child health/prevention of mother-to-child transmission (MCH/PMTCT) (including malaria prevention during pregnancy), and TB/HIV (3ILPMS) *(2)*.

1.3 Target audience

This guide is intended for policy-makers within ministries of health and other institutions, and stakeholders that have an impact on health, including HIV and TB control programme managers at all levels; national, subnational and district TB/HIV coordinators or members of coordinating bodies; and staff of development and technical agencies, nongovernmental organizations (NGOs), and civil society and community-based organizations (CBOs) involved in supporting collaborative TB/HIV activities.

1.4 Categorization of indicators for collaborative TB/HIV activities

The *WHO policy on collaborative TB/HIV activities* clearly outlines the key set of activities essential for addressing the challenge of HIV-associated TB *(1)*. The indicators included in this guide can be used for monitoring and evaluation of implementation of these collaborative activities. They are categorized into the three groups described in the following subsections.

1.4.1 Core indicators for global and national monitoring and reporting

These indicators measure the efforts made by countries towards prevention, early detection and prompt treatment of HIV-associated TB along with its impact on mortality. Systematic measurement and reporting of these indicators provide insights into the global progress in implementation, coverage of services and impact of collaborative TB/HIV activities. This information can be used in the process of global and national strategy development, programme planning, and resource mobilization and allocation. The data elements required for documentation of these indicators should be routinely captured in the national health management information system or the management information system of the national TB programme (NTP) or national AIDS control programme (NACP). They should be periodically reported to national and subnational level and consolidated annually for global- and national-level reporting.

1.4.2 Core indicators for only national-level monitoring and reporting

In addition to the indicators mentioned above, a set of core indicators is required for routine monitoring of implementation of collaborative TB/HIV activities at national level, particularly the quality of care provided. Ongoing monitoring of these indicators is necessary for effective programme management at national, subnational and facility level, as they help in identification of weaknesses in programme implementation and thus facilitate improvement. Data required to measure these indicators should be an integral part of the national health management information system or the management information system of the NTP and NACP, and should be captured systematically on a regular basis.

1.4.3 Optional indicators for use at national level

Optional indicators that facilitate the monitoring of activities that contribute to quality of services, gain efficiencies and avoid duplication of efforts should be used at national and local level depending on the local epidemic situation, maturity of national TB and HIV programmes, and availability of resources.

1.5 Description of indicators

The core indicators for use at global and national level are described in Chapter 3 using the following format:

- definition of the indicator and its numerator and denominator;
- purpose of measuring the indicator;
- rationale or importance of the indicator;

- methodology for data collection;[1]
- periodicity of measurement;
- strengths and limitations in measurement of the particular indicator;
- source of information;
- responsibility for documenting and reporting data required for computation of the indicator.

1.6 Disaggregation by age and sex

Wherever possible, all indicators relating to collaborative TB/HIV activities should be disaggregated by age into adults (aged 15 years and above) and children (aged 0–4 and 5–14 years) and by sex.

1.7 Suggested indicators for health management information system

Many countries are moving towards harmonizing all health indicators through the health management information system. Usually only one or two TB and HIV indicators may be considered for inclusion in the system; the indicators listed in Table 2 are recommended as priority indicators for inclusion. These indicators should be reviewed at national level along with other core indicators. For a detailed description of the indicators in Table 2, refer to Chapter 3.

Table 2. Priority indicators for health management information system

Indicator	Definition	Rationale for choice of indicator
Indicator A.2 Proportion of registered new and relapse TB patients with documented HIV-positive status	Number of registered new and relapse TB patients who are found to be HIV-positive expressed as a percentage of the number registered with documented HIV status during the reporting period	HIV testing offers a gateway for HIV prevention interventions and provision of ART so as to reduce transmission and mortality. Measurement of the proportion of HIV-positive TB patients defines a population group eligible for such specific interventions. It helps in targeting resources, strategic planning and monitoring effectiveness of interventions over time. It may also provide an indication of the burden of HIV among those having TB.
Indicator A.4 Proportion of HIV-positive new and relapse TB patients on ART during TB treatment	Number of HIV-positive new and relapse TB patients who receive ART during TB treatment expressed as a percentage of those registered during the reporting period	Undiagnosed HIV-associated TB is nearly always fatal. Prompt detection and treatment of both HIV and TB are critical. Measurement of this indicator requires that HIV and TB programmes work closely and ensure prompt treatment for both HIV and TB. It facilitates prompt exchange of information for updating records and hence provision of quality care.
Indicator A.5 Proportion of people living with HIV newly enrolled in HIV care started on TB preventive therapy	Number of patients who are started on treatment for latent TB infection expressed as a percentage of the total number newly enrolled in HIV care during the reporting period	Prevention of TB among people living with HIV is a potentially life-saving intervention. Measurement of this indicator will help in strengthening of TB screening and initiation of treatment for latent TB infection among people living with HIV.
Indicator A.6 Mortality among HIV-positive new and relapse TB patients	Number of deaths among documented HIV-positive new and relapse TB patients expressed as a percentage of those registered during the reporting period	Mortality among HIV-positive TB patients is significantly higher than among HIV-negative TB patients. To minimize this risk, close collaboration between the NTP and the NACP is necessary to ensure early diagnosis and prompt treatment of both TB and HIV. This indicator thus measures impact of the collaborative TB/HIV activities.

1 This depends on the monitoring and evaluation system existing in the country, which may be either an electronic medical recording system or a paper-based system. Key TB/HIV data elements should be captured in the national monitoring and evaluation system or in both the NACP and NTP systems, if they are separate.

Alignment of monitoring and evaluation offers a unique opportunity for joint TB and HIV programming which aims to maximize the impact of investments for better health outcomes and also for targeting resources and harmonization of efforts. In this context, the single TB and HIV concept note under the New Funding Model of the Global Fund to Fight AIDS, TB and Malaria offers a unique opportunity to further improve synergies and quality of monitoring and evaluation.

1.8 Confidentiality considerations

Providing optimal care for HIV or TB involves knowing patient-sensitive information. This sensitive information must be treated with utmost confidentiality in accordance with the professional code of conduct. It should be shared only with persons who need to know, usually those providing direct patient care. All registers for TB, TB/HIV, treatment and care of people living with HIV, and other documents containing sensitive information must be securely stored.

Duplicate and unnecessary paper-based work should be discouraged and abolished when it is no longer needed. Computerized databases that contain sensitive information should be protected by coded passwords and encryption. Personal identifiers should be removed as soon as possible in data collection or reporting when they are no longer required for reporting purposes. Particular care should be taken when referrals are made to other services and when information on a patient is transferred from one care facility to another (either manually or electronically). Each programme should develop a policy to ensure confidentiality of patient data.

2. Methodology for monitoring and evaluation for collaborative TB/HIV activities

The monitoring and evaluation system within a programme or project is structured to ensure most efficient use of resources by generating data needed for decision-making. It guides data collection and analysis so as to increase the consistency of data and enable managers to track trends over time. While the monitoring and evaluation system should serve many different constituencies, including programme managers, donors and government planners, it should at the same time bring various interests together into one system and avoid duplication of effort.

The monitoring and evaluation system should include dedicated individuals at the central level who coordinate and build capacity at national and subnational level to carry out monitoring and evaluation, including through use of data management systems. It is recommended that up to 10% of the programme budget should be spent on establishing or strengthening such systems. This is also recommended by the Global Fund and other donors.

The monitoring and evaluation system should be based on a strategy that includes clear goals, targets and guidelines for implementation of activities, and specific indicators to measure progress. It should also include plans for data collection and management, analysis and dissemination, and use of results for programme improvement. Table 3 summarizes key elements of an efficient monitoring and evaluation system; a more detailed generic overview of, and rationale for, monitoring and evaluation is given in Annex 1.The following sections outline the various methods available for monitoring and evaluating collaborative TB/HIV activities.

2.1 Routine monitoring systems

A good disease-specific health programme uses the data collected routinely for patient care to inform programme management. Both TB and HIV control programmes use patient cards as the data source for disease-specific patient registers. These registers are used to monitor patient progress and allow regular programme monitoring. Periodically, usually every three months, the registers are used as a basis for the quarterly summary reports that provide information on patient enrolment and retention during the quarter, and treatment outcomes using the cohort analysis of groups of patients starting treatment during a specified time period. These reports are analysed locally, preferably in conjunction with supportive supervision or quarterly review meetings, and are then sent to national, subnational and district level for further aggregation, analysis, dissemination and programme management.

The registers also contain variables used in measuring collaborative TB/HIV activities. For example, the WHO-recommended HIV care register contains columns for documenting TB status as assessed during the previous visit, status of TB treatment and the start date (month and year) for isoniazid preventive therapy. Similarly, TB registers have columns to record HIV testing status, provision of co-trimoxazole preventive therapy and ART. These variables are routinely included in monthly or quarterly summary reports of both TB and HIV programmes.

It is important for TB and HIV programme staff to ensure that the consolidated monthly or quarterly reports are reconciled at facility level before dissemination to higher levels so as to avoid incomplete reporting or reporting different datasets by the two national programmes. This reconciliation may be done during routine supervisory visits or review meetings. In countries having electronic medical records reconciliation of reported data may be done using unique identification numbers.

Table 3. Checklist of features of an efficient monitoring and evaluation system
Monitoring and evaluation unit
Dedicated personnel overseeing monitoring and evaluation at national level
A budget for monitoring and evaluation (10% of total programme budget)
Formalized link with implementing partners (leading NGOs, CBOs), private sector, donors and research institutions
Data processing (data cleaning, validation, statistical analysis and interpretation) expertise in the monitoring and evaluation unit or an affiliated unit
Data dissemination expertise in the monitoring and evaluation unit or affiliated unit
Local human resource capacity developed and maintained for monitoring and evaluation
Clear goals
Well defined national programme aims, objectives, activities and targets
Regular evaluation of progress in implementing national monitoring and evaluation plans
Guidance for subnational administrative units, including districts, on monitoring and evaluation
Guidelines for linking monitoring and evaluation to the private sector and other sectors
Coordination of national and donor monitoring and evaluation needs
Indicators
A set of priority core monitoring and evaluation indicators for different levels
Indicators that are comparable over time, and between geographical areas
Data collection, management and analysis
A national-level data management plan for collection, processing, cleaning, validating and analysing data, including use of electronic data systems *(3)*
A logical flow of data from service delivery point to national level
A plan to analyse and interpret indicators at different levels of the monitoring and evaluation system
Data dissemination and use of results
A national data dissemination plan with clear guidance on how information can be used for programme improvement at different levels
A well disseminated and informative annual monitoring and evaluation report
Annual meetings to disseminate and discuss the monitoring and evaluation report among policy-makers, planners and programme managers at national and subnational level
A centralized database of all TB and HIV-related data, including ongoing research
Coordination of national and donor monitoring and evaluation dissemination needs

Source: Adapted from *Consolidated HIV strategic information guide for the health sector (4).*

2.2 Supportive supervision

Supportive supervision of health facilities from the central or district level is an essential element of routine monitoring and evaluation. Good supportive supervision includes quality checks for data recording and reporting, including inspection and validation of patient cards and registers for consistency and rechecking data transferred to the reports. Supportive supervision should involve identification and discussion of difficulties faced by staff or misunderstandings in data management and provide an opportunity for learning.

The frequency of supportive supervision depends on resources, but TB control programmes have generally found that, during the year that follows establishment of the system (or major modifications), close monthly supervision and mentoring are needed. Routine supportive supervision should be conducted at least every three months. Supportive supervision may also be used to gather data forms for the central level and to provide drugs and stationery supplies to clinics. Simple tools such as scorecards or certificates of excellence for good reporting and recording may be used to motivate health workers.

At least once a year, a more systematic review of routine monitoring systems may be carried out by the supportive supervision team. This should involve members of both TB and HIV control programmes along with programme managers of allied programmes, such as maternal, neonatal and child health programmes. Activities may include validating cohort report data and conducting their analysis; validating the quarterly report; conducting additional register tallies; and systematic sampling of patient cards to measure the quality of care and to validate core indicators. Finally, TB and HIV district supervisors can reconcile TB and HIV register data to cross-check registration of TB patients into HIV care and of HIV patients into TB treatment. Reconciliation of records and reports is necessary to ensure that there is no discrepancy between data reported by TB and HIV programmes. Both national programmes should work jointly to provide a platform for programme staff and supervisors to share the data routinely and update respective records. Joint monthly or quarterly meetings of NTP and NACP staff may also be utilized for such data exchange and reconciliation.

2.3 Surveillance and surveys

At all levels of an HIV epidemic (low-level, concentrated, generalized), data for provider-initiated HIV testing and counselling of TB patients should be used for surveillance purposes. When this policy is not implemented routinely for all TB patients or has not reached high coverage levels (greater than 80%), these data can be calibrated by periodic (special) or sentinel surveys. Surveys of HIV in TB patients conducted in a nationally representative random sample of new and relapse TB cases are useful to accurately monitor the burden of HIV in TB patients. WHO has produced guidelines for conducting these activities in a standardized manner *(5)*. During drug resistance surveys or surveillance among TB patients, comprehensive information on the HIV status of subjects would also be useful to test for associations between the two conditions *(6)*.

2.4 Country situational analysis

The country situational analysis is an important tool that brings together all the available information on disease epidemiology (including surveillance and survey data) and programme structure, function, output and impact within the context of the overall health system. The analysis identifies programme strengths, weaknesses and gaps, and is often carried out as part of the planning cycle in preparation of a multiyear national strategic plan. It is often a requirement of donor funding applications and should also be carried out to inform external programme reviews. Annex 2 provides guidance on developing a country situation analysis for collaborative TB/HIV activities.

2.5 External programme reviews

An external programme review, usually lasting one to two weeks, is organized at the request of the national programme, often during preparation of a multiyear national strategic plan *(7, 8)*. It usually involves forming a team of international and national experts, local implementation partners, ministry of health staff, civil society and donors. The team meets for one or two days to get orientated with the country situation and agree on a review methodology. The reviewers then travel in subteams to make observations at all levels (national, subnational, district, community, health centre), examine records, and interview key informants, including health staff, clients, other health care providers, and members of voluntary civic and social organizations. All this information is synthesized at national level into a report containing recommendations for the government and stakeholders. A summary of key findings is presented to the ministry of health. TB/HIV activities should form part of both TB and HIV programme reviews, bringing together key staff from both programmes. Reviewers should ensure that findings are shared with and owned by both programmes.

3. Monitoring and evaluation indicators

3.1 Summary of indicators

Table 4 summarizes all the monitoring indicators included in this document. Section A contains seven core indicators for use at the global and national level; section B includes 13 core indicators for use only at the national level; and section C has a set of optional indicators for use at the national level. The overall summary below is followed by a detailed description of each indicator in the format mentioned in Chapter 1.

Table 4. Summary of indicators for monitoring and evaluations of collaborative TB/HIV activities

A. Core global and national indicators
These are essential indicators to monitor and report progress at both global and national level
A.1 Proportion of registered new and relapse TB patients with documented HIV status
A.2 Proportion of registered new and relapse TB patients with documented HIV-positive status
A.3 Proportion of people living with HIV newly enrolled in HIV care with active TB disease
A.4 Proportion of HIV-positive new and relapse TB patients on ART during TB treatment
A.5 Proportion of people living with HIV newly enrolled in HIV care, started on TB preventive therapy
A.6 Mortality among HIV-positive new and relapse TB patients
A.7 Risk of TB among health care workers relative to the general population, adjusted for age and sex
B. Core national indicators
In addition to the core indicators in section A, the following are also core indicators essential for national-level monitoring and reporting. They have been grouped into various categories
Indicators to measure the cascade of intensified TB case finding
B.1 Proportion of people living with HIV who are screened for TB in HIV care or treatment settings
B.2 Proportion of people living with HIV who are TB symptom screen positive out of those who are screened for TB
B.3 Proportion of people living with HIV who are tested for TB out of those who are symptom screen positive
B.4 Proportion of people living with HIV diagnosed with active TB out of those who are tested
B.5 Proportion of people living with HIV who are started on TB treatment out of those diagnosed as having active TB
Indicators to measure access to TB diagnostic test for people living with HIV
B.6 Proportion of people living with HIV having TB symptoms who receive a rapid molecular test as a first test for diagnosis of TB
B.7 Proportion of people living with HIV having TB symptoms who receive a TB culture test as a first test for diagnosis of TB
Indicators to measure access to early ART for HIV-positive TB patients
B.8 Proportion of HIV-positive new and relapse TB patients who are started on ART within 8 weeks of TB diagnosis
B.9 Proportion of HIV-positive new and relapse TB patients having profound immunosuppression (CD4 cell count < 50) who are started on ART within 2 weeks of TB diagnosis

Other indicators

B.10 Proportion of HIV-positive new and relapse TB patients detected and notified out of the estimated number of incident HIV-positive TB cases

B.11 Proportion of HIV-positive new and relapse TB patients who receive co-trimoxazole preventive therapy

B.12 Proportion of health care facilities providing services for people living with HIV that have TB infection control practices

B.13 Proportion of people living with HIV who complete a course of TB preventive therapy

C. Optional indicators

These are additional indicators that could be adopted for national- or local-level monitoring and reporting. They have been grouped into various categories

Indicators for expanded intervention or measurement

C.1 Proportion of presumptive TB patients having documented HIV status

C.2 Proportion of people living with HIV currently in care who are detected as having TB during the reporting period

C.3 Proportion of people living with HIV currently on ART who develop TB disease

C.4 Proportion of people living with HIV in care who ever received a course of TB preventive therapy

Indicators to measure diagnosis and treatment of HIV associated TB in special situations

C.5 Proportion of patients having multidrug-resistant or rifampicin-resistant TB with known HIV status

C.6 Proportion of HIV-positive patients treated for multidrug-resistant or rifampicin-resistant TB who are also on ART

C.7 Proportion of HIV-positive TB patients on protease inhibitor-based ART regimen receiving rifabutin-containing anti-TB treatment

Indicators to measure integration and optimization of services for implementation of collaborative TB/HIV activities

C.8 Proportion of TB basic management units providing HIV testing and counselling services

C.9 Proportion of health facilities providing TB services that also provide ART services

C.10 Proportion of facilities providing TB services that also provide HIV prevention services

C.11 Proportion of HIV care and treatment facilities that also provide TB prevention and care services

C.12 Proportion of maternal and child health care facilities also implementing intensified TB case finding

C.13 Proportion of opioid substitution therapy centres also providing TB and HIV services

C.14 Proportion of prison health centres also providing TB and HIV services

Indicators to measure community engagement

C.15 Proportion of NGOs and CBOs that implement TB/HIV activities

C.16 Percentage of new HIV-positive TB patients registered in the basic management unit referred by community health workers and volunteers

3.2 Core global and national indicators for monitoring and reporting

Indicator A.1
Proportion of registered new and relapse TB patients with documented HIV status

Definition	Number of new and relapse TB patients who had an HIV test result recorded in the TB register expressed as a percentage of the number registered during the reporting period.
Numerator	Number of new and relapse TB patients registered during the reporting period who had an HIV test result recorded in the TB register.
Denominator	Total number of new and relapse TB patients registered in the TB register during the reporting period.
Purpose	To measure the ability of HIV and TB programmes to ensure that the HIV status of TB patients is ascertained. This is also an additional indicator recommended by the United Nations General Assembly Special Session on HIV/AIDS for national AIDS programmes *(9)*.
Rationale	HIV infection rates are higher among TB patients than in the general population. Knowledge of HIV status helps promote safe behaviour, reduce HIV transmission, and improve access to appropriate HIV care and support for TB patients, including early ART. All TB patients with undocumented HIV status should be offered an HIV test, preferably at the time of TB diagnosis and within the same settings where they receive TB care. Alternatively, a well functioning referral system should be in place to ensure counselling, testing and feedback of HIV testing data to the referring TB unit.
Methodology	TB treatment cards and TB registers at the basic management unit should document the HIV status of TB patients *(10)*. The history of previous TB treatment should also be documented systematically to identify new and relapse TB patients.[#] Numerator: Count the total number of new and relapse TB patients added to the TB register of the basic management unit during the reporting period who had their HIV status documented as positive or negative, including those previously documented to be HIV-positive (for example, documented evidence of enrolment in HIV care). HIV-negative TB patients are those who had a negative HIV test result at the time of current TB diagnosis. Denominator: Count the total number of new and relapse TB patients registered in the TB register during the reporting period.
Periodicity	Data should be recorded on a daily basis and reported in the quarterly report on TB case registration in the basic management unit *(10)*. It should also be submitted annually to WHO and the Joint United Nations Programme on HIV/AIDS (UNAIDS).
Strengths and limitations	A high proportion of TB patients with documented HIV status provide a robust estimate of HIV prevalence among TB patients, which can be used for surveillance purposes. Although programmatically it is important that the HIV status of all TB patients including retreatment and re-registered cases is ascertained, this indicator considers only the new and relapse TB patients to avoid double counting. A high indicator value also suggests a high uptake of HIV testing at TB treatment sites or good referral from HIV care sites – both signs that the collaborative TB/HIV activities are working well. But it gives no information on whether patients are aware of their HIV status or have received appropriate pre- or post-test counselling, which are crucial if behaviour change is to be achieved and to reduce HIV transmission. Programmes should therefore ensure a quality-assured approach of provider-initiated counselling and testing as defined by UNAIDS and WHO. A low indicator value suggests low uptake of HIV testing and hence late detection of HIV but it provides no indication of where the problem lies.
Source of information	TB registers at the basic management unit, quarterly report on TB case registration.
Responsibility	NTP.

[#] Cases with undocumented TB treatment history should be counted as new cases

Indicator A.2
Proportion of registered new and relapse TB patients with documented HIV-positive status

Definition	Number of registered new and relapse TB patients who are found to be HIV-positive expressed as a percentage of the number registered with documented HIV status during the reporting period.
Numerator	Total number of new and relapse TB patients registered during the reporting period who are documented as HIV-positive.
Denominator	Total number of new and relapse TB patients registered during the reporting period having a documented HIV status, positive or negative.
Purpose	To assess the prevalence of HIV among registered TB patients.
Rationale	Measurement of the proportion of HIV-positive TB patients defines a population group eligible for specific interventions aimed at reducing the burden of HIV among TB patients, such as co-trimoxazole preventive therapy and ART, and also provides a denominator for measurement of uptake of these interventions. It also helps in targeting of resources, strategic planning and monitoring the effectiveness of HIV prevention interventions over time. Documented HIV status also influences patient care, for example partner testing, referral to support group, and provision of co-trimoxazole preventive therapy and ART.
Methodology	HIV status is documented using the HIV test results. This may include TB patients previously documented to be HIV-positive (documented evidence of enrolment in HIV care), those newly detected positive or those having a negative HIV test result at the time of TB diagnosis. The HIV status of all TB patients should be recorded in TB registers at the basic management unit as soon as possible and preferably at the time of TB diagnosis, along with the information on past history of TB treatment.[#] This information should be accessible only to the staff directly responsible for the health care of the individual. Maintaining confidentiality is their prime responsibility. Numerator: Count the total number of new and relapse TB patients added to the TB register during the reporting period who have their HIV status documented as positive, including those previously documented to be HIV-positive (for example, documented evidence of enrolment in HIV care). Denominator: Count the total number of new and relapse TB patients added to the TB register during the reporting period who have their HIV status documented as positive or negative, including those previously documented to be HIV-positive (for example, documented evidence of enrolment in HIV care). HIV-negative TB patients include those having a negative test result at the time of TB diagnosis.
Periodicity	Data should be recorded on the patient TB treatment card and in the TB register at the basic management unit on a daily basis and reported in the quarterly report on TB case registration. It should also be submitted annually to WHO and UNAIDS.
Strengths and limitations	This indicator measures the proportion HIV-positive among TB patients with documented HIV test results. The indicator may provide a robust estimate of HIV prevalence among TB patients if high proportions of TB patients undergo testing (80% or more). The information is also useful for targeting resources and planning activities. A high indicator value at subnational level relative to the national average suggests higher HIV prevalence among TB patients in that area but this interpretation requires careful consideration of testing coverage. This indicator does not capture the small proportion of retreatment TB patients who test HIV positive between their first treatment and re-registration as relapse or re-treatment cases.
Source of information	TB registers at the basic management unit and quarterly report on TB case registration.
Responsibility	NTP.

[#] Cases with undocumented treatment history should be counted as new cases

Indicator A.3
Proportion of people living with HIV newly enrolled in HIV care with active TB disease

Definition	Total number of people living with HIV having active TB expressed as a percentage of those who are newly enrolled in HIV care (pre-ART or ART) during the reporting period.
Numerator	Total number of persons who have active TB disease during the reporting period out of those newly enrolled in HIV care.
Denominator	Total number of persons newly enrolled in HIV care during the reporting period (pre-ART plus ART).
Purpose	To measures the burden of active TB among people living with HIV who are newly enrolled in HIV care. It also indirectly measures the extent of effort to detect HIV-associated TB early.
Rationale	The primary aim of intensified TB case finding in HIV care settings and provider-initiated HIV testing and counselling in TB patients is early detection of HIV-associated TB and prompt provision of ART and TB treatment. Although intensified TB case finding should be implemented among all people living with HIV at each visit to HIV care and treatment facilities, it is particularly important at the time of enrolment in HIV care and treatment, as the risk of undetected TB is higher among newly enrolled patients than among those already on ART. Also, newly enrolled people living with HIV may be less aware about TB symptoms and the importance of early detection and treatment, and hence may not seek care for general or specific TB symptoms. Intensified TB case finding thus offers an opportunity to educate people living with HIV and detect TB early. All people living with HIV thus detected with TB disease should be started on anti-TB treatment immediately and on ART within 8 weeks if they are not yet on ART.
Methodology	The outcome of TB investigations in presumptive TB cases among people living with HIV should be recorded on HIV care/ART card ("investigations" column in the "encounters" section) and in the pre-ART and ART registers (monthly and quarterly follow-up sections, respectively). *(2)* Similarly, TB patients who are found HIV-positive should be enrolled into HIV care promptly and their TB status recorded on ART card and registers. Numerator: At the end of the reporting period, count the total number of people living with HIV newly enrolled in the HIV care (pre-ART and ART registers) who have active TB disease. . Denominator: Count the total number of people living with HIV newly enrolled in HIV care, that is, enrolled in pre-ART care or starting ART during the reporting period. Double counting of the same individual in both pre-ART and ART registers should be avoided. Also, information on the TB status in the pre-ART and ART registers should be updated and reconciled with the TB registers in relevant basic management units before consolidation and reporting to higher levels.
Periodicity	Data should be recorded on a daily basis and reported to national or subnational level as part of routine quarterly reporting. They should also be submitted annually to WHO and UNAIDS.
Strengths and limitations	Review of the trend of TB among people living with HIV newly enrolled in care over a period of time may provide useful information on TB burden among them and thus the effectiveness of efforts to detect and treat HIV-associated TB early. This indicator may underestimate the actual burden of HIV associated TB as it may exclude patients detected through provider initiated HIV testing and counselling but not enrolled in HIV care or those who have disseminated forms of TB, remain asymptomatic and therefore missed during routine TB screening. Further a high indicator value may mean high TB rates or effective TB screening and HIV testing programmes whereas a low value may be because of poor implementation of TB screening and HIV testing activities or successful TB control efforts. Therefore indicator value needs carefully interpretation.
Source of information	Pre-ART and ART register, TB register at the basic management unit.
Responsibility	In countries having national web-based data systems with individual case records routinely updated by health facilities, the data for this indicator are accessible to all concerned simultaneously. In the absence of such electronic medical records the NACP should ensure documentation and consolidation of this information in coordination with the NTP.

Indicator A.4
Proportion of HIV-positive new and relapse TB patients on ART during TB treatment

Definition	Number of HIV-positive new and relapse TB patients who receive ART during TB treatment expressed as a percentage of those registered during the reporting period.
Numerator	Total number of HIV-positive new and relapse TB patients started on TB treatment during the reporting period who are already on ART or started on ART during TB treatment.
Denominator	Total number of HIV-positive new and relapse TB patients registered during the reporting period.
Purpose	To measure the extent to which HIV-positive TB patients receive ART during TB treatment.[#]
Rationale	HIV-positive TB patients are detected either through intensified TB case finding at HIV care and treatment centres or provider-initiated HIV testing and counselling among TB patients. Prompt TB treatment and early ART are critical for reducing the mortality due to HIV-associated TB and must be the highest-priority activity for both the NACP and NTP. While TB treatment should be started immediately, ART should be started within 8 weeks of TB diagnosis, given that all are eligible for ART irrespective of their CD4 cell count.
Methodology	All HIV-positive new and relapse TB patients detected during the reporting period should be counted for measurement of the proportion receiving ART during TB treatment. Numerator: Count the total number of HIV-positive new and relapse TB patients who were started on TB treatment (as recorded in the TB register) and ART or were already on ART (as recorded in the ART register). Denominator: In countries having national web-based data systems with individual case records routinely updated by health facilities, the total number of HIV-positive new and relapse TB patients detected during the reporting period can be easily computed. But with paper-based systems, the NTP and NACP should refer to both the TB and HIV registers to obtain the complete number of patients detected. This can be done by counting the total number of new and relapse TB patients added to TB register during the reporting period who have their HIV status documented as positive, including patients previously known to be HIV-positive (for example, documented evidence of enrolment in HIV care).[##] Also, the NTP and NACP should ensure that the TB register is updated and all the people living with HIV in pre-ART care or on ART who have a recorded TB diagnosis during the reporting period are also registered. Reconciliation of the information between the TB and ART registers at facility level should be done monthly or quarterly, taking into account the possibility of a time lag in updating TB information in the ART register and ART information in the TB register. Efforts should be made to update such missing data so that both the registers are consistent. At the same time, care should be taken to avoid double counting of the patients across these registers.
Periodicity	Data should be recorded on a daily basis and reported in the quarterly report on TB case registration to the national or subnational level after reconciliation of the data at facility level. It should also be consolidated annually and reported to WHO and UNAIDS.
Strengths and limitations	This indicator measures the extent to which HIV-positive TB patients are provided with ART during TB treatment. TB and HIV programmes should aim to achieve TB treatment and ART in more than 90% of HIV positive TB patients. However, this indicator may miss patients diagnosed towards the end of reporting period whose ART treatment status may not be updated in the TB registers. Also, this indicator does not capture timeliness of ART initiation.
Source of information	TB register at the basic management unit, Pre-ART register and ART register.
Responsibility	In countries having national web-based data systems with individual case records routinely updated by health facilities, data may be accessible to all concerned simultaneously, thus providing complete data. In the absence of an electronic medical recording system the NTP and NACP should jointly ensure complete recording and reporting of the data for this indicator.

[#] Although it is important that ART status of all HIV positive TB patients is assessed, this indicator considers only new and relapse patients to avoid double counting,
[##] Cases with undocumented TB treatment history should be counted as new cases

Indicator A.5
Proportion of people living with HIV newly enrolled in HIV care started on TB preventive therapy

Definition	Number of patients who are started on treatment for latent TB infection expressed as a percentage of the total number newly enrolled in HIV care during the reporting period.
Numerator	Total number of people living with HIV newly enrolled in HIV care who are started on treatment for latent TB infection during the reporting period.
Denominator	Total number of persons newly enrolled in HIV care, that is, registered in the pre-ART or ART register during the reporting period.
Purpose	To measure the extent to which people living with HIV newly registered in HIV care are started on the treatment for latent TB infection.
Rationale	All persons in HIV care should be screened for TB at every visit using a clinical algorithm recommended by WHO. Adults and adolescents living with HIV who do not report any one of the symptoms of current cough, fever, weight loss or night sweats are unlikely to have active TB and should be offered TB preventive therapy, that is, treatment for latent TB infection. Similarly, children who do not have poor weight gain, fever or current cough should be offered this therapy to reduce the risk of developing active TB, both in persons on ART and without ART.
Methodology	TB preventive therapy should be started in all eligible persons and the date of starting should be recorded on HIV care/ART card (encounter section). Those who accept treatment and receive at least the first dose should then be recorded in pre-ART and ART registers (INH start month/year column). Numerator: Count the total number of people living with HIV newly enrolled in HIV care during the reporting period who are started on treatment for latent TB infection, that is, who are given at least one dose of anti-TB drugs (for example isoniazid). Denominator: Count the total number of people living with HIV newly registered in the pre-ART register plus those registered in the ART register during the reporting period. For accurate planning and drug management, more detailed information needs to be collected in addition to the above. A pharmacy-based register may be used to record attendance of the clients and drug collections. Alternatively, the ART facility may maintain a latent TB infection treatment register in parallel with the ART register. Such a record may facilitate understanding of the number of new and continuing patients on latent TB infection treatment as well as the treatment completion rates and adverse events.
Periodicity	Data should be recorded on a daily basis and reported quarterly to the national or subnational level. It should also be consolidated annually and reported to WHO.
Strengths and limitations	This indicator measures the coverage of TB preventive therapy among persons newly enrolled in HIV care. However, it lacks the benchmark for acceptable performance. Scale-up of this intervention will assist development of such a benchmark at national level. Also, unless further data are collected this indicator provides no information on the number of individuals who adhere to or complete the course of treatment.
Source of information	Patient HIV care/ART card, pre-ART register, ART register.
Responsibility	NACP.

Indicator A.6
Mortality among HIV-positive new and relapse TB patients

Definition	Number of deaths among documented HIV-positive new and relapse TB patients expressed as a percentage of those registered during the reporting period.
Numerator	Total number of HIV-positive new and relapse TB patients who died before the start or during the course of TB treatment.
Denominator	Total number of HIV-positive new and relapse TB patients registered during the reporting period.
Purpose	To measure the impact of collaborative TB/HIV activities on mortality due to HIV-associated TB.
Rationale	Mortality among HIV-positive TB patients is significantly higher than among HIV-negative TB patients. The risk of death is higher if HIV-associated TB is detected late or treatment is delayed. To minimize this risk, close collaboration between the NTP and NACP is necessary for provision of optimal clinical care in the form of early diagnosis and prompt treatment of both HIV and TB.
Methodology	HIV-positive TB patients should be recorded in the TB register at the basic management unit where they are diagnosed and started on TB treatment. This register also captures TB treatment outcomes, which are reported and evaluated in the quarterly report on TB treatment outcomes *(10)*, 12 months after the end of the reporting period. Numerator: Count the number of HIV-positive new and relapse TB patients whose TB treatment outcome is recorded as "died" in the TB register, including those who died before they started TB treatment. Patients lost to follow-up may also be added to the numerator if in-country evidence suggests that a large proportion of these patients are lost due to death. Denominator: Count the total number of new and relapse TB patients added to the TB register during the reporting period that ended 12 months previously who have their HIV status documented as positive, including those previously known to be HIV-positive (for example, documented evidence of enrolment in HIV care). Exclude patients transferred in from another TB unit and those found to have rifampicin-resistant TB or multidrug-resistant TB who were started on a full multidrug-resistant TB treatment regimen. However, monitoring of the mortality of all HIV-positive TB patients, including multidrug-resistant TB patients, remains important and countries are encouraged to do so separately.
Periodicity	Data should be recorded on a daily basis and reported quarterly to the national or subnational level in the quarterly report on TB treatment outcomes in the basic management unit and annually to WHO.
Strengths and limitations	This indicator measures the extent of HIV-associated deaths among notified TB patients; however, it will be an underestimate of actual mortality as it covers only the patients registered for TB treatment and tested for HIV. It will not measure deaths among TB patients enrolled in HIV care but not registered in the TB register or those not enrolled in any care. Further the deaths occurring among patients re-registered after relapse or treatment default may also be missed.
Source of information	TB register maintained at the basic management unit.
Responsibility	NTP.

Indicator A.7
Risk of TB among health care workers relative to the general population, adjusted for age and sex

Definition	The relative risk of developing TB disease among health care workers employed in facilities providing care for TB or HIV expressed as a ratio of the TB case notification rate among health care workers to the TB notification rate in the general population during the same period, adjusted for age and sex if appropriate.
Numerator	The TB notification rate among health care workers, that is, the total number of TB patients registered among health care workers per unit number of health care workers in the reporting unit during the reporting period.
Denominator	The TB notification rate in the general adult population, that is, the total number of TB patients registered per unit number of adult population in the reporting unit during the reporting period.
Purpose	To estimate the relative risk of developing TB among health care workers compared to the general population, providing an indirect measure of the impact of TB infection control activities implemented in health care facilities.
Rationale	Health care workers share the background risk of TB in the population. Additionally, due to involvement in patient care, their exposure to infectious TB is higher than for the general population. If TB infection control measures are effectively implemented in health care facilities, exposure can be minimized and the risk of acquiring TB reduced, and the relative risk of TB disease would be close to 1.
Methodology	TB among health workers should be registered in the occupational health programme in the country and the occupational health records should provide information on the number of health care workers detected having TB during the reporting period. Alternatively, and in the absence of occupational health records, information on TB among health care workers may be obtained from the NTP. Health care workers having TB should be registered in TB registers maintained at the basic management unit, and it is desirable to indicate occupation in the register or indicate "health care worker" and workplace in the remarks column of the TB register. The definition of "health care worker" may be country specific, and it needs to be clearly defined and used universally and consistently in order to compare trends over time. It may include only medical and nursing staff or all health care workers, as defined by the country. Numerator: Calculate the notification rate of TB among health care workers by dividing the total number of health care workers reported to have TB by the total number of health care workers in the reporting unit during a chosen period (most commonly one year, given the relatively low numbers of health care workers with TB). Denominator: Calculate the TB notification rate among the adult general population by dividing the total number of adult TB patients registered during the reporting period by the total adult population in the reporting unit during the chosen period. The data used in the numerator and denominator may be adjusted for age and sex for further analysis.
Periodicity	Data should be collected continuously and reported annually to the national and subnational level and also to WHO.
Strengths and limitations	This indicator attempts to measure the adequacy of infection control measures in health care facilities but it should be interpreted carefully, as occupational health records or registration in NTP records by occupation may be lacking. The data may further be lacking if health care workers prefer TB treatment from non-NTP providers. This may underestimate the overall risk of TB among health care workers. On the other hand, the risk may be overestimated if the probability of health care workers accessing TB screening and diagnostic services from the NTP in a country is high.
Source of information	Occupational health records, TB register at the basic management unit.
Responsibility	NTP.

3.3 Core indicators for only national-level monitoring and reporting

No.	Indicator	Numerator	Denominator	Purpose	Rationale, methodology, information source, responsibility	Periodicity
Indicators to measure the cascade of intensified TB case finding						
B.1	Proportion of people living with HIV in care (including PMTCT) who were screened for TB in HIV care and treatment settings	Number of persons enrolled in HIV care whose TB status was assessed and recorded at their last visit during the reporting period	Total number of persons enrolled in HIV care and seen for care during the reporting period	To assess the extent of implementation of the recommendation to screen all people living with HIV in care for presence of TB symptoms at every visit to HIV care and treatment facilities	Rationale: Intensified TB case finding should be implemented at all HIV care and treatment facilities and TB status of people living with HIV should be assessed at every visit during the reporting period. It is also important to monitor implementation of the entire cascade of care, starting from symptom screening to diagnosis and treatment of TB. Methodology: Count the total number of people living with HIV assessed for TB symptoms, investigated for TB, diagnosed with active TB and started on TB treatment in the pre-ART or ART registers by referring to the quarterly/monthly follow-up section and date of starting TB treatment columns respectively. Source of information and responsibility: In settings where electronic medical records with unique patient identifiers exist, these data can be incorporated. However, with paper-based systems, a mechanism for systematic recording and reporting of all events in the cascade should be established, for example through systematic enlisting of persons with presumed TB, and tracking them through the process of TB diagnosis and treatment. This necessitates close coordination between the NACP and NTP but responsibility of reporting lies with the NACP.	The data should be recorded on a daily basis and the consolidated information should be used for programme improvement at facility level. It should be reported to the national and subnational level monthly or quarterly
B.2	Proportion of people living with HIV who are TB symptom screen positive out of those who are screened for TB	Total number of people living with HIV found to have any one of the symptoms suggestive of TB	Total number of people living with HIV who were screened for presence of TB symptoms during their last visit to HIV care or treatment facility	To assess the effectiveness of mechanisms established by the NACP and NTP to ensure that all people living with HIV presenting to HIV care and treatment facilities are screened for TB, undergo investigation if found to have symptoms and receive treatment if found to have TB. These indicators help assess the quality of TB screening and strength of the referral linkages between the NACP and NTP		
B.3	Proportion of people living with HIV who are tested for TB out of those who are symptom screen positive	Total number of people living with HIV who are investigated for TB	Total number of people living with HIV who were TB symptom screen positive during the reporting period			
B.4	Proportion of people living with HIV diagnosed with active TB out of those who are tested	Total number of people living with HIV diagnosed as having active TB	Total number of people living with HIV investigated for presence of active TB during the reporting period			
B.5	Proportion of people living with HIV who are started on TB treatment out of those diagnosed as having active TB	Total number of people living with HIV started on TB treatment and registered in the TB register	Total number of people living with HIV diagnosed to have active TB through intensified TB case finding			

No.	Indicator	Numerator	Denominator	Purpose	Rationale, methodology, information source, responsibility	Periodicity
Indicators to measure access to TB diagnostic test for people living with HIV						
B.6	Proportion of people living with HIV having TB symptoms who receive a rapid molecular test (e.g. Xpert MTB/RIF) as a first test for diagnosis of TB	Total number of people living with HIV having TB symptoms who were investigated using a rapid molecular test (e.g. Xpert MTB/RIF) as a first test	Total number of people living with HIV having TB symptoms identified through intensified case finding at HIV care and treatment facilities during the reporting period	To assess the extent of access to rapid molecular tests as a first test for diagnosis of TB among people living with HIV; alternatively, access to liquid TB culture may be measured	Rationale: Sputum microscopy has low sensitivity for diagnosis of TB among people living with HIV. WHO recommends use of Xpert MTB/RIF as the initial diagnostic test for TB among people living with HIV, as it is more sensitive and specific for diagnosis of pulmonary TB than the conventional sputum microscopy. Therefore people living with HIV having presumed TB should have access to facilities using rapid molecular tests such as Xpert MTB/RIF or liquid culture facilities. Methodology: The NTP should ensure that laboratory recording and reporting tools recommended by WHO are used and information of culture tests among people living with HIV having presumed TB is systematically recorded. *(10)* The NACP and NTP should maintain an inventory of HIV care and treatment centres having access to Xpert or liquid culture facilities. Countries are encouraged to establish a mechanism for consolidation and reporting of this information to national and subnational level regularly. Source of information: Laboratory register for smear microscopy and Xpert MTB/RIF *(10)*. Responsibility: NTP/NACP where Xpert MTB/RIF and culture facilities exist.	Information should be collected quarterly and maintained at national and subnational level to monitor the progress
B.7	Proportion of people living with HIV having TB symptoms who receive a TB culture test as a first test for diagnosis of TB	Total number of people living with HIV having TB symptoms who were investigated using liquid TB culture as a first test				
Indicators to measure access to early ART for HIV-positive TB patients						
B.8	Proportion of HIV-positive new and relapse TB patients who are started on ART within 8 weeks of TB diagnosis	Total number of HIV-positive new and relapse TB patients started on ART within 8 weeks of TB diagnosis	Total number of HIV-positive new and relapse TB patients detected during the reporting period	To assess timeliness of ART initiation after TB diagnosis among HIV-positive persons	Rationale: ART greatly improves survival and quality of life of TB patients living with HIV. While TB treatment should be started immediately, preferably the same day as TB diagnosis, ART should be started within 8 weeks of TB diagnosis. Methodology: The information on date of starting TB treatment and ART should be systematically recorded in the pre-ART and ART registers. It should also be recorded in the TB register at the basic management unit. Numerator: Count the total number of HIV-positive new and relapse TB patients detected during the reporting period who were started on ART within 8 weeks of TB diagnosis. Denominator: Count the total number of HIV-positive new and relapse TB patients detected during the reporting period by referring to the pre-ART register, ART register and TB register at the basic management unit and obtain a complete number of the patients detected, including those not yet enrolled in HIV care or those not yet registered in the TB register. Therefore reconciliation between the ART and TB registers is important. People living with HIV already on ART at the time of TB diagnosis should not be counted. Programmes should aim to achieve ART within 8 weeks in 100% of HIV-positive TB patients. In countries having national web-based data systems with individual case records routinely updated by health facilities, data may be accessible to all concerned simultaneously. In the absence of an electronic medical recording system, the NTP and NACP should take the responsibility to ensure complete recording and reporting of data for this indicator jointly. Source of information: Pre-ART register, ART register and TB register at the basic management unit. Responsibility: NACP and NTP.	Information should be collected quarterly and maintained at national and subnational level to monitor the progress

No.	Indicator	Numerator	Denominator	Purpose	Rationale, methodology, information source, responsibility	Periodicity
Indicators to measure access to TB diagnostic test for people living with HIV						
B.9	Proportion of HIV-positive new and relapse TB patients having profound immunosuppression (CD4 cell count < 50) who are started on ART within 2 weeks of TB diagnosis	Total number of HIV-positive new and relapse TB patients having CD4 counts less than 50 cells per cubic millimetre who are started on ART within 2 weeks of TB diagnosis	Total number of HIV-positive new and relapse TB patients detected during the reporting period having CD4 counts less than 50 cells per cubic millimetre	To assess timeliness of ART initiation after TB diagnosis among HIV-positive persons	Rationale: Initiation of ART within 2 weeks of starting TB treatment is life saving for patients with profound immunosuppression. However, CD4 testing should not be a barrier for early ART. After ART initiation patients should be closely followed up to assess occurrence of side-effects related to co-treatment and immune reconstitution inflammatory syndrome (IRIS), which is common but self-limiting. Methodology and source of information: Same as indicator B.8. Responsibility: NACP and NTP.	Data should be collected on a daily basis and reported to national or subnational level as a part of quarterly reports
Other indicators						
B.10	Proportion of HIV-positive new and relapse TB patients detected and notified out of the estimated number of incident HIV-positive TB cases	Total number of HIV-positive new and relapse TB patients registered during the reporting period	Estimated number of incident TB cases among people living with HIV (with low and high uncertainty bounds)	To assess the efforts for TB case finding among people living with HIV undertaken by the NACP and NTP	Rationale: This indicator helps evaluation of TB case finding efforts, which involves provider-initiated HIV testing and counselling among TB patients, intensified TB case finding at all HIV care and treatment facilities at every patient visit, optimal access to services for key populations such as drug users, sex workers and prisoners, and strong linkages between the NACP and NTP. Methodology: Numerator: Count total number of new and relapse TB patients added to TB register during the reporting period having their HIV status documented as positive, including those previously known to be HIV-positive. Also NTP and NACP should ensure that TB register is updated and all the people living with HIV in pre-ART care or on ART having a recorded TB diagnosis during reporting period are also registered and accounted for. Denominator: Estimated numbers of incident TB cases living with HIV (which is published with uncertainty bounds by WHO for national level using the best available data). It should be applied only at national level and interpreted considering the uncertainty of estimated incidence. Source of information: Numerator: TB register at the basic management unit, Pre-ART and ART registers. Denominator: Recent country-specific annual estimates of number of incident TB cases in people living with HIV (WHO website – www.who.int/tb/country/en). Responsibility: NTP and NACP.	Data for numerator should be collected on a daily basis at the facility level but aggregated annually at national level and reported to WHO using most recent available estimates for denominator

No.	Indicator	Numerator	Denominator	Purpose	Rationale, methodology, information source, responsibility	Periodicity
B.11	Proportion of HIV-positive new and relapse TB patients who receive co-trimoxazole preventive therapy	Number of HIV-positive new and relapse TB patients registered during the reporting period who are started or continued on co-trimoxazole preventive therapy during TB treatment	Total number of HIV-positive new and relapse TB patients registered during the reporting period	To measure the capacity of the NTP and NACP to provide co-trimoxazole preventive therapy to HIV-positive TB patients	Rationale: Co-trimoxazole preventive therapy reduces morbidity and mortality among HIV-positive TB patients. It should be provided immediately to all HIV-positive TB patients irrespective of CD4 count and may be stopped when CD4 counts are higher than 350 or 500 cells per cubic millimetre, depending on national policy. Methodology: Provision of co-trimoxazole preventive therapy should be recorded in the TB register at the basic management unit. Numerator: Count the total number of HIV-positive new and relapse TB patients registered during the reporting period who are started or continued on co-trimoxazole preventive therapy if already receiving in HIV care. Denominator: Count total number of HIV-positive new and relapse TB patients registered during the reporting period. Source of information: TB register at the basic management unit. Responsibility: NTP.	Data should be collected on a daily basis and reported in quarterly report on TB case registration
B.12	Proportion of health care facilities providing services for people living with HIV (including PMTCT) that have TB infection control practices	Number of health care facilities having "demonstrable" TB infection control practices that are consistent with international guidelines	Total number of health care facilities evaluated for TB infection control practices during the reporting period	To assess the extent of implementation of TB infection control practices at HIV and TB care and treatment facilities	Rationale: All health care facilities in general should have a TB infection control policy. While it is critical to implement it in all health facilities in countries having high HIV prevalence, as in sub-Saharan Africa, it should be implemented at least in HIV and TB care facilities in countries having low or concentrated HIV epidemics. Demonstrable minimum TB-infection control measures consistent with international guidelines include: 1. a written infection control plan; 2. a designated person responsible for implementing infection control practices; 3. well ventilated waiting area (e.g. windows and doors open) and clear display of messages on cough hygiene; 4. patients with presumptive TB identified on arrival at the facility and separated from other patients to be fast-tracked through all waiting areas, including consultation, investigations and drug collection; 5. TB symptoms occurring among health care workers are immediately investigated and, if diagnosed with TB, treated, registered and reported. Methodology: NACP and NTP staff should evaluate HIV and TB facilities using the above-mentioned criteria and document the observations pertaining to each component during routine supervisory visits or programme evaluations. Alternatively, the NACP and NTP may undertake an annual facility survey to gather these data. Source of information: Supervisory visit reports or annual survey report. Responsibility: NACP and NTP.	Data should be collected and analysed annually
B.13	Proportion of people living with HIV who complete the course of TB preventive therapy	Total number of persons who completed the course of treatment for latent TB infection during the reporting period	Total number of persons in HIV care who were newly started on treatment for latent TB infection 12 to 15 month earlier	To assess the adherence of people living with HIV during the course of TB preventive therapy	Rationale: Regular and complete treatment of latent TB infection is necessary for protection against development of active TB among people living with HIV. Methodology: The collection of data for this indicator will be facilitated if the country has electronic medical recording systems. Identifying people living with HIV started on the treatment for latent TB infection who completed the course within an acceptable time period is important for computation of this indicator. Countries are encouraged to establish mechanisms to record and report on completion of the course of TB preventive therapy. Source of information: Pre-ART and ART registers or latent TB infection treatment register if available. Responsibility: NACP.	Data should be collected on a daily basis but reported quarterly to national or subnational level

3.4 Optional indicators for national-level monitoring and reporting

No.	Indicator	Numerator	Denominator	Purpose	Rationale, methodology, information source, responsibility	Periodicity
Indicators for expanded intervention or measurement						
C.1	Proportion of presumptive TB patients having documented HIV status	Total number of presumptive TB patients who have a documented HIV test result	Total number of presumptive TB patients who are investigated for TB during the reporting period	To enhance detection of HIV-infected individuals and early detection of HIV-positive TB patients	Rationale: A large proportion of people living with HIV are unaware of their HIV status. HIV testing among presumptive TB cases offers an entry point to the continuum of HIV prevention, care, support and treatment. Methodology: All presumptive TB cases (pulmonary and extrapulmonary) should be offered an HIV test during their visit to health facilities. HIV test results should be documented in the laboratory register for smear microscopy and Xpert MTB/RIF *(10)*, TB suspect register or other register used for this purpose in the country. Numerator: At the end of the reporting period, count the total number of presumptive TB patients who had their HIV status documented as positive or negative, including those previously known to be HIV-positive (for example, documented evidence of enrolment in HIV care). HIV-negative TB patients are those who had a negative HIV test result at the time of current TB investigation. Denominator: Count the total number of presumptive TB cases investigated for TB during the reporting period. Source of information: Laboratory register for smear microscopy and Xpert MTB/RIF, TB suspect register or any other register used for this purpose. Responsibility: NTP.	Data should be recorded on a daily basis and may be reported quarterly
C.2	Proportion of people living with HIV currently in care who are detected as having TB during the reporting period	Total number of HIV-positive TB patients registered during the reporting period	Total number of persons enrolled in HIV care (pre-ART and ART) during the reporting period	To measure the overall burden of TB among the people living with HIV currently in HIV care. While the global indicator A.3 measures burden of TB among people living with HIV who are newly enrolled in HIV care, this indicator measures the overall burden.	Rationale: In well performing programmes review of this indicator over a period of time will indicate the impact of collaborative TB/HIV activities on the disease burden. Methodology: Numerator: Count the total number of HIV-positive TB patients registered during the reporting period in the TB register. Denominator: Count the total number of people living with HIV currently on ART plus those in pre-ART care and seen for care during the reporting period. Source of information: TB register at the basic management unit, pre-ART and ART registers. Responsibility: NTP and NACP.	Data should be collected on a daily basis and may be reported quarterly to national or subnational level
C.3	Proportion of people living with HIV currently on ART who develop TB disease	Total number of people living with HIV currently on ART who develop active TB disease during the reporting period	Total number of people living with HIV enrolled in HIV care who are currently on ART	To measure the burden of active TB among people living with HIV while on ART. It indirectly measures the extent of TB transmission among people living with HIV while they are on ART	Rationale: People living with HIV have a higher baseline risk of acquiring TB than HIV-negative persons. ART reduces this risk significantly, though it remains higher than HIV-negative persons. In high TB and HIV settings this risk increases due to ongoing transmission. Early identification of TB, prompt initiation of ART, TB infection control in health facilities and treatment of latent TB infection can help reduce the risk. A stable or increasing proportion of people living with HIV developing active TB while on ART, over a period of time, points to weak implementation of these interventions. Methodology: The collection of data for this indicator will be facilitated if the country has electronic medical recording systems. Identifying the date of starting ART is important to know whether TB is diagnosed while the patient is on ART. Countries are encouraged to capture this variable in their data systems. Source of information: ART register, TB register at the basic management unit. Responsibility: NACP.	Data should be collected on a daily basis and may be reported quarterly to national or subnational level

No.	Indicator	Numerator	Denominator	Purpose	Rationale, methodology, information source, responsibility	Periodicity
C.4	Proportion of people living with HIV in care who ever received a course of TB preventive therapy	Total number of persons who received at least one complete course of treatment for latent TB infection ever, by the end of the reporting period	Total number of persons currently in HIV care at the end of the reporting period	To assess the overall coverage of TB preventive therapy among people living with HIV in care	Rationale: The NACP should ensure access to TB preventive therapy using potent anti-TB drugs for all eligible people living with HIV in care, including those newly enrolled. A high level of coverage of both ART and TB preventive therapy minimizes the risk of incident TB among people living with HIV and hence reduces mortality. Methodology: The collection of data for this indicator will be facilitated if the country has electronic medical recording systems. Identifying people living with HIV who received at least one complete course of treatment for latent TB infection ever after the enrolment into HIV care is important for computation of this indicator. Countries are encouraged to capture this variable in their data systems. Source of information: Pre-ART and ART register, Latent TB infection register where available. Responsibility: NACP.	Data should be collected on a daily basis and may be reported to national or subnational level as a part of routine reporting
Indicators to measure diagnosis and treatment of HIV associated TB in special situations						
C.5	Proportion of patients having multidrug-resistant or rifampicin-resistant TB with documented HIV status	Total number of multidrug-resistant and rifampicin-resistant TB patients having documented HIV status	Total number of multidrug-resistant and rifampicin-resistant TB patients registered during the reporting period	To assess the extent of provider-initiated HIV testing and counselling among patients with multidrug-resistant or rifampicin-resistant TB	Rationale: HIV-associated multidrug-resistant or rifampicin-resistant TB has very high mortality if undetected. The knowledge of HIV status helps promote safe behaviour and reduce HIV transmission. It also facilitates prompt HIV care and support, including early ART. Methodology: Countries are encouraged to adopt the WHO-recommended second-line TB treatment card and second-line TB treatment register. The details of HIV testing among drug-resistant TB patients should be updated regularly in these records and measured at the end of the reporting period. Source of information: Second-line TB treatment register. Responsibility: NTP.	Data should be collected on a daily basis and may be reported quarterly to national or subnational level
C.6	Proportion of HIV-positive patients treated for multidrug-resistant or rifampicin-resistant TB who are also on ART	Total number of HIV-positive multidrug-resistant and rifampicin-resistant TB patients who are on second-line TB treatment and newly started or already on ART	Total number of HIV-positive multidrug-resistant and rifampicin-resistant TB patients registered during the reporting period	To measure the extent to which HIV-positive multidrug-resistant and rifampicin-resistant TB patients on second-line TB treatment are also on ART	Rationale: Prompt treatment for multidrug-resistant or rifampicin-resistant TB and early ART, both are critical to reduce mortality due to HIV-associated multidrug-resistant or rifampicin-resistant TB. Methodology: Details of multidrug-resistant and rifampicin-resistant TB diagnosis and treatment among people living with HIV should be recorded on the HIV care/ART card and in the pre-ART and ART registers; similarly, information on the ART status of HIV-positive multidrug-resistant and rifampicin-resistant TB patients should be recorded in the second-line TB treatment register. Numerator: Count the total number of HIV-positive multidrug-resistant and rifampicin-resistant TB patients who are started on second-line TB treatment and newly started or already on ART. Denominator: At the end of the reporting period count the total number of HIV-positive drug-resistant TB patients detected after reconciliation of data between the pre-ART, ART and second-line TB treatment registers. Source of information: Second-line TB treatment register, pre-ART and ART registers. Responsibility: NACP and NTP.	

No.	Indicator	Numerator	Denominator	Purpose	Rationale, methodology, information source, responsibility	Periodicity
C.7	Proportion of HIV-positive TB patients on protease inhibitor-based ART regimen receiving rifabutin-containing anti-TB treatment	Number of HIV-positive TB patients on protease inhibitor-based ART who received rifabutin-containing anti-TB treatment regimen	Total number of people living with HIV on protease inhibitor-based ART who are diagnosed as having active TB during the reporting period	To assess the extent of use of rifabutin in HIV-positive TB patients receiving protease inhibitor-based ART regimen	Rationale: Rifamycins in general are potent inducers of cytochrome P450 enzymes, which also metabolize protease inhibitors. When used together, they may render subclinical doses for protease inhibitors and cause drug resistance. But rifabutin is a less potent inducer of cytochrome P450 enzymes than other rifamycins and hence is recommended in place of rifampicin *(11)*. Methodology: To compute this indicator it is necessary to identify people living with HIV on protease inhibitor-based ART and who received rifabutin-containing anti-TB treatment. Countries are encouraged to establish mechanisms to document this information in the ART register or incorporate it in the electronic medical records. Source of information: ART register. Responsibility: NACP.	Data should be collected on a daily basis and may be reported quarterly to national or subnational level. Alternatively, annual surveys of sites providing protease inhibitor-based ART may be undertaken to obtain the data.
Indicators to measure integration and optimization of services for implementation of collaborative TB/HIV activities						
C.8	Proportion of TB basic management units providing HIV testing and counselling services	Number of basic management units that have at least one TB or general health facility providing HIV testing and counselling services in accordance with national guidelines	Total number of TB basic management units existing during the reporting period	To assess the extent of access to HIV testing and counselling services for TB patients	Rationale: While HIV testing and counselling services are widely available in high HIV prevalence settings, they are limited to a few facilities in low and concentrated HIV epidemic settings. Access can be improved if HIV testing and counselling services are integrated into existing TB or general health facilities. Methodology: The data should be collected from each facility during supervisory visits or internal and external programme reviews of TB /HIV services. An inventory of facilities having integrated HIV testing and counselling services should be maintained by the NACP and NTP and used to calculate the numerator for this indicator. Information on number of basic management units should be provided by the NTP. Source of information: List of health or TB facilities with integrated HIV testing and counselling services. Responsibility: NACP and NTP.	Reported quarterly to the national and subnational level. Facility mapping may be undertaken annually, along with a review of progress
C.9	Proportion of health facilities providing TB services that also provide ART services	Number of health facilities providing TB services which also provide ART services (ART initiation and management)	Total number of health facilities providing TB services during the reporting period	To assess the extent of integration of ART services within TB care settings	Rationale: HIV clinical services including ART initiation and management can be provided through stand-alone ART facilities or by integration of the services into general health or TB facilities. The NACP and NTP should promote such integration to enhance access. Integration may fall into one of three categories: facilities where patients receive both HIV and TB services in the same room; facilities where patients receive both HIV and TB services in different rooms but in the same premises; and facilities where patients have to travel to another facility for either HIV or TB services. Methodology: Data should be collected from each facility during the supervisory visits or internal and external programme reviews of TB /HIV services. The NTP and NACP should maintain an inventory of facilities providing both TB and ART services and use the information to calculate the numerator for this indicator. Information on number of health facilities providing TB services should be provided by the NTP. Source of information: List of health or TB facilities with integrated ART services. Responsibility: NACP and NTP.	

No.	Indicator	Numerator	Denominator	Purpose	Rationale, methodology, information source, responsibility	Periodicity
C.10	Proportion of facilities providing TB services that also provide HIV prevention services	Total number of health facilities providing TB services found to be equipped to provide HIV prevention services	Total number of health facilities providing TB services that are evaluated for availability of HIV prevention services	To assess the extent of access of HIV prevention services to TB patients	Rationale: In high TB and HIV burden settings, TB services offer a platform for provision of HIV prevention services to TB patients. These facilities are deemed to be equipped for provision of prevention services if the following services are available (decision based on local HIV epidemic and national guidelines): 1. availability of condom box and promotion of male and female condoms; 2. screening and treatment for sexually transmitted infections; 3. promotion of safe sex practices among high-risk groups; 4. safe needle exchange services for people who inject drugs; 5. facilities for voluntary medical male circumcision. Methodology: The data should be collected from each facility during supervisory visits or internal and external programme reviews of TB /HIV services. The NTP and NACP should maintain an inventory of facilities providing HIV prevention services and use the information to calculate the numerator for this indicator. Source of information: List of TB facilities providing HIV prevention services. Responsibility: NACP and NTP.	Data should be analysed annually to assess the progress
C.11	Proportion of HIV care and treatment facilities (including PMTCT) that also provide TB prevention and care services	Number of HIV care and treatment facilities having at least one member of staff capacitated to provide TB symptom screening, provision of TB preventive therapy and anti-TB treatment	Total number of HIV care or treatment facilities existing during the reporting period	To assess the extent of implementation of TB prevention and care services within HIV care and treatment settings	Rationale: The WHO-recommended three I's (intensified TB case finding, isoniazid preventive therapy and infection control for TB) should be implemented routinely at all HIV care and treatment facilities to minimize burden of TB among people living with HIV. At least one staff member at the health facility should be trained and regularly supervised for implementation of these services. Methodology: The data should be collected from each facility during supervisory visits or internal and external programme reviews of TB /HIV services. The NACP and NTP should maintain a database of available staff at all HIV care and treatment facilities and their training status and use the information to calculate the numerator for this indicator. Source of information: List of staff at HIV care facilities who are trained in the three I's. Responsibility: NACP and NTP.	
C.12	Proportion of maternal and child health care facilities also implementing intensified TB case finding	Total number of maternal and child health care facilities implementing intensified TB case finding	Total number of maternal and child health sites (antenatal care, maternity, postpartum clinics, family planning clinics, well child and sick child clinics) existing during the reporting period	To assess the extent of integration of intensified TB case finding activities within maternal and child health care settings	Rationale: TB in HIV-positive pregnant women is associated with adverse pregnancy outcomes and higher maternal and child mortality. It also increases the risk of mother-to-child transmission of HIV. Provider-initiated HIV testing and counselling and intensified TB case finding should be implemented in maternal and child health settings for early detection of HIV-associated TB. Children, especially those exposed to HIV or TB, should also be systematically screened. Methodology: Countries are encouraged to establish a mechanism for recording and reporting intensified TB case-finding activities at maternal and child health clinics similar to the HIV care and treatment centres. The collection of data for this indicator will be facilitated where electronic medical recording systems are available. Source of information: Antenatal, postnatal and child care register. Responsibility: NTP and maternal, neonatal and child health programme.	Data may be analysed annually

No.	Indicator	Numerator	Denominator	Purpose	Rationale, methodology, information source, responsibility	Periodicity
C.13	Proportion of opioid substitution therapy centres also providing TB and HIV services	Number of centres having at least one member of staff capacitated to undertake intensified TB case finding and treatment and HIV testing and counselling	Total number of opioid substitution therapy centres existing during the reporting period	To assess the extent of integration of intensified TB case finding and HIV testing and counselling services in settings having populations vulnerable for both TB and HIV	Rationale: Prisons are known to have high burden of both TB and HIV. Similarly, injection drug users are more vulnerable to HIV infection and hence TB. The health facilities catering to these populations should be equipped to implement TB/HIV interventions through training of staff, linkages with diagnosis and treatment services, and other measures. The NACP and NTP should include these populations as priority groups for programme implementation. Methodology: Countries are encouraged to establish mechanisms for recording and reporting TB/HIV activities implemented at these facilities. Source of information: Existing health records. Responsibility: NACP and NTP.	Data may be analysed annually
C.14	Proportion of prison health centres also providing TB and HIV services		Total number of prison health centres existing during the reporting period			
Indicators to measure community engagement						
C.15	Proportion of NGOs and CBOs that implement TB/HIV activities	Total number of NGOs and CBOs implementing TB/HIV activities	Total number of NGOs and CBOs with the potential to implement or integrate TB/HIV services into their ongoing work, which existed during the reporting period	To measure the extent of engagement of NACP and NTP with NGOs and CBOs in implementation of TB/HIV activities	Rationale: NGOs and CBOs provide services to communities that have limited access to TB and HIV services. The NACP and NTP should identify such key stakeholders (existing and potential) for community-based TB/HIV activities, and the existing community-based structures best suited to implementation of TB/HIV activities. They should also assess the capacity of existing NGOs and CBOs to use these structures and make systematic efforts to engage with them. Methodology: The NACP and NTP should maintain an inventory of both the NGOs and CBOs involved in the programmes and the potential ones. Countries are encouraged to establish mechanisms to evaluate the extent of engagement with CBOs and NGOs and implementation of the activities at regular intervals to assess progress. Data may be collected during supervisory visits or internal and external programme reviews. Source of information: Tools developed by NGOs and CBOs in consultation with NACP and NTP. Responsibility: NACP and NTP.	Data may be analysed annually
C.16	Percentage of new HIV-positive TB patients registered in the basic management unit referred by community health workers and volunteers	Number of registered new HIV-positive TB patients who were referred by community health workers or volunteers to the health facilities for TB diagnosis or HIV testing	Total number of new HIV-positive TB patients registered in the basic management unit during the reporting period	To measure the contribution of community health workers and volunteers in detection of new HIV-positive TB patients	Rationale: Community health workers and volunteers who are systematically sensitized about TB prevention and care by NGOs and CBOs should refer TB symptom-positive persons for TB investigation and HIV testing to a health facility. Methodology: The referrals from community health workers and volunteers should be systematically recorded at the health facility on TB treatment cards and in the TB suspect register or laboratory register. Similarly, the TB register at the basic management unit should also document “referrals by community health workers and community volunteers” at the time of registration to allow standardized recording of the contribution from the community. Countries are encouraged to establish a reporting system in addition to recording. Source of information: TB suspect register, TB laboratory register, TB register. Responsibility: NTP.	Data may be collected on a daily basis and reported quarterly to national or subnational level along with other reports

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Annex 1. Brief overview of and rationale for monitoring and evaluation

Monitoring and evaluation: what is it and why is it important?

Monitoring and evaluation plays an important role in the management of health programmes, ensuring that the resources going into a programme are being utilized, services are being accessed, activities are occurring in a timely manner, and expected results are being achieved. This management function facilitates the most effective and efficient use of human and financial resources for the achievement of maximum health benefit for the population served – which is especially relevant in areas where resources are limited.

Monitoring is the routine tracking of service and programme performance using input, process and outcome information collected on a regular and ongoing basis from policy guidelines, routine record keeping, regular reporting and surveillance systems, and occasional health facility observations and client surveys. This information is used to assess the extent to which a policy or programme is achieving its intended activity targets on time. In a well designed monitoring and evaluation system, monitoring will contribute greatly to evaluation.

Evaluation is the episodic assessment of results that can be attributed to programme activities; it uses monitoring data and often indicators that are not collected through routine information systems. Evaluation allows the causes of failure to achieve expected results on schedule to be explored and any necessary midcourse corrections to be applied.

Process evaluation assesses progress in programme implementation and coverage.

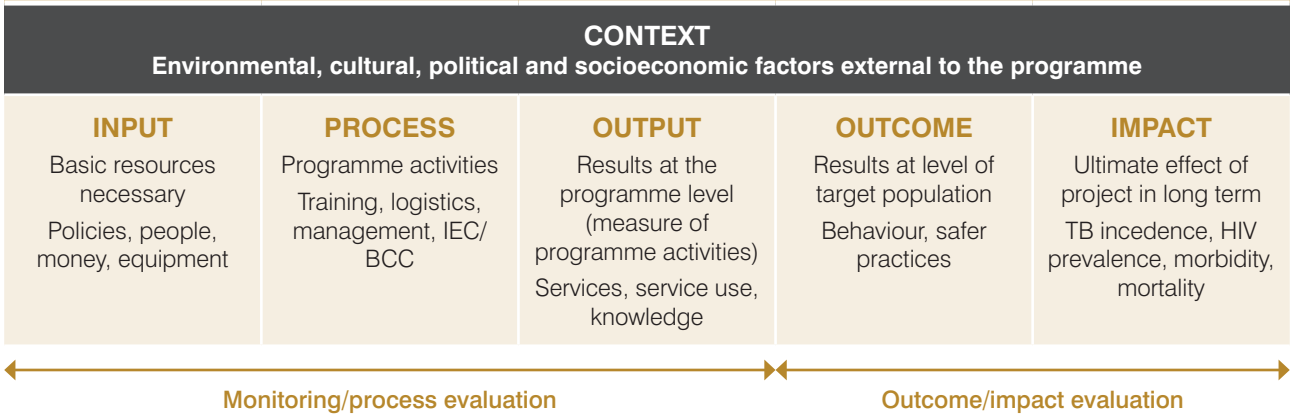
Monitoring and evaluation is generally planned and performed by staff in the TB and HIV programmes or by general health service staff, but in some instances – particularly for a programme evaluation or review – external consultants or experts are brought in to help.

The monitoring and evaluation framework

The elements of monitoring and evaluation described above are brought together into a framework that forms the basis for a complete monitoring and evaluation plan. The framework is a visual concept of how the elements of the programme fit together. The most commonly used framework for the selection of indicators for monitoring and evaluation is the input–process–output–outcome–impact framework illustrated in Figure A1.1.

For a programme or project to achieve its goals, **inputs**, such as money, staff time and policies, must result in **outputs**, such as drug stocks and supply systems, new or improved services, and trained staff. These outputs are often the result of specific **processes**, such as training sessions for staff, which are key activities aimed at achieving the outputs. If these outputs are well designed and reach the populations for which they are intended, the programme or project is likely to have positive short-term effects or **outcomes**, such as an increased number of people living with HIV being screened for TB symptoms or of TB patients being tested for HIV. These positive short-term outcomes should lead to changes in the longer-term **impact** of programmes, reflected in fewer new cases of TB or HIV.

Figure A1.1 Monitoring and evaluation framework



IEC-Information education and communication, BCC-Behavioral change communication

Monitoring and evaluation demonstrate the impact of programme effort and resources on achieving programme goals, providing managers and decision-makers at all levels with the relevant information for action, including policy formulation, priority setting, strategic planning, design and implementation of programmes and projects, and the allocation or reallocation of resources. An abundance of information of varying quality is often available from monitoring and evaluation. Information must be carefully selected for direct relevance to the task at hand and must be analysed and presented in an accessible, comprehensible, consistent and coherent form that is appropriate for each audience, for example policy-makers and the general public. Broad dissemination of appropriate monitoring and evaluation results can foster transparency and accountability and promote a learning culture with dissemination and replication of best practice. This is particularly relevant to a new strategy of which experience is limited.

Steps in developing a monitoring and evaluation plan

The following steps are recommended in developing a monitoring and evaluation plan:

1. identifying goals and objectives of the programme
2. developing a monitoring and evaluation framework
3. defining and selecting relevant indicators
4. identifying sources and methods of data collection
5. developing a monitoring and evaluation implementation plan.

The independent monitoring and evaluation systems that exist for TB and HIV control programmes may not adequately capture the programme effort expended on collaborative TB/HIV activities or may result in duplication of effort, conflicting data collection requirements and difficulties in evaluating the performance of collaborative activities as a whole. Consensus is needed between both programmes on data requirements, indicator definitions and allocation of responsibility to ensure effective monitoring and evaluation of collaborative TB/HIV activities. A core group of simple indicators, including those to trigger actions, is essential for the programmes to work effectively together.

Indicators

An indicator is a variable used to measure progress towards the stated goals, objectives and targets of the programme, allowing managers to assess progress towards benchmarks. It is a specific measure of programme performance that is tracked over time by the monitoring system. The value of an indicator in itself is usually of limited use; however, unexpected values or changes in the indicator value suggest the need for further investigation. Indicators are usually selected and targets set during the process of programme planning. The choice of indicators will also depend on what services are being offered and the capacity of programmes to carry out monitoring and evaluation. Table A1.1 lists standard selection criteria for judging the relevance of specific indicators, along with an explanation for inclusion of each criterion.

Table A1.1 Criteria for indicator selection

Criterion	Explanation
Valid	Indicators should measure the condition or event they are intended to measure
Reliable	Indicators should be objective and produce the same results when used more than once to measure the same condition or event, all things being equal (for example, using the same methods, tools and instruments)
Specific	Indicators should measure only the conditions or events they are intended to measure
Sensitive	Indicators should reflect changes in the state of the conditions or events under observation
Operational	Indicators should be measured with definitions that are developed and tested at the programme level and in accordance with reference standards
Affordable	The costs of measuring the indicators should be reasonable
Feasible	It should be possible to carry out the proposed data collection under normal programme conditions
Measurable	Indicators can be objectively measured
Comparable	Indicators should be comparable over time and across different geographical sites

Source: *Source: Adapted from Development of health programme evaluation : report by the Director-General. Geneva: World Health Organization; 1978 (document A31/10).*

Annex 2. Country profile and situational analysis of collaborative TB/HIV activities

A country profile should provide the context for monitoring and evaluation for collaborative TB/HIV activities. It includes environmental, cultural, political and socioeconomic factors, often captured as a periodic narrative, which may also help to explain changes in indicator values and assist in their interpretation. In addition to these broader factors, other data that are useful for providing context to overall monitoring and evaluation include total population, number of health facilities and burden of TB and HIV disease. These data are likely to be collected routinely, produced in other reports and available from other sources, and therefore no detail on collection methods is given here. Table A2.1 provides an indicative outline for situational analysis in a country.

Table A2.1 Country situational analysis	
Total population of the country	
Number of administrative units (subnational, districts and subdistricts)	
Number of health facilities by level and type	
Number of staff by category and type of health facility	
Antenatal care coverage (at least one visit)	
TB and HIV epidemic scenario	
HIV prevalence (adult men and women, children, key populations, by regions etc.)	
Number of people living with HIV/AIDS	
Total ART coverage	
TB incidence rate	
TB prevalence rate	
TB mortality rate	
Case detection rate of all forms of TB	
Treatment success rate for new and retreatment pulmonary TB	
% multidrug-resistant TB among new and retreatment patients	
Estimated number of multidrug-resistant TB cases among notified TB patients	
Programme settings	
Total number of HIV testing facilities	
Total number of facilities providing ART (and geographical distribution, where available)	
Total number of laboratories providing sputum microscopy	
Total number of facilities providing rapid molecular tests such as Xpert MTB/RIF or rapid culture testing	
Total number of facilities providing maternal, neonatal and child health services, including antenatal care, maternity, family planning, postpartum clinic	
Total number of child health clinics: well child, sick child	
Number of key settings with vulnerable populations for TB and HIV: prisons, opioid substitution therapy centres, etc.	
Providers of HIV or TB care	
Number of TB facilities providing HIV testing services	
Number of TB facilities providing ART	
Number of TB facilities providing HIV prevention services: condom provision, circumcision, etc.	
Number of HIV clinics providing TB prevention and treatment services	
Number of maternal, neonatal and child health clinics implementing intensified TB case finding	

Community systems	
Number of NGO and CBO in place/ engaged in programme implementation at each level of health system	
Community health workers or volunteers	

An initial situational analysis should be performed to collate a baseline record of the activities and services already in place and where there are gaps. This can be used for advocacy, resource mobilization, planning and to ensure that services can be provided on the basis of local needs and capacity. This information may be collated nationally but for planning it should be available down to the level of the basic management unit (district or equivalent). These data should be collected regularly as a component of programme monitoring and evaluation, giving some indication of the progress towards national coverage of services for people with TB or HIV and the impact on the disease burden. Examples of the data that should be collected in a situational analysis to produce a country profile are given below.

Population and services

Total population

Total population at all administrative levels (national, subnational, district and subdistrict), including total adult population (aged 15 years and above) and children (aged 0–4 and 5–14 years), which may be used as denominators for the time period under evaluation.

Administrative units (regions, provinces, districts and subdistricts)

Total number of:

- health regions (or equivalent second-level administrative/operational units) in the country;
- health districts and subdistricts (or equivalent basic administrative/operational units) in the country.

Number of health facilities

The total number of health facilities in the country by category, for example public, private, tertiary hospitals, secondary referral hospitals, district general hospitals, primary health care clinics, health posts, TB diagnostic and treatment centres, HIV counselling and testing centres, and HIV care and support service providers. Health care facilities under other jurisdictions (ministry of justice, military, etc.) should also be included.

Staffing levels at each health facility

For each of the above facilities it is useful to know the number of staff by category and grade. If possible, this should be reported by the number of posts allocated to each facility and the number that are actually filled. In decentralized health care systems the number of staff and the percentage of their time devoted to TB/HIV activities may also be assessed. Similarly, the contribution of community health workers to TB/HIV support activities should be assessed.

Disease-specific information

A clear understanding of the burden of TB and HIV disease in the population is important for planning services and for monitoring the impact of programmes. Where possible, subnational level data with information on key affected populations should also be included.

Burden of HIV

HIV seroprevalence data should be available in most countries. Representative national estimates should be obtained – and should be broken down and reported by the smallest administrative unit possible. In high-prevalence settings, HIV prevalence should be reported for the population as a whole, by age group and by risk group (antenatal clinic attendees, injecting drug users, individuals who attend for voluntary counselling and HIV testing, blood donors, military recruits, prisoners, men who have sex with men, commercial sex workers and other key affected populations). HIV prevalence should be reported in detail in the relevant at-risk populations in countries with focal epidemics, and for all administrative areas within a country with a generalized HIV epidemic (adult HIV seroprevalence > 1%).

Burden of TB

Comprehensive data on the true prevalence or incidence of TB in a given population are seldom available. However, most NTPs will collect detailed information on all reported TB cases that are registered TB cases. WHO also estimates country incidence of TB, which allows analysis of the proportion of existing TB cases that are actually detected and reported (the case detection rate). A number of countries have completed or are planning TB prevalence surveys. Such surveys, although require resources and time, provide very important population-based data and can include HIV prevalence data. WHO has published guidance on conducting prevalence surveys *(1)*. Case detection rates for each country are published in WHO's annual report on global TB control. In many countries, wide confidence intervals are associated with TB estimates, because of the difficulty of assessing prevalence and incidence data in the absence of national surveys. National data on the burden of multidrug-resistant TB and special studies on multidrug-resistant TB among HIV-positive patients should be reported.

ART treatment and care

In any country, ART should be available for all those who have tested positive for HIV and who meet the national criteria for ART eligibility. WHO recommends early ART, that is, at a CD4 count of less than 500 cells per cubic millimetre in adults and adolescents, as it reduces risk of incident TB in people living with HIV. ART is also recommended in all HIV-positive TB patients regardless of CD4 cell count *(2)*.

Generally, TB diagnosis and treatment and HIV testing of TB patients are more decentralized than the provision of ART, though this is also changing as ART services are scaled up, integrated and decentralized. In a country analysis, it is important to capture the degree to which ART service provision is aligned with TB service provision, and to what extent ART services have been decentralized within the country. Mapping the overlap (or absence thereof) of ART and TB services is a useful analytical and planning tool.

TB case management and outcome

Data on TB case management in a country should be available from routine NTP monitoring. They will include information on the number of TB suspects investigated, the number of patients in whom TB has been diagnosed (new or relapse, smear-positive, smear-negative and extrapulmonary), and TB case management details, including case notification rates and treatment outcomes (completed, cured, interrupted, died, transferred, failed). It should also specify the services available for the programmatic management of drug-resistant TB, whether a testing and treatment programme is available for multidrug-resistant TB, and the coverage and success rate of the efforts.

Evaluation of the mechanisms for TB/HIV collaboration

Essential mechanisms for ensuring collaboration in TB /HIV activity at all levels are clearly detailed in the three sections (A, B and C) of the *WHO policy on collaborative TB/HIV activities (3)*. The following paragraphs provide a checklist of review points against the recommendations that will facilitate assessment of status during a country situational analysis.

A. Establish and strengthen the mechanisms for delivering integrated TB and HIV services

A.1 Set up and strengthen a coordinating body for collaborative TB/HIV activities functional at all levels

Review whether the:

1. HIV and TB programmes or their equivalents have created and strengthened a joint national TB/HIV coordinating body, functional at subnational, district, local and facility level, with equal or reasonable representation of the two programmes, including people at risk of or affected by both diseases, and representatives of relevant line ministries (for example, those working on harm reduction and prison or mining health services).
2. The TB/HIV coordination bodies are responsible for governance, planning, coordination and implementation of collaborative TB/HIV activities, along with mobilization of financial resources.

A.2 Determine HIV prevalence among TB patients and TB prevalence among people living with HIV

The WHO recommendations pertaining to this component are mentioned below; the review teams may document the country status with respect to them.

1. Surveillance of HIV among TB patients and of active TB among people living with HIV should be conducted in all countries, irrespective of national adult HIV and TB prevalence rates, to inform programme planning and implementation.
2. Countries with unknown HIV prevalence rates among TB patients should conduct a seroprevalence (periodic or sentinel) survey to assess the situation.
3. In countries with a generalized epidemic, HIV testing and counselling of all patients with presumptive or diagnosed TB should form the basis of surveillance. Where this is not yet in place, periodic surveys or sentinel surveys are suitable alternatives.
4. In countries with a concentrated epidemic, where groups at high risk of HIV infection are localized in certain administrative areas, HIV testing and counselling of all patients with presumptive or diagnosed TB in those administrative areas should form the basis of surveillance. Where this is not yet in place, periodic (special) or sentinel surveys every 2–3 years are suitable alternatives.
5. In countries with a low-level epidemic, periodic (special) or sentinel surveys are recommended every 2–3 years.[2]
6. HIV testing should be an integral part of TB prevalence surveys and anti-TB drug resistance surveillance.

System for monitoring the incidence of TB among people living with HIV: In addition to HIV testing in TB prevalence surveys, the national programmes may also utilize the HIV care and treatment registers that record status of TB treatment. Systematic documentation and analysis of this information aggregated into quarterly cohorts will provide the proportion of people enrolled in HIV care who start treatment of TB. This can be used as a proxy measure for incidence of TB among people living with HIV.

A.3 Carry out joint TB/HIV planning to integrate the delivery of TB and HIV services

Review whether the following items exist in the joint plan:

1. Clear definition of the roles and responsibilities of HIV and TB control programmes in implementing, scaling up, and monitoring and evaluating collaborative TB/HIV activities at all levels of the health system.
2. Clear description of models to deliver client- and family-centred integrated TB and HIV services at facility and community level compatible with national and local contexts.
3. Joint resource mobilization and adequate deployment of qualified human resources to implement and scale up collaborative TB/HIV activities in accordance with country-specific situations.
4. Joint training plan to provide pre-service and in-service training, and continuing competency-based education on collaborative TB/HIV activities for all categories of health care workers. Job descriptions of health workers should be developed or adapted to include collaborative TB/HIV activities.
5. Strategy to ensure sufficient capacity to deliver health care, including adequate laboratories, supplies of medicines, referral capacity, private sector involvement, and focus on key populations such as women, children, people who use drugs and prisoners.
6. Strategies to enhance involvement of nongovernmental and other civil society organizations and individuals affected by or at risk of both diseases *(5)*.
7. Jointly planned TB/HIV advocacy activities to ensure their messages are consistent and targeted at key stakeholders and decision-makers.
8. Joint communication strategies to ensure mainstreaming of HIV components in TB communication and of TB components in HIV communication.
9. Joint plan for operational research on country-specific issues to develop the evidence base for efficient and effective implementation of collaborative TB/HIV activities.

2 Classification according to definitions contained in *Second generation surveillance for HIV (4)*.
Low-level HIV epidemic: HIV prevalence has not consistently exceeded 5% in any defined subpopulation at risk of HIV.
Concentrated epidemic: HIV prevalence consistently > 5% in at least one defined subpopulation but < 1% in pregnant women in urban areas.
Generalized: HIV prevalence consistently > 1% in pregnant women in urban areas.

A.4 Monitor and evaluate collaborative TB/HIV activities

Review whether HIV and TB programmes have established harmonized indicators and standard reporting and recording templates to collect data for monitoring and evaluation for collaborative TB/HIV activities, and whether the evidence thus gathered is used in the annual and medium-term national planning processes.

Comprehensive national TB and HIV policies: Overall, the national TB and HIV policies should reflect the international policy guidance on collaborative TB/HIV activities. Clear policies to support implementation of recommended collaborative TB/HIV activities are necessary. Table A2.2 provides a checklist to assess the adoption of these policies by countries, which may aid further investigation.

Table A2.2 Country TB/HIV policy map

WHO recommended collaborative TB/HIV activities		Has policy been adopted? (yes/no)
A	**Establish and strengthen the mechanisms for delivering integrated TB and HIV services**	
1	A functional coordinating body for collaborative TB/HIV activities at national and subnational level	
2	National HIV prevalence among TB patients: known/unknown	
3	National TB prevalence among people living with HIV: known/unknown	
4	Joint TB/HIV planning to integrate the delivery of TB and HIV services	
5	An integrated national monitoring and evaluation system for collaborative TB/HIV activities that informs annual NTP and NACP planning cycles and their midterm (3–5-year) plans	
B	**Reduce the burden of TB in people living with HIV and initiate early antiretroviral therapy (the three I's for TB/HIV)**	
1	Intensified TB case finding implemented at all HIV care and treatment facilities	
2	Intensified TB case finding implemented at all other HIV care facilities	
3	High-quality TB treatment for HIV-infected TB patients	
4	Early ART for people living with HIV for TB prevention (CD4 < 500/mm3)	
5	TB prevention with isoniazid preventive therapy or other potent regimen	
6	TB prevention through early ART for all HIV-positive patients	
7	TB infection control in health care facilities	
8	TB infection control in congregate settings	
C	**Reduce the burden of HIV in patients with presumptive and diagnosed TB**	
1	HIV testing and counselling for patients with diagnosed TB and drug-resistant TB	
2	HIV testing and counselling for patients with presumptive TB	
3	HIV prevention interventions for patients with presumptive and diagnosed TB through TB facilities	
4	Co-trimoxazole preventive therapy for TB patients living with HIV	
5	ART for TB patients living with HIV irrespective of CD4 count	
D	**Other key policies**	
1	Provision of rapid molecular tests such as Xpert MTB/RIF for diagnosis of TB and drug-resistant TB among HIV-positive patients presumed to have TB	
2	Provision of HIV testing and ART through TB facilities	
3	Provision of TB prevention and TB treatment through HIV facilities	
4	Provision of rifabutin in place of rifampicin to HIV-positive TB patients receiving protease inhibitor-based ART regimen	
5	Intensified TB case finding in maternal and child health settings	
6	Engagement of NGOs and CBOs in implementation of TB/HIV activities	

A.5 Determine the geographical coverage of collaborative TB/HIV activities

It is important to understand what proportion of any given population can access the services they need, for example the proportion of all people living with HIV with access to co-trimoxazole preventive therapy. Coverage can be defined as the percentage of the population needing a particular service that actually has access to that service. Access may depend on many factors, such as proximity of the nearest service point, timing of service availability, cost of the service, and the eligibility criteria that may be established by national guidelines or service providers. In practice, measuring coverage in terms of service utilization is often better, as data on service utilization – the percentage of the population in need that actually uses the service – are easier to obtain. However, this can often be difficult to measure accurately because of difficulties in determining the denominator. A simple proxy for service coverage is service availability, or the proportion of districts in which a given service is available. This gives no indication of whether the service is actually being used or whether access is equitable or the service is of high quality – but it is cheap and easy to quantify. The activities outlined in the following paragraphs are further defined in the *WHO policy on collaborative TB/HIV activities (3)* and are also summarized in table A2.2.

B. Reduce burden of TB in people living with HIV

Total number of districts (or equivalent) where the following activities are being fully implemented (that is, implemented in every public sector health facility throughout a district):

- intensified TB case finding during provider-initiated testing and counselling in clinics or during testing at voluntary counselling and testing sites;
- intensified TB case finding for all people living with HIV at every contact with the health service, whether routine or for treatment;
- a formal referral mechanism between HIV diagnostic and care services and TB diagnostic and treatment services for all people living with HIV who have symptoms of TB where the service provision is not integrated;
- TB preventive therapy for people living with HIV after ruling out active TB disease;
- TB infection control for all people living with HIV in health care and congregate settings (for example hospitals, clinics, prisons, military barracks);
- intensified TB case finding in pregnant women attending antenatal clinics and children;
- intensified TB case finding in other congregate settings such as prisons or facilities frequented by vulnerable populations (for example opioid substitution therapy centres).

C. Reduce the burden of HIV in patients with presumed and diagnosed TB

The total number of districts (or equivalent) in the country where the following activities are being fully implemented:

- routine HIV testing and counselling for all presumptive and active TB patients;
- promotion and provision of HIV prevention (condoms, circumcision and behavioural change education) for TB patients;
- co-trimoxazole preventive therapy for HIV-positive patients during TB treatment;
- Early ART for all HIV-positive TB patients;
- if not available on site, establishment of a referral mechanism to ensure linkage of HIV-positive TB patients to HIV care and support.

Service delivery

Availability of HIV services at TB facilities

The number of TB diagnostic and treatment centres with quality-assured HIV testing and counselling available for TB patients by the following categories, as a proportion of the total number of TB diagnostic and treatment centres or clinics:

- HIV testing and counselling available within the TB clinic or on the same site;
- at least one HIV testing and counselling facility available within the areas of the basic management unit;
- HIV testing and counselling not available to TB patients.

Availability of TB and other services at HIV facilities

The number of HIV testing and counselling centres or HIV care and support centres providing each of the services indicated below, as a proportion of the total number of HIV testing and counselling or HIV care and support centres:

- intensified TB case finding (among all attendees and among HIV-positive individuals);
- access to TB diagnosis using culture or rapid molecular tests using Xpert MTB/RIF;
- provision of TB treatment;
- TB preventive therapy for HIV-positive people, after ruling out active TB;
- screening for sexually transmitted infections (all attendees or only those found to be HIV-positive);
- treatment of sexually transmitted infections;
- prevention of mother-to-child transmission of HIV (PMTCT) services for HIV-positive pregnant women;
- HIV care with registration of all HIV-positive individuals on HIV care registers (pre-ART);
- ART;
- support groups for people living with HIV.

Complete package of collaborative TB/HIV activities

The total number of districts adopting a complete package of collaborative TB/HIV activities, as detailed in the *WHO policy on collaborative TB/HIV activities (3)* and defined in the national TB/HIV policy, as a proportion of the total number of districts (or equivalent). (See table on "WHO-recommended collaborative TB/HIV activities" in WHO policy.)

Survey of TB and HIV stakeholders

A list of providers, stakeholders and partners involved in providing TB or HIV services in each district, including an assessment of the services offered, target population or catchment area, numbers of clients using each service, client profile (age, sex, risk category), and HIV status of clients if documented.[3] This will provide information on who is doing what and where, and allow identification of gaps and underserved populations. The range of potential partners includes:

- other government sectors: ministries of agriculture, employment, education, industry, finance, social development, transport, defence, justice, environment;
- private sector organizations;
- professional organizations;
- civil society organizations, human rights groups, patient groups;
- faith-based organizations;
- implementation agencies;
- NGOs and CBOs;
- academic and other public institutions;
- technical and donor organizations.

3 Guidance on carrying out a survey of stakeholders is given in section 4.1.3 of *Guidelines for implementing collaborative TB and HIV programme activities (6).*

Funding of TB/HIV activities

The total funds available for or allocated to collaborative TB/HIV activities from any source (for example government, loans, grants, the Global Fund) in the most recently completed fiscal year. Assess the total funds budgeted for collaborative TB/HIV activities in the annual plan(s) of the same year, either in the annual TB/HIV workplan or the annual TB and annual HIV workplans. Assess whether the NTP used the WHO budgeting and planning tool[4] to assist with formulation of the latest five-year plan, and obtain a copy of such a plan for the situation analysis.

Assess true expenditure against the allocations. Although this is difficult, it often provides important additional insight into the true funding situation.

References: Annex 2

1. Tuberculosis prevalence surveys: a handbook. Geneva: World Health Organization; 2011 (WHO/HTM/TB/2010.17; http://www.who.int/tb/advisory_bodies/impact_measurement_taskforce/resources_documents/thelimebook/en/).

2. Consolidated guidelines on the use of antiretroviral drugs for treating and preventing HIV infection: recommendations for a public health approach. Geneva: World Health Organization; 2013 (http://www.who.int/hiv/pub/guidelines/arv2013/download/en/).

3. WHO policy on collaborative TB/HIV activities: guidelines for national programmes and other stakeholders. Geneva: World Health Organization; 2012 (http://www.who.int/tb/publications/2012/tb_hiv_policy_9789241503006/en/).

4. Second generation surveillance for HIV. Geneva: World Health Organization and Joint United Nations Programme on HIV/AIDS; 2000 (WHO/CDS/CSR/EDC/2000.5; UNAIDS/00.03E).

5. Engage-TB: integrating community-based tuberculosis activities into the work of nongovernmental and other civil society organizations: implementation manual. Geneva: World Health Organization; 2013 (WHO /HTM/TB/2013.10).

6. Guidelines for implementing collaborative TB and HIV programme activities. Geneva: World Health Organization; 2003 (WHO/CDS/TB/2003.319; WHO/HIV/2003.01).

4 This tool (http://www.who.int/tb/dots/planning_budgeting_tool/en/) is designed to help countries to develop plans and budgets for TB control at national and subnational level within the framework provided by the Global Plan and the Stop TB Strategy. These plans can be used as the basis for resource mobilization from national governments and donor agencies.

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