Regional consultation meeting to support country implementation of the top ten indicators to monitor the End TB Strategy, collaborative TB/HIV activities and programmatic management of latent TB infection

Nairobi, Kenya, 20–22 September 2016

Executive summary

WHO and the Global Fund to Fight AIDS, Tuberculosis and Malaria (the Global Fund) organized a regional consultation to support country use of the top 10 indicators for monitoring implementation of the End TB Strategy,\(^1\) collaborative TB/HIV activities\(^2\) and programmatic management of latent TB infection. The meeting was attended by about 80 participants, including national TB and HIV programme managers, focal points for monitoring and evaluation and representatives of technical partners in 11 countries. The objective was to share experiences, challenges and best practices. The purpose was to identify solutions and countries’ requirements for technical assistance in measuring new indicators for the End TB Strategy, collaborative TB/HIV activities and latent TB infection. The participants discussed issues, bottlenecks and solutions in implementation and suggested the steps to be prioritized. Rationalization of data collection and use and integration of data collection and reporting into existing systems were emphasized. It was noted that the introduction of electronic data systems is at different stages in countries, some of which still rely on paper based systems, presenting a challenge to the collection of data on the top 10 and other new indicators. Therefore, the participants discussed alternative mechanisms for data collection in the interim, such as surveys of patient records. The importance of strengthening vital registration systems to improve data on mortality from TB was stressed. The participants made specific recommendations for national programmes, technical partners and donors to facilitate implementation of the End TB Strategy, collaborative TB/HIV activities and indicators of latent TB infection.

1. Background and organization of the meeting

Participants from 11 African countries attended the meeting to discuss their country’s preparedness to collect data on new indicators: Benin, Ethiopia, Kenya, Malawi, Mozambique, Nigeria, South Africa, Swaziland, Uganda, the United Republic of Tanzania and Zimbabwe. The participants included TB and HIV programme managers and focal points for monitoring and evaluation, district health information system (DHIS) and national health management information systems (HMIS), technical partners (Center for Disease Control and Prevention (USA), KNCV Tuberculosis Foundation, and the UNION) and funding agencies (USAID and the Global Fund). They reviewed the strengths and weaknesses of current national data systems and shared experience in measuring the indicators (Table 1).

The agenda encouraged discussion on both the general issues in use of the top 10 indicators (Table-1) and specific discussions on indicator to measure proportion of TB patients facing catastrophic costs, revised TB/HIV indicators and the indicator for latent TB infection. The meeting began with plenary presentations providing an overview and the context of the End TB Strategy. A brief summary was given of the status of implementation of the new indicators, based on responses to a questionnaire,


Table 1. Top 10 indicators for the End TB Strategy (existing indicators are italicized)

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<td>TB treatment coverage</td>
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<td>TB treatment success rate</td>
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<td>Percentage of TB-affected households that experience catastrophic costs due to TB</td>
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<td>Percentage of New and Relapse TB patients tested using a WHO recommended rapid test (WRD) at the time of diagnosis</td>
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<td>Coverage of treatment for latent TB infection</td>
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<td>Coverage of contact investigation</td>
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<td>Coverage of drug susceptibility testing for TB patients</td>
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<td>Coverage of treatment with new TB drugs</td>
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<td>9</td>
<td>Documentation of HIV status among TB patients</td>
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<td>10</td>
<td>Case fatality ratio</td>
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and the participants presented their perspectives and anticipated challenges to nationwide scaling-up of the new indicators. Seven of 11 countries shared their views on the new indicators and four on existing indicators. Patient record surveys were introduced as an interim solution for deriving information for some of the new indicators. The participants met in breakout groups to discuss challenges and offer solutions. The next session was dedicated to a discussion on the WHO-recommended method for assessing the proportion of TB-affected households facing catastrophic costs. On day 2, the focus shifted to measurement of the revised TB/HIV indicators and the indicators for monitoring latent TB infection. As on the first day, the participants deliberated on challenges to implementation and offered solutions. On the basis of the discussions during the two days, participants worked on “roadmaps” for measuring new indicators, and the draft roadmaps were presented in plenary, with a discussion on requirements for technical support. The technical partners responded and provided indications of the opportunities available.

The following sections summarize the main outcomes and issues emerging from the meeting:

2. General observations

2.1 Routinization and digitalization of data collection and data management

Reliable measurement of progress in reducing the incidence, deaths and catastrophic costs of TB is essential for monitoring the End TB Strategy. High-performance TB surveillance in national health management information systems and vital registration systems are essential for monitoring incidence and mortality, while special surveys are the most appropriate way of measuring catastrophic costs. Adoption of and reporting on the other top 10 indicators is necessary for monitoring progress in implementation of all the components of the strategy at global and national levels. More indicators should be used to monitor specific areas, such as implementation of collaborative TB/HIV activities and programmatic management of latent TB infection. The participants agreed that digitalization is the way to meet the ever-expanding requirement for data, and routinization of data collection is
necessary for programmatic decisions, particularly on new data elements that are either recorded and not reported or not captured at all.

Most participating countries secured funding to strengthen their health information systems from Global Fund grants, and establishment of electronic data systems and adaptation of WHO-recommended definitions and framework for monitoring and evaluation are in different phases. WHO and the Global Fund encourage countries to adopt the district health information system (DHIS-2), which is open-source software that is easily adaptable to country requirements, including capture of case based data. The University of Oslo provides continued technical assistance for country adaptation. Accordingly some countries (e.g. Benin, Nigeria and the United Republic of Tanzania) have integrated or are in the process of integrating TB indicators into DHIS-2 with a specific TB module, while others (such as Kenya and South Africa) have established electronic case-based data systems at district level on other platforms. An important challenge for countries is a lack of reliable, unique identifiers for linking different patient records and data systems (e.g. treatment with laboratory registers, parallel TB and HIV electronic data systems and disease-specific data systems within national health management information systems). In countries that rely on paper based systems, some data elements required for the top 10 indicators (e.g. TB treatment coverage and success) are captured routinely, while others (such as TB contact investigations) are not. New data elements, such as coverage of treatment with new TB drugs and the costs faced by TB-affected households, require establishment of new data collection mechanisms.

**Routine**ization of data capture and use of new indicators thus requires a three-pronged approach: (i) digitalization for efficient adaptation and expansion of recording and reporting tools; (ii) periodic patient record surveys to capture data that are difficult to report quarterly in paper systems; and (iii) establishment of new mechanisms, such as facility-based surveys, to assess the costs faced by TB patients and their families. Capacity-building and supportive supervision of staff for implementation of related programme activities is necessary to ensure systematic recording and reporting and to assure data quality.

### 2.2 Rationalization and integration of indicators and data capture methods

A common concern raised during the meeting was the multiplicity of indicators, competing requirements for disaggregated data from partners and frequent changes in technical guidance. The participants agreed that, as the primary aim of monitoring and evaluation is to improve the quality of patient care, data collection should be rationalized to avoid overburdening health-care workers. Use of multiple registers and parallel reporting systems should be avoided, and data collection frameworks should be revised to remove the requirement for collection of non-essential data. Indicators should be selected according to the country context and standardized. The participants also suggested that the new data requirements be integrated into existing system to avoid duplication. This may necessitate bridging software, to link electronic data systems, or periodic surveys of patient case files or treatment cards in paper systems. Periodic surveys could be integrated into similar activities, such as surveys of the quality of care (e.g. for malaria) or supportive supervision, to minimize resource needs. One suggestion was to stagger the adoption and scaling-up of new indicators in order to avoid disruption of routine surveillance or overburdening staff with several parallel data collection systems and surveys.

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The participants deliberated extensively on which indicators are priorities and incorporated those selected into their country roadmaps. Participants were consistent in demanding that WHO and technical partners provide more detailed, practical guidance on ways to derive new indicators.

2.3 Best practices in countries

Web-based case based data systems were described by participants from Kenya and South Africa, which have established electronic TB registries in sub-districts and at higher levels, although paper registers are used in facilities. Data from sub-districts are aggregated and reported to national health management information systems. These countries plan to streamline electronic data collection at service delivery level.

District Health Information System (DHIS2) is used in Benin and Nigeria to upload aggregated historical data on a common template as part of Global Fund-supported activities for countries in the Western Africa Regional Network. A case-based module data entry module is being prepared for multi-drug-resistant TB (“tracker”) in DHIS2 as an option for countries that wish to register TB surveillance data electronically.

The vital registration system in Kenya is supported by budgets that are included in the health system strengthening component of respective Global Fund grants for TB, HIV and malaria programmes. Some of the funds were used to train health-care workers in certifying deaths according to ICD 10. The national programmes thus provide impetus for enhanced domestic investment and national commitment. South Africa has also established a civil registration system with high coverage.

TB infection control at health care facilities: The ratio of TB case notification among health care workers over TB notifications in the general adult population is a proxy indicator to measure infection control practices. The quality of the data on the number of TB cases among health-care workers is not optimal. Malawi and Swaziland are establishing “wellness centres” for health care workers, to provide psychosocial support, treatment and care. They plan to aggregate data on TB among health care workers from these centres to compute the indicator.

Treatment of latent TB infection and contact investigation are difficult to measure owing to lack of a recording and reporting tool to capture data, particularly the denominator (the number of people eligible for preventive treatment). Nevertheless, Nigeria and Uganda have established mechanisms for collecting these data. In Nigeria, a special register is used to investigate children under 6 years who are household contacts, which allows collection of data on both the numerator and denominator. Nigeria has also introduced a facility register for contact investigation and a reporting tool that will be harmonized with the existing child contact register. In Uganda, the TB register at health units includes a column to record the number of contacts and the number of those who were screened. Initiation and completion of Isoniazid preventive therapy are recorded using health unit IPT register.

3. Main bottlenecks and suggested solutions

3.1 Revision of data tools and digitalization

Countries reported that the expensive and long process of changing monitoring and evaluation tools and introducing new indicators is important bottleneck. Several countries recently adopted the WHO definitions and reporting framework (South Africa, United Republic of Tanzania and Zimbabwe). Another bottleneck is inadequate resources for building and sustaining infrastructure for electronic
data systems. Countries also face operational challenges, such as lack of assured electricity supply, regular access to Internet and lack or frequent turnover of trained staff at peripheral health facilities.

**Suggested solutions:**
- Integrate variables for new indicators into existing efforts for digitalization such as DHIS-2.
- Use resources earmarked in national strategic plans and Global Fund grants to assess gaps in current TB information systems, identify solutions and strengthen health information systems (including by digitalization).
- Progressively introduce appropriate digital health tools considering health system capacity and national programme priorities.

### 3.2 Measurement of new indicators among the top 10

The challenges identified in applying the new indicators include updating national policies and guidelines and revising standard operating procedures and diagnostic algorithms. Some indicators require that new mechanisms be established to capture data, such as the proportion of TB patients and households facing catastrophic costs, TB treatment coverage with new drugs, access to WHO-recommended rapid tests and TB contact investigations. Measurement of catastrophic cost requires baseline surveys at facility level and additional resources, which countries lack in their current national plans or Global Fund grants. Furthermore, the expertise required for planning and implementing surveys, such as statisticians or economists, may not be readily available within ministries of health.

Data for indicators such as access to WHO-recommended rapid tests or TB contact investigation are available at health facilities but are not reported on forms and can therefore not be routinely reported in national health management information systems. Another challenge is the limited number of facilities that can perform the rapid tests (e.g. expansion of Xpert MTB/RIF services), because of funding gaps. To provide data for the indicator on use of new TB drugs, countries will have to update national guidelines, define eligibility and standard operating procedures and establish ways to capture the data. Specific challenges in measuring the coverage of contact investigation include lack of a standard definition of who is “investigated” and lack of a reporting tool, which makes it difficult to collect data on the denominator. Countries often have a separate register for these data, adding to the reporting burden. The indicator of case fatality elicited much discussion, as it is difficult to obtain reliable data on deaths from TB in the weak vital registration systems in most of the countries.

**Suggested solutions:**
- Develop or update national policies and guidelines based on the latest global recommendations to introduce new indicators.
- Transition from paper to electronic data systems, with use of periodic patient record surveys as an interim measure.
- Update electronic data systems to include the new indicators, and link parallel electronic systems with a unique identifier.
- Mobilize funds to strengthen the data systems of national programmes and undertake surveys, such as of catastrophic costs and patient records.

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WHO should continue to provide technical assistance to countries in conducting surveys of catastrophic cost.

3.3 Measurement of existing indicators among the top 10

The data required to monitor existing indicators (Table 1) are routinely captured in country data systems; however, some adjustments should be made for reporting purpose, such as reporting the treatment success rate for cases of both new and drug-resistant TB, which may not be available at the same time. The denominator for the TB treatment coverage indicator which is derived from WHO estimates of incident TB cases is not valid for comparisons at subnational level. The case fatality ratio indicator, which measures the impact of and inequity in access to care, requires high-quality data on cause of death; however, the data in existing national civil or vital registration systems are incomplete and unreliable. Strengthening these systems is beyond the control of ministries of health and involves other line ministries, such as of the interior. Although verbal autopsy is preferred in a few countries, it cannot provide precise estimates of deaths due to TB, as TB is an infrequent cause of death and the instruments used for verbal autopsy are not specific to TB. Strengthening vital registration requires long-term national commitment and continuous funding. Accurate certification of cause of death also requires continuous training and reorientation of relevant staff.

Suggested solutions

- National programmes are encouraged to use funding from Global Fund grants to strengthen vital registration systems and advocate for enhanced investment by the national government.
- National programmes may consider starting vital registration in a sample of districts as an interim measure before a full national vital registration system has been established.

3.4 Measurement of indicators of collaborative TB/HIV activities

Measurement of core global and national indicators has become routine in most participating countries; however, a few countries are unable to report data on new and relapse TB cases or on TB treatment outcome disaggregated by HIV status (e.g. Malawi and Nigeria). Most countries expressed difficulty in obtaining reliable data on TB in health-care workers, which is a proxy indicator of infection control at health facilities. Countries lack occupational health registries, and when they exist, the data are incomplete, not compiled nationwide or of doubtful quality. Participants considered that national programmes could advocate for a workplace policy and strengthen their occupational health programme. Innovations such as establishing “wellness centres” for health-care workers could also be considered. Periodic surveys at such centres would provide data on TB among these workers.

Most countries lack a mechanism for recording and reporting on core national indicators such as the cascade of intensified case finding among people living with HIV, starting from TB symptom screening to diagnosis and treatment. The date of starting antiretroviral therapy, which is necessary to monitor the timeliness of therapy, is also not captured routinely in TB registers. Similarly, monitoring the access to rapid diagnosis (Xpert MTB/Rif) of people living with HIV requires knowledge of their HIV status in laboratory registers; however, this information is not routinely captured. Measurement of the new optional national indicators is more difficult in facilities with paper data systems. Although data for some of the optional indicators are available in facilities, reporting forms do not capture them (e.g. the proportion of patients with presumptive TB and documented HIV status and people living with HIV ever started on isoniazid preventive therapy).
Suggested solutions:

- National programmes should update their reporting forms as per the WHO recommendation to include reporting New and Relapse TB cases.
- Periodic surveys of patient records should be undertaken to monitor recommended national indicators.

3.5 Indicators to monitor programmatic management of latent TB infection

National programmes currently provide preventive TB treatment to children under 5 years who are contacts of TB patients; however, a systematic mechanism to record and report these data is lacking. In some countries, although the data are available in health facilities, they are not captured on reporting forms. Furthermore, existing data systems do not capture TB screening of contacts of TB patients in the community. Most countries have mechanisms to include data on coverage of preventive treatment for people living with HIV, although in some the data are not disaggregated by new enrolment in HIV care. Participants suggested that the denominator be changed to cover all people living with HIV who were started on antiretroviral therapy during the reporting period, in view of the increasing uptake of the test-and-treat strategy. A few countries, such as Malawi, do not have the recording and reporting mechanisms for recording data on both child contacts and people living with HIV. Data on completion of isoniazid preventive therapy are not routinely monitored, and this will require a new mechanism.

Suggested solutions:

- Electronic data systems should be updated to capture data on systematic screening for TB symptoms, start of TB preventive therapy and completion of treatment by child household contacts and people living with HIV.
- In countries relying on paper based systems, recording and reporting forms might be updated and data collected during periodic surveys of patient records as an interim measure.

4. Recommendations for implementation of new indicators by stakeholders

4.1 National programmes

1. Prepare a costed country roadmap for measuring indicators of implementation of the End TB Strategy, collaborative TB/HIV activities and programmatic management of Latent TB infection, clearly identifying gaps in resources and technical assistance. Incorporate the roadmap into national TB and HIV strategic plans, or include it as an addendum if plans were recently finalized.
2. Collaborate with relevant national stakeholders and donors (the Global Fund, USAID-“challenge TB”) to enhance investments and commitment to strengthen the national data system, vital registration and to undertake periodic surveys.
3. Establish infrastructure for electronic data systems by prioritizing national health management information systems to integrate the new indicators.
4. Update national policy guidelines and standard operating procedures for TB and drug-resistant TB in line with global guidance, to introduce and measure the new indicators.

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5. Strengthen collaboration between TB with HIV programmes, and ensure data capture and reporting on national indicators through electronic data systems or patient record surveys.

4.2 Technical partners, including WHO

1. Provide continuous guidance and explanation of the top 10 indicators to monitor implementation of the End TB Strategy (e.g. web-based interactive mechanisms to answers queries as they arise).
2. Provide technical assistance to countries in revising national monitoring and evaluation plans, tools and electronic data systems.
3. Provide technical assistance to countries in conducting patient record surveys and documenting good survey practices to guide other countries.
4. Advocate and prioritize efforts to strengthen the national vital registration system.

4.3 Donors, including the Global Fund

2. Support regional and country initiatives to enhance uptake of the DHIS-2 platform.
3. Support baseline facility based surveys of catastrophic cost and periodic patient record surveys.
4. Support country efforts to strengthen the vital registration system.
5. Support human resource needs to strengthen monitoring and evaluation at national and subnational levels.
<table>
<thead>
<tr>
<th>Country</th>
<th>Strengths of existing National data systems</th>
<th>Key bottlenecks in implementation of the End TB Strategy indicators, TB/HIV and LTBI indicators</th>
<th>Specific actions planned</th>
<th>Technical assistance need</th>
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<tbody>
<tr>
<td>1 Benin</td>
<td>TB specific module developed for DHIS- 2 Recording and reporting forms revised to accommodate NEW indicators</td>
<td>Current diagnostic algorithm do not recommend drug susceptibility testing (DST) for all new TB cases Lack of human and material resources to implement contact investigations Existing tools do not capture data on contact investigations and LTBI treatment coverage Weak vital registration system</td>
<td>Update national guidelines and diagnostic algorithms Strengthen routine surveillance to enable measurement of New indicators Undertake catastrophic cost survey Advocate for enhanced investments to strengthen vital registration</td>
<td>Organise catastrophic costs surveys Undertake mortality surveillance</td>
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<td>2 Ethiopia</td>
<td>TB indicators integrated with national HMIS since 2008 The TB/HIV and community based TB care indicators are routinely captured with existing system</td>
<td>Paper based data system at facility level electronic at Woreda (district) level and beyond Some NEW indicators are not nationally reportable through HMIS although data is available in patient records or facility registers (LTBI treatment in children, contact investigation, DST coverage and Treatment with new TB drugs) Dilemma regards appropriate source of data for monitoring indicator on coverage of treatment with new TB drugs viz. NTP vs administrative reports Current national guidelines do not recommend use of WRD at the time of TB diagnosis Weak vital registration system</td>
<td>Update paper based recording and reporting tools Mobilize resources for patient record surveys to report on End TB, TB/HIV and LTBI indicators Update national guidelines, SOPs and algorithms Explore if existing DSS sites could be used to establish demonstration sites for vital registration and advocate for enhanced funding, expertise and inter-sectoral collaboration to strengthen</td>
<td>Develop protocol for patient record survey Undertake data quality assessment Clinical and programmatic assistance in treatment with new TB drugs Establishment of sample vital demonstration project</td>
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<td>3 Kenya</td>
<td>Electronic case based data system up to the district level. Paper based at facility level</td>
<td>Some NEW indicators are not reportable through HMIS although data is available in facility records and registers. Challenging to revise recording and reporting tools</td>
<td>Revise national M&amp;E plan and incorporate new activities such as catastrophic cost survey along with resource mobilization Update tools and SOPs</td>
<td>Expertise develop software for interoperability of existing electronic data system</td>
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<td>Country</td>
<td>4 Malawi</td>
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<td>due to recent revision</td>
<td>Data system is largely paper-based</td>
<td>Mixed data system- paper based at facility level</td>
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<td>Increased workload for HCWs due to increasing reporting needs</td>
<td>lack of mechanisms to capture data on community based TB activities</td>
<td>Revise national guidelines and update tools for data collection</td>
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<td>lack of uninterrupted internet and electricity</td>
<td>Need for capacity building and strengthening of the central monitoring unit at the NTP</td>
<td>Organize training programme to implement key indicators</td>
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<td>Weak vital registration system involving many different stakeholders. Large resource needs to be mobilized</td>
<td>TB infection control indicator: monitoring TB among HCWs due to stigma</td>
<td>Plan facility based catastrophic cost survey</td>
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<td>Data on TB among HCW available through existing system but incomplete due to stigma</td>
<td>Vital registration system dysfunctional and under control of a different ministry</td>
<td>Establish workplace programs and roll out HCW wellness centres</td>
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<td>Malawi</td>
<td>Integrate or make different electronic data tools inter-operable (e.g. DHIS and LIMS i.e. laboratory information management system)</td>
<td>Revise and print recording and reporting forms</td>
<td>Develop patient record survey protocol for catastrophic cost</td>
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<td>Strengthen vital registration unit through training of CHW and HCW in ICD-10 definitions</td>
<td>Establish programme for capacity building considering high staff turnover</td>
<td>Local TA for implementation of survey</td>
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<td>Set up occupational Health units including care for other diseases and adapt data tools accordingly</td>
<td>strengthen collaboration with relevant stakeholders (national registration bureau, Ministry of Home Affairs and Justice) to improve implementation of vital registration system</td>
<td>Assess capacity gaps and resource needs to strengthen vital registration system</td>
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<td>Rationalize need for disaggregated data in consultation with implementing partners</td>
<td>TA to assess wellness Centres</td>
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<td>Revise and print recording and reporting forms</td>
<td>Establish programme for capacity building considering high staff turnover</td>
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<td>Develop patient record survey protocol for catastrophic cost</td>
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<td>Establish workplace programs and roll out HCW wellness centres</td>
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<td>Develop of survey protocols, implement and analyse survey findings</td>
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<td>Establish programme for capacity building considering high staff turnover</td>
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<td>Establish workplace programs and roll out HCW wellness centres</td>
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<td>monitoring and evaluation including data quality assessment and onsite data validation</td>
<td>and Excel sheet compilation and reporting to higher levels</td>
<td>register</td>
<td>implement and analyse finding</td>
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<td>Current tools do not capture data by new and relapse TB or disaggregated by sex and age, preventive therapy for PLHIV etc.</td>
<td>Promote scale up of electronic reporting tools for TB (E-TB Manager) upto BMU level</td>
<td>Harmonize Electronic medical records</td>
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<td>Cost implications and increased reporting burden due to revision of forms and registers</td>
<td>Develop costed plan to mobilize resources for implementation of new indicators through surveys or harmonization with electronic data systems</td>
<td>Develop demonstration models for vital registration system</td>
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<td>Weak vital registration system and incomplete data capture</td>
<td>Establish programme for capacity building</td>
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<td>lack of earmarked funding for periodic record surveys</td>
<td>Liaise with National Population Commission and Department of Planning, Research and Statistics, FMoH to strengthen vital registration system</td>
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<td>7</td>
<td>Swaziland</td>
<td>Paper-based data system but electronic DR-TB database developed and roll out of electronic system (CMIS) ongoing</td>
<td>Approval of revised data tools from HIS coordination committee due to recent revisions</td>
<td>Integrate new data elements into electronic data system along with disaggregation by PLHIV newly enrolled in care in the electronic ART data system</td>
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<td>Recording and reporting tools revised as per WHO definitions and reporting framework</td>
<td>lack of unique identifiers and hence difficult to link electronic patient care and laboratory data</td>
<td>Undertake orientation programme to disseminate revised tools</td>
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<td>Data quality assured through quarterly and annual national, regional data review meetings</td>
<td>limited financial and technical capacity to undertake catastrophic cost surveys</td>
<td>Mobilize financial resources for catastrophic cost surveys and advocate for strengthening VR system and for linking electronic system with ministries of home affairs and ICT</td>
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<td>Lack of clarity coding of TB deaths in vital registration system, hence incomplete data.</td>
<td>TA from WHO to assess incident TB</td>
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| 8  | South Africa | Electronic Tuberculosis Registry (ETR) available at the sub-district and higher levels while paper-based registers are used at facility level | Difficult to measure TB treatment coverage at national level in the absence of reliable denominator | Technical assistance to support catastrophic cost survey |
|   |   | Data at sub-district-level exported to DHIS to become part of national HIS | Combine outcome for different cohorts of drug sensitive and DR-TB | TA for record survey planning and implementation |
|   |   |   | Large number of indicators and increased workload affecting quality of data | Develop interventions for households experiencing catastrophic cost by linkage to social security network |   |
|   |   |   |   | Determine estimated number of incident TB cases using historical data |   |
| 9 | **UR Tanzania** | Started process to establish case-based electronic data system | Data on contact investigation coverage not available due to a lack of tool  
LTBI treatment completion in under five contacts  
Use of new TB drugs: data not routinely available and difficult to report due to concurrent use of different regimen  
Data on PLHIV newly enrolled in HIV care with active TB not collected routinely although captured in TB register  
Risk of TB among HCW: Lack of funding to establish occupational health services  
Paper-based tools are used at the facility level  
Lack of tool to capture data on coverage of contact investigation and LTBI treatment in child contacts  
Data for cascade of intensive case finding and PLHIV newly enrolled care not extracted with current system  
LTBI treatment coverage for child contacts and PLHIV and contact investigations data is not captured with existing system. Anticipated increase workload for staff and CHW and lack of | conduct surveys to collect indicators not currently captured (e.g. contact investigation)  
Conduct catastrophic cost surveys  
Use of New TB drugs: Revise guideline to include BDQ and DEL, develop a case based patient management system, eligibility criteria and treatment options, develop pharmacovigilance system, explore establishment of resistant testing for new Drugs  
Undertake record survey to assess indicators including others such as PLHIV newly enrolled in care with TB  
Develop occupational health policy, disseminate, establishment of OH sites, implement surveillance system  
Undertake survey to assess proportion of U5 contacts completing TB preventive therapy pending changes in the data system in 2019.  
Fast track implementation of case-based electronic recording and reporting system  
Complete review of recording tool to capture LTBI treatment coverage and disseminate  
Organise audience with Key HIV Program partners and stakeholders to incorporate/strengthen the TBHIV collaborative indicators in the HIV records and reporting system  
Establish case based data system and financial support for scaling up  
TA to establish Laboratory electronic system–linked / integrated with facility based ERR  
Financial support for review and finalization |
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|  |resources for sustainability  
Low access to DST at diagnosis  
Weak vital registration system, difficult to extract reliable data  
Resource needs for catastrophic cost surveys| LTBI treatment coverage and contact investigation-organize consultation with partners for implementation support  
DST- modify reporting in DHIS2, fast track completion of ERR and link G-alert with the ERR/DHIS2  
Advocate with WHO ,the Global Fund to support and advocate for strengthening VR system| of M&E tools, printing and Dissemination  
Advocacy and implementation of vital registration system  
Financial support and assistance in protocol development and implementation of cost survey|
| 10 | Uganda | Paper based data system at facility level and data aggregated into DHIS2 at District Health Office  
Preparations for catastrophic cost survey at advanced stage, survey to start in October 2016  
District quarterly report captures TB among HCWs | Data on contact investigation, IPT among PLHIV and completion of preventive treatment not captured  
Lack of capacity for implementation and systematic monitoring of DST at TB diagnosis and use of new TB drugs | Integrate TB reporting into DHIS2 at facility level through HCWs  
Introduce IPT register in National AIDS Programme  
Capacity building of HCWs  
Establish active TB drug-safety monitoring and management (aDSM) starting with SLD and eventually expanding to 1st line | Integrate TB reporting into DHIS2 at facility level  
Implement cost survey and develop M&E and PSM system for DST for all and use of New TB drugs |
| 11 | Zimbabwe | NAP implements electronic patient medical record system (EPMS) since 2013 and through which TB/HIV indicators are collected  
NTP although paper-based at facility level, data is aggregated into DHIS2 for reporting | Most NEW indicators are captured on records but lack of reporting tool (e.g. contact investigation indicator)  
Low human resource capacity and inadequate understanding of definitions of new indicators  
Resistance for scaleup of IPT due to apprehension about risk of drug resistance | Revise TB guidelines  
Revise data collection tools to capture data on contact investigation  
Undertake training and mentoring of HCWs  
Conduct baseline cost survey in the beginning of 2017 | Develop electronic case-based reporting systems  
Revise clinical guidelines on use of WRDs and new TB drugs and implement facility based cost survey |