TB surveillance checklist:
Kenya
April 2 - 5, 2013

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## PART A: CHARACTERISTICS OF THE TB SURVEILLANCE SYSTEM

Before completing the checklist, it is important to characterize the national TB surveillance system. Please provide answers to the following questions.

| A1. How are data recorded for individual TB cases at the service delivery level (e.g. in TB diagnostic units, health centres, clinics)? *(Tick all that apply)* | □ Data are recorded electronically on a national web-based system  
□ Data are recorded electronically on a state/provincial/regional web-based system  
□ Data are recorded electronically on a local system  
☑ Data are recorded on paper only *(patient appt card, patient treatment card, facility register)*  
□ Data are not recorded |
| --- | --- |
| A2. Do all service delivery points systematically use standardized TB data collection forms and tools? | ☑ Yes, completely  
□ Mostly  
□ Partially  
□ No, not at all |
| A3. Which TB cases are included in the national TB surveillance data? | □ All TB patients from all parts of the country  
☑ Some TB patients are systematically excluded *(Tick all that apply)*:  
□ Some part(s) of the country are excluded  
□ Some case types are excluded  
□ Some care providers (e.g. non-NTP providers, prisons, private practitioners) are excluded.  
Describe: ______________________  
□ Others: ______________________ |
| A4. What types of TB data are available at the national level? *(Tick all that apply)* | □ Patient level data (that allow multiple episodes of TB in the same person to be identified) are available  
☑ Case level data are available *(2012 and in future; in TIBU e-system in tablet and PDAs, moving from PDAs to tablets)*  
☑ Only aggregated data (i.e. summaries for groups of cases) are available *(2012 and before)* |
| A5. What is the expected frequency of data transmission from the first sub-national administrative level to the national level? *(Tick all that apply)* | ☑ Real-time *(TIBU)*  
□ More often than monthly  
□ Monthly  
☑ Quarterly *(paper-based system)*  
□ Less often than quarterly |
| A6. At what levels of the system are TB data systematically verified for accuracy, timeliness and completeness? *(Tick all that apply)* | □ From the service unit upwards  
☑ From the 1st administrative level upwards *(quarterly meetings, supervision checklist with monthly facility visits)*  
□ From the 2nd administrative level upwards  
□ Only At the national level *(review of quarterly*
| A7. What types of quality assurance procedures are systematically undertaken for TB data? *(Tick all that apply)* | ☒ Quality controls are in place for the electronic surveillance system (automated checks at data entry and batch checking, plus SOPs)  
☐ Data are reviewed during supervisory monitoring visits to service units and sub-national levels (How often? *monthly ________*)  
☐ Data are reviewed during meetings with TB staff (How often? *quarterly meetings ________*)  
☐ Other (specify: ___DQA planned in April ______) |
|---|---|
| A8. Is feedback on TB data quality systematically provided to all lower reporting levels? | ☒ Yes, completely *(during quarterly meetings of DTLCs; supervisory checklist of DTLC with facility; national level follows up with DTLCs)*  
☐ Mostly  
☐ Partially  
☐ No, not at all |
| A9. When are national TB case data for a given calendar year considered ready for national analyses and reporting? | ☒ Before April the following calendar year  
☐ Before May the following calendar year  
☐ Before June the following calendar year  
☐ On or after beginning of June the following calendar year |
| A10. Are there national guidelines (e.g. documentation or instructions) for recording and reporting of TB data? *(Tick all that apply)* | ☐ Yes. They are posted on the internet  
☒ Yes. They are available in a manual or other reference document (e.g. training materials) *(TB manual; developing data management manual (KNCV); instructions on TB unit register; training on TB/HIV recording and reporting)*  
☐ No |
| A11. Does the TB programme have a training plan which includes staff involved in data collection and reporting at all levels of the reporting process? | ☒ Yes *(TB managers training course for new DTLCs; includes R&R guidelines; as needed basis, DTLCs do 5 day trainings on TB/HIV and MDRTB, includes R&R – DTLCs determine who is included in training; DTLCs have received 5 day course on PDA/tablet including R&R)*  
☐ No |
| A12. How often do TB programme staff receive training specifically on TB surveillance (i.e. recoding and reporting of TB data)? *(Tick all that apply)* | ☐ Training is routinely received at national and sub-national levels (How often? ______________________)  
☒ Training is received on an ad hoc basis *(facility staff (see above))*  
☒ Staff receive training when they are hired |
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<th>Question</th>
<th>Yes or No Options</th>
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| **A13. How many staff work on TB surveillance at the national level?**  | ☐ No routine training is received  
  *Tick all that apply*  
  ☐ Epidemiologist- full-time (#________)  
  ☐ Epidemiologist- part-time (#________)  
  ☑ Statistician- full-time (#_1 – WHO staff ______)  
  ☑ Statistician- part-time (#_1 – Global Fund____)  
  ☐ Data manager- full-time (#_1 - NTP ______)  
  ☑ Data manager- part-time (#_1 - Global Fund)  
  ☐ Data quality officers-full time (#_______)  
  ☐ Data quality officers-part time (#_______)  
  ☑ Other (specify: __Head of Section of Policy, Planning and Research – part time__) |
| **A14. Is a national TB surveillance report routinely produced and disseminated on an annual basis?** | ☑ Yes (comes out in May)  
  ☐ No |
| **A15. Are there written goals of the surveillance system?**             | ☑ Yes  
  *Data management document*  
  ☐ No |
| **A16. Policies and procedures are in place to protect the confidentiality of all surveillance data (e.g. records, registers).** | ☑ Yes, completely *TB data management guidelines (page 16); under govt law that medical records are confidential; there are levels of access to TIBU to protect data*  
  ☐ Mostly  
  ☐ Partially  
  ☐ No, not at all |
| **A17. Is there a long term financial plan and budget in place to support TB surveillance activities?** | ☑ Yes  
  *5 year strategic plans/frameworks; GF runs for 2 years, USAID committed to supporting M&E and supervision for next 5 years (40 million); CDC co-Ag 5 years (with remaining 2 years) – supports tools/printing tools/tablets; staff covered by Kenya govt*  
  ☐ No |
| **A18. When was the last time the TB surveillance system was evaluated?** | ☐ Within the last year  
  ☐ Within the last 1-5 years  
  ☐ Within the last 5-10 years  
  ☑ Never  
  *MESST (RSQA) – started in 2008 and done every 2 years, supported by various funders; last done in 2011; also as part of program review; KNCV surveillance review in 2008 prior to starting conversion to e-system* |
### PART B: CHECKLIST FOR TB SURVEILLANCE AND VITAL REGISTRATION SYSTEMS

For each standard, please assess whether the system is able to satisfy the associated benchmark(s), using the methods recommended in the user guide. Indicate ‘Met’, ‘Partially met’, “Not met” or ‘Not applicable’ in the Results column. Describe the key results and any action recommended to improve the quality of the system in the last two columns.

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<tbody>
<tr>
<td><strong>B1. TB SURVEILLANCE SYSTEM DATA QUALITY</strong></td>
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| **B1.1** Case definitions are consistent with WHO guidelines | All three benchmarks should be satisfied to meet this standard:  
- Laboratory-confirmed cases are distinguished from clinically diagnosed cases  
- New cases are distinguished from previously treated cases  
- Pulmonary cases are distinguished from extrapulmonary cases | ☒ Met  
☐ Partially met  
☐ Not met | - A review of the case definitions in Kenya and WHO treatment guidelines found they are in line with WHO updated definitions.  
- Review new WHO revised definitions and reporting framework to determine whether to update Kenya case definitions and tools to match new guidelines (e.g. bacteriologically confirmed and clinically diagnosed TB cases) | |
| **B1.2** TB surveillance system is designed to capture a minimum set of variables for reported TB cases | Data are routinely collected for at least each of the following variables:  
- Age or age group  
- Sex  
- Year of registration  
- Bacteriological results  
- History of previous treatment  
- Anatomical site of disease  
- For case-based systems, a patient identifier (e.g. numeric ID) | ☒ Met (TIBU)  
☐ Partially met (paper)  
☐ Not met | - *Paper based system*: age x sex breakdown only in new cases sm+, sm- and EP; not for re-treatment cases.  
(Partially met)  
- *Electronic system*: (Met) | |
| **B1.3** All scheduled periodic data submissions (e.g. electronic data files or quarterly paper reports) have been received and processed at the national level | For paper-based systems: 100% of expected reports from each TB basic management unit have been received and data aggregated at national level  
For national patient-based or case-based electronic systems that import data files from sub-national (e.g. provincial or regional) electronic systems: 100% of expected data | ☐ Met  
☐ Not met  
☐ Not applicable | - 896/900 (99.5%) of expected quarterly reports had been received and processed at national level. However, due to some unusual delays because of the elections, the usual annual meeting that is  
- Update quarterly report data when regional coordinators meet in April for end of year review meeting  
- When TIBU-data are available by end of April, review if data are | |
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<td><strong>B1.4</strong> Data in quarterly reports (or equivalent) are accurate, complete, and internally consistent <em>(For paper-based systems only)</em></td>
<td>files have been imported</td>
<td>□ Met</td>
<td>conducted in April to review and finalize reports had not yet been conducted and is planned for end of April, after assessment.</td>
<td>reported from each district <em>(2nd benchmark)</em> -Develop an automated report in TIBU to automatically tabulate districts with unreported (0) cases</td>
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**B1.4** Data in quarterly reports (or equivalent) are accurate, complete, and internally consistent *(For paper-based systems only)*

All benchmarks should be satisfied to meet this standard:
- Sub-totals of the number of TB cases by age group, sex, and case type equals the total number of reported TB cases in >95% of quarterly reports (or equivalent) from basic management units.
- The number of TB cases in >95% of quarterly reports (or equivalent) matches the number of cases recorded in TB basic management unit registers and source documents (patient treatment cards and laboratory register).
- Data for a minimum set of variables are available for >95% of the total number of reported TB cases in quarterly reports.

- □ Met
- ✱ Partially met
- □ Not met
- □ Not applicable

- National-level assessment needed to fully assess data quality
  - Sub-totals within quarterly reports are routinely checked by the national team; total of 25 cases in whole year that had inconsistencies by age x sex; 25/900 = 97.2% with matched subtotals
  - Based on a review of data from one District and clinic, we found 100% match in number of cases in TIBU quarterly case report, facility register and district registers and patient cards
  - Based on a review of data from one facility register, 100% of data were complete for the minimum set of variables

- Conduct national level data quality assessment to better understand data quality at national level *(e.g. DQA that is currently being and/or SARA)*.
- Develop SOPs for doing data quality checks of paper data sources as part of or outside of quarterly meetings with new e-system
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<td>B1.5</td>
<td>Data in national database are accurate, complete, internally consistent, and free of duplicates <em>(For electronic case-based or patient-based systems only)</em></td>
<td>□ Met</td>
<td>- SOPs for data cleaning and validation are available, but processes are routinely conducted due to lack of available time/staff. When these were done for this assessment, the following were found:</td>
<td>- Hire 1-2 additional IT to support on-going roll-out of TIBU</td>
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<td>All benchmarks should be met to reach this standard:</td>
<td>☒ Partially met</td>
<td>- Data checking for completeness of records: 0 empty records</td>
<td>- Consider conducting a surveillance evaluation in near future as system rolls into next phase of roll-out</td>
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<td>- Data validation checks are in place at national level to identify and correct invalid, inconsistent, and missing data in the minimum set (B1.2)</td>
<td>□ Not met</td>
<td>- Data checking for system missing variables: Data 100% complete for minimum set of variables, except for 1 case missing smear data</td>
<td>- Ensure forms/registers are up-to-date with latest WHO recommendations and TIBU matches forms</td>
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<td>- For each variable in the minimum set (standard B1.2), &gt; 90% of case records are complete, valid and internally consistent for the year being assessed</td>
<td>□ Not applicable</td>
<td>- Data checking for duplicates: 2% of cases with duplicate IDs are in system (not yet resolved)</td>
<td>- Conduct data cleaning/checking on quarterly basis at national and district levels, and do the following:</td>
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<td>- &lt;1% of case records in the national dataset for the year being assessed are unresolved potential duplicates</td>
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<td>- Data checking for inconsistencies: a) -0.05% of cases had age &gt;100 years, b) 0.28% of IDs did not follow correct format, c) 0 cases with date of registration after present date d) 0.005% with date of start treatment after to the date of end treatment</td>
<td>- Update and resolve duplicates in system - function in place to check for duplicates</td>
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<td>- Make it so treatment end date cannot be before treatment start date</td>
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<td>- Sort out TI issue/enter # into system using correct format</td>
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<td><strong>B1.6</strong> TB surveillance data are externally consistent</td>
<td>• Among new TB cases, the percentage of children is between 5-15% in low- and middle-income and &lt;10% in high-income countries</td>
<td>☑ Met</td>
<td>4798 children smears not done + 5338 children with smear +,smear - and EP = 10,136 total cases 10136/98665 = 10.3%</td>
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<td><strong>B1.7</strong> Number of reported TB cases is internally consistent (within country)</td>
<td>• Year to year change in the national number of reported TB cases is consistent with year to year change in national TB mortality (HIV-negative, from national vital registration) i.e. trajectories with the same direction</td>
<td>☐ Met ☐ Partially met ☑ Not met</td>
<td>-No vital registration system with accurate and universal causes of death recorded to measure TB mortality. -Some inconsistent trends in notification data at a national and regional levels and over time (see examples in Results section)</td>
<td>-To measure TB mortality over time, implement a routine vital registration system that collects accurate causes of death, in community and hospitals (ICD-10). -National level staff, Regional coordinators, and DTLCs should routinely analyze data to monitor trends for consistency over time (e.g quarterly reports) and investigate any unusual findings and share results with the lower levels</td>
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**B2. TB SURVEILLANCE SYSTEM COVERAGE**

| **B2.1** All diagnosed cases of TB are reported | Both benchmarks should be satisfied to meet this standard: • TB reporting is a legal requirement • >90% of TB cases are reported to national health authorities, as determined by a national-level investigation (e.g. inventory | ☐ Met ☑ Partially met ☑ Not met | -In Kenya, TB reporting is a legal requirement -No national inventory study conducted for TB cases in last 10 years | -Monitor the level of underreporting through an inventory study. Data sources could include the laboratory and TB and HIV registers, and data from private facilities if |
### B2. Population has good access to health care

- **Both benchmarks should be satisfied to meet this standard:**
  - Under-5 mortality rate (probability of dying by age 5 per 1000 live births) is < 10
  - < 25% total health expenditure is out-of-pocket

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<tr>
<td>B2.2</td>
<td>Both benchmarks should be satisfied to meet this standard:</td>
<td>□ Met</td>
<td>- Under-5 mortality rate is 73/1000 (WHO, 2009)</td>
<td>- Identify and map the most high risk groups for TB in Kenya (“know your epidemic”)</td>
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<td>• Under-5 mortality rate (probability of dying by age 5 per 1000 live births) is &lt; 10</td>
<td>□ Partially met</td>
<td>-46% total health expenditure is out-of-pocket (WHO, 2011)</td>
<td>- Assess barriers to health care for TB high risk groups as special study or as part of TB prevalence survey</td>
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<td>• &lt; 25% total health expenditure is out-of-pocket</td>
<td>✓ Not met</td>
<td>Out-of-pocket expenditure as % of private expenditure on health = 74% (Kenya NHA report, 2011)</td>
<td>- Identify % of previously unknown/undiagnosed cases in TB prevalence survey</td>
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### B3. Quality and Coverage of Vital Registration System

- **Both benchmarks should be satisfied to meet this standard:**
  - Cause of death documented in > 90% of total deaths recorded in a) national vital registration system OR b) sample vital registration system
  - < 10% of deaths have ICD codes for ill-defined causes (defined as ICD-9 780-799 and ICD-10 R00-R99)

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<td>B3.1</td>
<td>Both benchmarks should be satisfied to meet this standard:</td>
<td>□ Met</td>
<td>- Cause of death is documented in 47% of deaths and &gt;10% of deaths have ICD codes</td>
<td>- Implement universal routine vital registration system that collects accurate causes of death (ICD-10), in community and hospitals.</td>
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<td>• Cause of death documented in &gt; 90% of total deaths recorded in a) national vital registration system OR b) sample vital registration system</td>
<td>□ Partially met</td>
<td>- Deaths in the community should be medically certified and assigned an ICD-10 code.</td>
<td>- The reporting of causes of death in hospitals should be strengthened and the accuracy of ICD-10 codes should be assessed.</td>
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<td>• &lt; 10% of deaths have ICD codes for ill-defined causes (defined as ICD-9 780-799 and ICD-10 R00-R99)</td>
<td>✓ Not met</td>
<td>- The use of ICD-10 codes should be included in</td>
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## PART C: SUPPLEMENTARY CHECKLIST FOR TB SURVEILLANCE

*For each standard, please assess whether the system is able to satisfy the associated benchmark(s), using the methods recommended in the user guide. Indicate ‘Met’, ‘Partially met’, “Not met” or ‘Not applicable’ in the Results column. Describe the key results and any action recommended to improve the quality of the system in the last two columns.*

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| **C1**   | Surveillance data provide a direct measure of drug resistant TB in new cases | One of the two benchmarks should be satisfied to meet this standard:  
  - Rifampicin susceptibility status (positive/negative) documented for ≥75% of new pulmonary TB cases  
  - Rifampicin susceptibility status (positive/negative) documented for a nationally representative drug resistance survey of new pulmonary TB cases | ☐ Met  ☐ Partially met  ☒ Not met | -Culture and susceptibility testing only done routinely for high risk groups (re treatment, MDR TB contacts, HCWs), not routinely for new cases  
- No DRS has yet been conducted; planning DRS to start soon | -Conduct a national drug resistance survey |
| **C2**   | Surveillance data provide a direct measure of the prevalence of HIV infection in TB cases | One of the two benchmarks should be satisfied to meet this standard:  
  - HIV status (Positive/Negative) documented for ≥80% of all TB cases notified in all settings with a generalized epidemic state\(^\text{ii}\) or concentrated epidemic state\(^\text{iii}\) and in settings with a low level epidemic state,\(^\text{iv}\) where feasible  
  - HIV status is available from a representative sample from all TB cases notified in settings with a low-level epidemic state where it is not feasible | ☐ Met  ☐ Partially met  ☐ Not met | -In 2012, 92461/98690=94% tested; data of # tested are collected in quarterly reports. |
COUNTRY NAME: Kenya  
DATE OF ASSESSMENT: April 2-5, 2013

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| **C3. SURVEILLANCE OF PEDIATRIC TB** | feasible to implement routine surveillance | □ Met  
□ Partially met  
□ Not met | -Ratio of age groups 0-4 (n=1336) to 5-14 (n=3981) years is 0.34 (note: This is based on data for cases with sm+, sm-, EP and excludes smears not done because these data are not disaggregated for 0-4 and 5-14 years (smear not done for 4798 children of <15).  
- No national inventory study conducted for childhood TB cases in last 10 years | -An inventory study can be conducted to monitor and address under-reporting of TB in young children by linking with pediatric and private hospitals and clinics. |

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i.e. by smear, culture or WHO-endorsed molecular test (e.g. GeneXpert MTB/RIF)

ii Generalized epidemic state: HIV prevalence consistently >1% in pregnant women.

iii Concentrated epidemic state: HIV prevalence is consistently >5% in at least one defined subpopulation and is <1% in pregnant women in urban areas.

iv Low-level epidemic state: HIV prevalence has not consistently exceeded 5% in any defined subpopulation.