TB surveillance checklist: Ghana
March 8 - 22, 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  
□ Data are not recorded |
|---|---|
| A2. Do all service delivery points systematically use standardized TB data collection forms and tools? | □ Yes, completely  
☑ Mostly *(occasionally general laboratory request forms used as suspect forms)*  
□ 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  
☑ Only aggregated data (i.e. summaries for groups of cases) are available — plans to go electronic patient based to be started probably this year and continue aggregate data collection by dhims2 |
| 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  
□ More often than monthly  
□ Monthly  
☑ Quarterly  
□ 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 1<sup>st</sup> administrative level upwards  
☑ From the 2<sup>nd</sup> administrative level upwards  
□ Only at the national level  
□ Not at any level  
Option could read "At "instead of "From"
<table>
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<tr>
<th>Question</th>
<th>Options</th>
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| **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?: Quarterly/Yearly by National)  
  \- Data are reviewed during meetings with TB staff (How often?: Quarterly)  
  \- Other (specify: monthly submissions of TB report from second (BMU) subnational level to first subnational level) |
| **A8.** Is feedback on TB data quality systematically provided to all lower reporting levels? |  \- Yes, completely  
  \- 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)  
  \- 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  
  \- No |
| **A12.** How often do TB programme staff receive training specifically on TB surveillance (i.e. recording and reporting of TB data)? *(Tick all that apply)* |  \- Training is routinely received at national and sub-national levels (How often?: Quarterly)  
  \- Training is received on an ad hoc basis –based on fund availability.  
  \- Staff receive training when they are hired  
  \- No routine training is received |
| **A13.** How many staff work on TB surveillance at the national level? *(Tick all that apply)* |  \- Epidemiologist- full-time *(2)*  
  \- Epidemiologist- part-time *(#)*  
  \- Statistician- full-time *(#)*  
  \- Statistician- part-time *(#)*  
  \- Data manager- full-time *(one Epidemiologist is the Data Manager as well as Monitoring & Evaluation Officer)*  
  \- Data manager- part-time  
  \- Data quality officers-full time *(8)*  
  \- Data quality officers-part time *(#)*  
  \- Other (specify: ) |
| **A14.** Is a national TB surveillance report routinely produced and disseminated on an annual basis? |  \- Yes  
  \- No |
<table>
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<tr>
<th>Question</th>
<th>Yes—National IDSR Manual; NTP Plans, Manuals &amp; Guidelines</th>
<th>No</th>
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<tbody>
<tr>
<td>A15. Are there written goals of the surveillance system?</td>
<td>Yes</td>
<td>No</td>
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<td>A16. Policies and procedures are in place to protect the</td>
<td>Yes, completely</td>
<td>Mostly</td>
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<td>confidentiality of all surveillance data (e.g. records,</td>
<td></td>
<td>Partially</td>
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<td>registers).</td>
<td></td>
<td>No, not at all</td>
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<tr>
<td>A17. Is there a long term financial plan and budget in place to</td>
<td>Yes</td>
<td>No</td>
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<td>support TB surveillance activities?</td>
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<td>A18. When was the last time the TB surveillance system was evaluated?</td>
<td>Within the last year</td>
<td>Within the last 1-5 years</td>
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<td>Within the last 5-10 years</td>
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<td>Never</td>
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## 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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<tr>
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| **B1. TB SURVEILLANCE SYSTEM DATA QUALITY** | **B1.1 Case definitions are consistent with WHO guidelines** | All three benchmarks should be satisfied to meet this standard:  
- Laboratory-confirmed cases\(^1\) 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 | Case Definitions are consistent with that of WHO guidelines. To improve case detection NTP directed that DOTs Facilities perform sputum smear test for Clients with history of cough more than a week. |
| | **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\(^1\)  
- History of previous treatment  
- Anatomical site of disease  
- For case-based systems, a patient identifier (e.g. numeric ID) | ☑ Met  
☒ Partially met  
☐ Not met | The TB surveillance system captures most of the minimum set of variables for reporting TB cases (Age group, Sex, Year of registration, Bacteriological results, History of previous treatment, Anatomical site of disease). In 2012 new forms designed that disaggregated age group 0-14 years to 0-4 years and 4-14 years. Bacteriological results are only available for pulmonary cases. Although the system is not case-based, at the BMU level Patient are assigned “district TB numbers” based on the chronological order of registration and a unique number assigned to each BMU, which is used throughout the treatment period. |
| | **B1.3 All scheduled periodic data submissions (e.g. electronic data files** |  
- *For paper-based systems: 100% of expected reports from each TB basic management unit have been received and | ☑ Met  
☒ Partially met  
☐ Not met  
☐ Not applicable | MET – 100% of all Quarterly reports expected from all the 170 BMUs had been received |
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| Data in quarterly reports (or equivalent) are accurate, complete, and internally consistent (For paper-based systems only)—subtotals across levels \( \geq 95\% \) | 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 \( \geq 95\% \) of quarterly reports (or equivalent) from basic management units.  
- The number of TB cases in \( \geq 95\% \) 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 \( \geq 95\% \) of the total number of reported TB cases in quarterly reports | □ Met  
☑ Partially met  
□ Not met  
□ Not applicable | PARTIALLY MET – Routine quarterly monitoring and supervisory visits check data quality at the BMU and Facility Level. Subtotals by sex agree with total number of cases. The subtotals by sex and case type equal the total number of reported TB cases in 100% of quarterly reports from BMUs. Data for a minimum set of variables are available for \( \geq 95\% \) of the total number of reported TB cases in quarterly reports. Data Quality Audits (DQA) of selected BMUs and Facilities was started in 2012 by the NTP. It was undertaken in BMUs and selected Facilities in conveniently selected regions in Ghana. For the first Quarter of the 2012 DQA – out of the 29 BMUs conveniently sampled across 4 regions only -11 had total TB cases in the Quarterly National report matching number of cases in BMUs TB Register. -11 BMUs had under-reporting of cases 7 BMUs over-reported. -In Effia-Nkwanta Regional Hospital in the Western Region, only 19 out of the 35 cases detected were notified at the national level. | Recommend that the new collection tools inclusive of the revised BMU registers (TB07) should be adhered to strictly. The ongoing plans to roll onto “patient-based” electronic form of data collection to be aggressively pursued. Data Quality Audits to be led by recruited Regional M & E Officers and form part of routine Quarterly monitoring and supervision |
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| B1.5     | Data in national database are accurate, complete, internally consistent, and free of duplicates *(For electronic case-based or patient-based systems only)* | All benchmarks should be met to reach this standard:  
• Data validation checks are in place at national level to identify and correct invalid, inconsistent, and missing data in the minimum set (B1.2)  
• For each variable in the minimum set (standard B1.2), > 90% of case records are complete, valid and internally consistent for the year being assessed.  
• <1% of case records in the national dataset for the year being assessed are unresolved potential duplicates | ☐ Met  ☐ Partially met  ☐ Not met  ☑ Not applicable | NOT APPLICABLE – Currently System is not electronic-based. |

Review of few conveniently selected BMUs Registers  
- Ejisu-Juaben - 100 out of 101 cases detected were reported to NTP.  
- Kwabre District - 41 cases detected were all reported to NTP.  
- Sekyere South - 106 out of a total of 194 cases detected were reported to NTP.  
*The under reporting results mostly from BMUs submission to meet deadline requirements, and non-updation of the region and NTP through the region*.  
*An in-depth national investigation using a systematic selection of BMUs is needed to further assess this standard.*
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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>☑ Met</td>
<td>TB surveillance data are externally consistent because among new TB cases, the percentage of Children is 5.7%, which is within the expected 5%-15% range for low-middle income countries. All TB new cases are 14,377 and all TB new cases in children is 820.</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</td>
<td>☑ Met</td>
<td>NOT MET - TB surveillance data are not internally consistent. Fitting a linear regression model to the log transformed case notification rates (CNR) and the log transformed TB mortality rates (MR) from 2007-2011 using Stata 11, - log CNR shows a yearly increment of 1.8% (R=0.19; p (F)=0.25) -and the MR shows 5.6% yearly reduction in number of TB deaths(R=0.70; p (F)=0.04). The direction of the trajectories of log CNR and log MR travel in opposite directions hence the benchmark is not met. *Note that log here means natural logarithm.</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 study) conducted in last 10 years | ☑ Met | ☑ Met | PARTIALLY MET- There is legal authority for data collection – in 1998 the MOH/GHS adopted the Integrated Disease Surveillance Response (IDSR) strategy by WHO/AFRO, and mandated reporting on 23 priority diseases of which TB is part until 2011. From 2011 it adopted and adapted the Revised IDSR Technical Guideline and has mandated reporting on 45 priority diseases/conditions/events. No national-level investigation (inventory) conducted at the facility level, to help assess the level of under-reporting over time, to directly assess under-reporting of cases to improve the estimation of TB incidence. |

To conduct a national-level inventory study for TB cases diagnosed at the facility level, to help assess the level of under-reporting over time, to directly assess under-reporting of cases to improve the estimation of TB incidence.
### STANDARD | BENCHMARK(S) | RESULTS | RESULTS (DESCRIPTION) | CORRECTIVE ACTION(S)
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#### B2.2 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

- Met
- Partially met
- Not met

**NOT MET** – Under-5 mortality from the last GDHS in 2008 was 80/1000 live births (1). WHO World health Statistics 2009 – 78/1000 live births (18). 2011 Ghana’s Multiple Indicator Cluster Survey (MICS) puts it at 82/1000 live births (19). 2010 World Health Organisation (WHO) Global Health Expenditure Atlas puts Ghana’s Out of Pocket (OOP) expenditure as 27% of Total Health Expenditure (THE) which is outside the expected value which should be less than of the THE <25% - (20, 21) – Improve access to health care, specifically for people with TB, by registering all non-NHIA registered diagnosed TB patients with the NHIA.

#### B3. QUALITY AND COVERAGE OF VITAL REGISTRATION SYSTEM

#### B3.1 Vital registration system has high national coverage and quality
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)

- Met
- Partially met
- Not met

**NOT MET** – The Births and Deaths Registration Act of 1965, Act 301 is the current vital registration legislation for Ghana which mandates the registration of any death that occurs in Ghana, irrespective of race or nationality.(17) It is largely paper-based, but at the national level data is aggregated electronically, but it does not include causes of death, which if needed must be accessed from hard copy registers of designated registration centres. At the national level only between 19-24% of all annual deaths are captured and in 2012 only 21% of all deaths were

**Strengthen reporting of causes of death in health facilities by exploring sample vital registration systems in hospitals and communes and the NTP to further strengthen collaboration with CHIM and the National Births and Deaths registry**
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<td>captured. There is no standard coding of causes of death in place. Hospitals do not have specific mortality registers, but have records of deaths on monthly morbidity and mortality data collected and transmitted to BMUs and copies kept at the facilities. Currently with dhims 2 some hospitals enter this data directly onto the dhims 2 platform.</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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<tbody>
<tr>
<td><strong>C1. SURVEILLANCE OF DRUG RESISTANT TB</strong></td>
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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 | NOT MET – Surveillance System currently does not include MDR-TB since Rifampicin susceptibility testing not done for new pulmonary TB cases. No National representative drug resistance survey of new pulmonary TB cases has been done. In 2012 MDR-TB management was started in Greater Accra & Eastern Region precisely at KBTH & Eastern Regional Hospital when NTP got equipment for drug susceptibility testing – that is for rifampicin & isoniazid - which takes place presently at only KBTH. |
| **C2. SURVEILLANCE OF TB/HIV** | | | | |
| 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 or concentrated epidemic state and in settings with a low level epidemic state, 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 to implement routine surveillance | ☐Met  ☐Partially met ☒Not met | NOT MET – Surveillance data does not provide a direct measure of the prevalence of HIV infection in TB cases. Coverage of HIV status of TB cases for 2012 was 77.4% nationally, less than the recommended ≥80%. All TB cases according to the TB SOP are to be tested for HIV, and if test is positive patient is referred to the HIV/AIDS clinic. People Living with HIV (PLHIV), are considered as TB suspect if they have fever, cough of any duration and other symptoms and signs suggestive of TB- for example night sweats, weight loss and others. There is a TB screening questionnaire to be administered to all PLHIV at least twice a year at HIV/ART clinics. |
<p>| <strong>C3. SURVEILLANCE OF PEDIATRIC TB</strong> | | | | |</p>
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<tr>
<td>C3</td>
<td>Surveillance data for children reported with TB (defined as ages 0-14 years) are reliable and accurate or all diagnosed childhood TB cases are reported</td>
<td>☑️Met</td>
<td>NOT MET – NTP started the collection of paediatric data disaggregated into 0-4 years and 5-14 years in 2012. However BMUs did not comply fully and submitted data for the ages 0-14 years lumped together. Full compliance expected in 2013. Thus ratio of age groups 0-4 and 5-14 years cannot be determined. No nationwide inventory has been done to measure the level of under-reporting of childhood TB cases to the NTP. Review of 2012 TB data of the TB Korle-Bu Teaching Hospital Paediatric Department the observation was that of the 142 cases detected, 138 was reported to the NTP.</td>
<td>To conduct a national-level inventory study for childhood TB cases diagnosed at the facility level, to help assess the level of under-reporting over time through effectively collaboration with the Paediatric Departments of the Teaching Hospitals and Regional Hospitals and other Paediatric hospitals and clinics.</td>
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1. i.e. by smear, culture or WHO-endorsed molecular test (e.g. Xpert MTB/RIF)

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

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

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