**Additional file 2: Health facility Audit tool**

**Assessing the coverage and usage of Xpert MTB/RIF & Line Probe Assay services in Uganda, Kenya & Tanzania**

1. Details of the Healthcare facility (HCF) visited
2. Name of the HCF ……………………………………………
3. Which level of the HCF………………………………………
4. Position in HCF of the person interviewed………………………………………….
5. **Tuberculosis treatment**

|  |  |
| --- | --- |
| 1. Is TB treated at this HCF?
 |  Yes☐ No☐ N/A☐ |
| 1. If not, where does the HCF refer patients?
 |  Yes☐ No☐ N/A☐ |
| 1. Is TB diagnosis free at this HCF?
 |  Yes☐ No☐ N/A☐ |
| 1. Is TB diagnosis at this HCF cost shared or completely private?
 |  Yes☐ No☐ N/A☐ |
| 1. Is TB treatment at this HCF free
 |  Yes☐ No☐ N/A☐ |
| 1. Is TB treatment at this HCF cost shared or completely private?
2. In your own opinion who should pay for the treatment of TB? ……………………………………

…………………………………....3. **TB laboratory facilities** |  Yes☐ No☐ N/A☐ |
|  |  |
| 1. Does this HCF have a sputum expectoration facility separate from the consultation room?
 |  Yes☐ No☐ N/A☐ |
|  |  |
| 1. Does this HCF have a TB laboratory?
 |  Yes☐ No☐ N/A☐ |
| What category is the TB laboratory at this HCF?............................ |  |
| 1. Does this HCF have cold storage (fridge or freezer) for its TB laboratory?
 |  Yes ☐ No☐ N/A☐  |
| State capacity……………….. |  |
| 1. Does this HCF perform smear microscopy?
 |  Yes☐ No☐ N/A☐ |
| When does this HCF use smear microscopy? ………………………………….. |  |
| 1. Does this HCF do TB culture?
2. If yes, what culture does it do? …………………………………
3. If not, where does it send samples for culture? …………………………………
4. How does this HCF send samples for culture or other diagnostics at referral centres? …………………………………
5. In your own opinion are the TB laboratory facilities at this health care facility sufficient?

……………………………….4. **Xpert MTB/RIF services** |  Yes☐ No☐ N/A☐  Yes ☐ No☐ N/A☐ |
| 1. Does this HCF have Xpert MTB/RIF machine?
2. If yes, how often is it used?........................................
3. How many specimens does this HCF process with Xpert MTB/RIF a month? ………………………………….
4. Does the HCF find it easy to operate the Xpert MTB/RIF machine? …………………………………..
5. What qualification is the person (s) who runs the Xpert MTB/RIF machine? …………………………………
 |  Yes☐ No☐ N/A☐ |
| 1. Is every presumed TB patient diagnosed with Xpert MTB/RIF machine?
2. If not, under what conditions does this HCF use its Xpert MTB/RIF machine? ................................................
 |  Yes☐ No☐ N/A☐  |
| 1. Is the Xpert MTB/RIF machine at this HCF calibrated?
2. If yes, when was it last calibrated? ....................................................
3. Is the Xpert MTB/RIF machine in the consultation room or in a separate room? ……………………………………..
 |  Yes☐ No☐ N/A☐ |
| 1. Does this HCF have stable supply of Xpert MTB/RIF cartridges?
 |  Yes☐ No☐ N/A☐ |
| 1. Do the cartridge orders arrive on time?
 |  Yes☐ No☐ N/A☐ |
| Who supplies the cartridges? ……………………………….. |  |
| 1. Does the HCF order the cartridges itself?
2. If not, who places the orders? ……………………………………
3. In your opinion is the Xpert MTB/RIF machine at this HCF utilised to its full capacity? ....................................................
4. If this HCF does not have a Xpert MTB/RIF machine, please tell us why? …………………………………….
 |  Yes☐ No☐ N/A☐ |

1. **Line probe assay (LPA) service**

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| --- | --- |
| 1. Does this HCF have LPA service?
2. If yes, how often are the services used? ……………………………………
3. If you don’t have LPA, have you ever heard about it? ……………………………………
4. If you have LPA how many specimens does this HCF process with LPA a month? ……………………………………
5. Does this HCF find it easy to work with its LPA service? ……………………………………..
6. Who supplies this HCF with LPA consumables? ……………………………………..
7. Does the HCF place orders itself? ……………………………………..
8. If not, who places orders? ………………………………………
9. Do LPA orders come on time? …………………………………….
10. In your opinion is the LPA service at this HCF utilised to its full capacity?

……………………………… |  Yes☐ No☐ N/A☐Yes ☐ No☐ N/A☐  Yes ☐ No☐ N/A☐ |
| 1. What do you think are the limiting factors hindering this HCF to have a LPA service? ………………………………………

**6.Monitoring TB treatment?** |  Yes☐ No☐ N/A☐ |
| 1. Does this HCF monitor patients’ response to TB treatment?

If yes, which methods does this HCF use to monitor response? …………………………………….If not, why not? ……………………………………. |  Yes☐ No☐ N/A☐ |
| 1. Does this HCF use microscopy to monitor sputum status at 2, 3, 5 or 6 months?
 |  Yes☐ No☐ N/A☐ |
|  |  |
| 1. Does this HCF use culture to monitor TB treatment response?
 |  Yes☐ No☐ N/A☐ |
| If yes, at what point in treatment does it use culture? ………………………………………How long does it take to get culture result? ……………………………………….If this HCF refers samples for culture testing, how long does it take to get results back? ……………………………………… |  |
| 1. Apart from microscopy and culture does this HCF use any other method for monitoring treatment response?
 |  Yes ☐ No☐ N/A☐ |
| If yes, which method is this? ………………………………………Does this HCF check MGIT (liquid culture) contamination? ……………………………………If yes, how does it check contamination? ……………………………………..What percentage of samples are positive on both MGITand on blood agar? ……………………………………….In your own opinion is the monitoring of TB treatment by this HCF sufficient? ………………………………………..**7**. **Molecular biology know how and capacity** |  |
| 1. Do you know about Polymerase chain reaction (PCR)
 |  Yes☐ No☐ N/A☐ |
|  |  |
| 1. Does this HCF have an in-house PCR for TB diagnosis?
 |  Yes☐ No☐ N/A☐ |
|  |  |
| 1. Do you know about DNA and RNA?
 |  Yes☐ No☐ N/A☐ |
|  |  |
| 1. Does this HCF have dedicated spaces for DNA and RNA extraction?
 |  Yes☐ No☐ N/A☐ |

|  |  |
| --- | --- |
| 1. Does this HCF have dedicated space for PCR?
 |  Yes☐ No☐ N/A☐ |
| 1. Does this HCF have dedicated space for post-PCR?
 |  Yes☐ No☐ N/A☐ |
| 1. Does this HCF have autoclave for biowaste?
2. If not, how does this HCF decontaminate waste? …………………………………
3. How much is spent on molecular reagents and consumables laboratory per year? ……………………………………..
4. In your own opinion is the is there sufficient understanding of molecular applications like PCR at this HCF? ……………………………………..
 |  Yes☐ No☐ N/A☐ |

1. **Mycobacteriology workload**

|  |  |
| --- | --- |
| 1. No. of specimens processed for smear/year ………………………………………………………………………………………………………………………………………………………………
 |  |
| 1. No. of specimens processed for culture/year ………………………………………………………………………………………………………………………………………………………………
 |  |
| 1. Number of Myocbacteria isolated/year

……………………………………………………………………………………………………………………………………………………………… |  |
| 1. No. of specimens processed for susceptibility/year ………………………………………………………………………………………………………………………………………………………………
 |  |
| 1. No. of molecular identification tests/year ………………………………………………………………………………………………………………………………………………………………
2. In your own opinion is the performance of this HCF up to standard in relation to its mycobacteriology workload?

……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………… |  |

1. **Human resource capacity**

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| --- | --- |
| 1. No. of staff trained to Certificate level working in the laboratory? ………………………………………………………………………………………………………………………………………………………………
 |  |
| 1. No. of staff trained to Diploma level working in the laboratory? ………………………………………………………………………………………………………………………………………………………………
 |  |
| 1. No. of staff trained to BSc. level working in the laboratory? ………………………………………………………………………………………………………………………………………………………………
 |  |
| 1. No. of staff with medical qualifications working on TB at this HCF? ………………………………………………………………………………………………………………………………………………………………
2. No. of staff trained to MSc. level working in the laboratory? ………………………………………………………………………………………………………………………………………………………………
 |  |
| 1. No. of clerical staff working with TB and other specimens in the laboratory

……………………………………………………………………………………………………………………………………………………………… |  |
| 1. No. of staff working in the laboratory per day ………………………………………………………………………………………………………………………………………………………………
2. In your own opinion is the human resource capacity of this HCF sufficient for TB diagnosis and treatment? ………………………………………………………………………………………………………………………………………………………………
 |  |

1. **Quality Assurance**

|  |  |
| --- | --- |
| 1. Does this HCF have SOPs for mycobacterial work? (if yes please give us copy)
 |  Yes☐ No☐ N/A☐ |
| How often are these updated? ………………………….. |  |
| 1. Is the storage of media and other lab reagents in a temperature controlled environment?
 |  Yes☐ No☐ N/A☐ |
| 1. Is there a record of media storage temperatures?
 |  Yes☐ No☐ N/A☐ |
| 1. Are the temperatures of fridges, incubators and freezers monitored?
 |  Yes☐ No☐ N/A☐ |
| What is the frequency of monitoring? ………………………………... |  |
| 1. Is there an SOP for action if temperature values are abnormal (If yes please give a copy)
 |  Yes☐ No☐ N/A☐ |
| 1. Does this HCF use internal quality assurance samples
 |  Yes☐ No☐ N/A☐ |
| 1. Does the TB laboratory participate in an external quality assurance scheme (please circle the appropriate you use)
 |
| Regional | National | International |
| How often does this HCF conduct quality external assurance?…………………………….............. |  |
| 1. Is media subject to quality control before use?
2. In your own opinion are the quality control measures taken by this HCF sufficient? ………………………………..........
3. **Implementation**
	1. Does the TB laboratory manager at this HCF participate in choosing diagnostics to use?
	2. If not who chooses the diagnostics to implement? ……………………………..
	3. Diagnostic A is more accurate but expensive while B is less accurate but cheap, in your opinion which of the two would you chose for your HCF? ………………………………..
	4. Diagnostic X takes longer e.g 2 weeks to give result but simple to perform while Y takes shorter time e.g 4 hours to result but hard to perform, in your opinion which of the two would you chose for your HCF? ………………………………..
	5. Does this HCF conduct periodical review of the new diagnostic interventions?
	6. In your opinion do you think diagnostic interventions are sufficiently reviewed at this HCF? ……………………………….
 |  Yes☐ No☐ N/A☐ Yes☐ No☐ N/A☐Yes ☐ No☐ N/A☐ |