Implementation of External Quality Assessment (EQA) in RNTCP: Challenges and way forward

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Introduction:

The sputum smear microscopy is the backbone of Revised National Tuberculosis Control Programme (RNTCP). All the diagnosis is based on the sputum smear results from the designated microscopy centers (DMCs). In the year 2012, there were nearly 13,000 DMCs across the country which is located at different type of health care facilities(1). The programme has developed an excellent system of External Quality Assessment (EQA) to monitor the DMCs and those principles are based on the WHO guidelines which are being implemented uniformly all over the country. However, the challenges remain in maintaining the utmost quality of smear results in these DMCs. In this paper, we have tried to discuss the challenges and the way forward in implementation of EQA in sputum smear microscopy.

The structure of RNTCP laboratory network is shown in figure 1. The DMC forms the basic unit of the laboratory network, there is nearly 1 DMC for every one lakh population; and for every 5 lakh population there are tuberculosis units which are located at sub-district level. Essentially, the DMCs are monitored by the sub-district level and the district level staff. The overall implementation of EQA in the district is the responsibility of the district tuberculosis officer and it is monitored by the State level reference laboratory or Intermediate reference laboratory; while the state tuberculosis officer is responsible for the overall implementation at State, the state level EQA is monitored by the National Reference Laboratory. For smooth implementation of EQA, the programme has sanctioned the post of senior tuberculosis laboratory supervisor (STLS) at the tuberculosis unit whose job responsibility is field level implementation of EQA. The RNTCP EQA protocol includes the following components (a) On site evaluation (b) Panel testing (c) Random Blinded Re-checking (RBRC)(2). The periodicity of implementation of different type of EQA activities are show in figure 2.

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Challenges for EQA implementation

India is a vast country which widely covers different geographical terrain with wide range of available public health infrastructure. Each region may have unique challenge- nevertheless we have tried to summarize the most common challenges found in the field.

Sub-district level

The STLS seems to be the sole responsible person for implementation of EQA at sub-district level. The challenges are (1) collecting the slides for RBRC from the DMC on a prescribe date. The STLS has to depend entirely on the Senior Treatment Supervisor (STS) for mobility and quite often has to plan his tour programme based on the STS plan. This non-coincidence in plan may lead to delays in conduct of RBRC. Hence, it is appropriate for the programme to provide mobility to STLS for conduct of EQA activities. (2) The one site evaluation (OSE) check list has good intention of bringing out the operational issues for implementation at the DMCs and getting it resolved at the level of Medical officer in charge of the primary health centre and Medical officer of Tuberculosis control or District TB control officer. The issues brought out in the OSE check list are not followed up vigorously by the appropriate authorities and the issues remain addressed. To mention few, the operational issues includes like having basic facilities to conduct smear examination that needs continuous water supply, having water sink in the DMCs, proper storage facilities for microscopes and reagents, training or re-training of laboratory technicians to have good quality output from his work etc., This is a serious impediment for the growth of the programme. It is worth considering developing an online mechanism for recording and reporting from STLS through hand held devices where in the state and national reference laboratories would have real time access to the issues at the field and the state programme managers can take immediate and feasible steps in mitigating the problems. Further studies, are needed to assess the proportion of issues that are being addressed which are raised in the OSE checklist. (3) The supervisory post sanctioned by the programme for implementation of EQA is STLS, which is a temporary post and contractual in nature. The laboratory technicians in the DMCs are mostly from the general health system and are on permanent position; there seems to be a notion of non cooperativeness and non acceptance to the suggestions made by the STLS during his routine visits. The programme needs to empower the capacity of the STLS for effective impact of routine supervisory visits. (4) The programme managers often perceive that the duty of STLS is
restricted to monitoring and completing the records and reports pertaining to EQA and is less burdened when compared to his counter-part STS. This may lead STLS in getting other responsibilities like STLS being responsible for the follow-up examinations of registered TB patients in the TU and getting examined all presumptive TB cases for HIV and Diabetes, at places where it is implemented. Programme managers are to ensure that STLS are not assigned additional responsibilities that would compromise the quality of implementation of EQA.

**District Level**

Conduct of RBRC and feedback on the OSE checklist are the two important EQA activities of the District TB centre. The main challenges encountered are (1) Blinding of RBRC slides: This is an important monthly event in the process of RBRC wherein the pooled slides from all the DMCs in the districts are coded. This is essentially the responsibility of the District Tuberculosis officer who pools the slides from all the DMCs and then codes the slides to maintain absolute blinding for re-checking. But, most often the blinding is done by the STLS in charge of the District TB Centre TU. In true sense, the blinding may not happen as there is a close nexus of laboratory technicians working in the same district and they tend to overlook the negative findings committed by their colleagues while reporting; which often translates into no RBRC errors in the districts, which is quite unusual. There should be strict supervision by the state and national reference laboratories on blinding and re-checking. As an alternative strategy, programme may consider pooling of all the slides at the Intermediate reference laboratories, code them appropriately and getting it re-checked through STLS of all districts. It is appropriate to conduct operational feasibility studies in this regard. It is considered as one of the prioritized thrust area in the field of EQA. (2) Feedback on the OSE check list: The feedback on the OSE check list is seldom provided, if provided the operational issues are not resolved. Hence, it becomes important to the programme manager to pursue the issues at the district health authorities regularly till the issue gets resolved.

**State Level**

One of the pre-requisite for the State to conduct effective supervision of EQA is to have the position of microbiologist at IRL filled. It is a sanctioned post by the programme and there is lot of attrition as it is of contractual in nature. If filled, most of the microbiologists are confined to the activities at culture and drug susceptibility testing (CDST) laboratory and they are not able to
complete the IRL visits to all the districts as per schedule. Hence, the microbiologists at state reference laboratories should be empowered with additional qualified laboratory personnel to carry out EQA activities religiously.

The Programme managers during their review meetings at National and state level should prioritize EQA review and provide feasible solutions to the problems encountered in the field.

Way forward

The RNTCP should strengthen the EQA activities at all levels as it is the backbone of sputum smear microscopy. The programme should implement it with utmost vigor and vigil; the quality will be ensured, only if it is implemented promptly and monitored shrewdly. There is an urgent need for the programme to devise newer strategies and tools for effective implementation of EQA in the country.

Figure 1: Structure of RNTCP Laboratory network
Figure 2: Frequency of different EQA components under the programme

- **Onsite Evaluation**
  - By NRL team (Once in a year)
  - By IRL team (Once in a Year)
- **Panel testing**
  - By NRL team (Once in a year)
  - By IRL team (Once in a year)
- **Random Blinded Re-checking**
  - Monthly Random collection routine slides from DMCs
  - Blinded rechecking at district level by STLS of slides collected from DMCs
- **National Reference Laboratory**
- **State /Intermediate Reference Laboratory**
- **District TB Centre**
- **Tuberculosis Unit**
- **Designated Microscopy Centre**

References
