

## Reporting the Unreported- A Case of Neglected Errors of Supervisors in Random Blinded Rechecking of AFB Smears

Zeeshan Sidiq<sup>1</sup>, Hanif M<sup>1</sup>, Chopra KK<sup>1</sup>, Vasim Ahmad<sup>1</sup>, Himanshu Vashistha<sup>1</sup>, Sanjeev Saini<sup>1</sup>, Manoj Dubey<sup>1</sup> and Ashwani Khanna<sup>2</sup>

<sup>1</sup>New Delhi Tuberculosis Centre, Jawaharlal Nehru Marg, New Delhi, India

<sup>2</sup>State Tuberculosis Office, Delhi Government dispensary, Gulabi Bagh New Delhi

Tuberculosis (TB) remains the major cause of mortality and morbidity throughout the world and has been cited by World Health Organisation (WHO) as the single most important fatal infection. In 2013 alone an estimated 9.0 million cases TB and 1.5 million deaths from this disease were reported. Of these 9.0 million cases, India alone accounted for 24% of the total cases [1]. In most developing countries including India, sputum smear microscopy remains the basis of diagnosis of TB. Correct reading of sputum smears is thus critical in initiating treatment in those who truly do have a disease, and to avoid unnecessary and sometimes costly treatment among those who do not. Keeping this in view, the International Union Against Tuberculosis and Lung Disease (IUATLD) and WHO recommend that quality control of smear microscopy be an essential part of an effective national TB control program [2,3]. In 2002 international working group recommended the lot quality assurance sampling (LQAS) for external quality assessment (EQA) of AFB microscopy which was adapted by Revised National Tuberculosis Control Program (RNTCP) of India in 2008 [4,5].

In India random blinded rechecking (RBRC) of routine smears after LQAS is done every month at district level by senior tuberculosis laboratory supervisors (STLS). Blinded rechecking of smears by STLS read at the periphery by the laboratory technicians yields a realistic view of daily routine performance of the laboratory technicians and allows identification of laboratories with problems that need to be solved. The STLS therefore plays an important role in EQA and is regarded as the controller in RBRC. The only limitation in the RNTCP EQA guidelines is that during RBRC only the performance of the laboratory technicians is assessed while the errors committed by the STLS are ignored and unreported. In order to assess the performance of STLS during RBRC we conducted a study where in RBRC of the entire Delhi state for one quarter of the year was conducted at reference laboratory instead of the districts.

The study was conducted at New Delhi Tuberculosis Centre (NDTC) for the period of 3 months, i.e., from October 2014 to December 2014. NDTC serves as an intermediate reference laboratory (IRL) for Delhi state. The Centre is going through regular rounds of proficiency testing for smear microscopy and culture and drug susceptibility testing by the National reference laboratory; National Institute of Tuberculosis and respiratory diseases, New Delhi, India.

A total of 12,162 slides were reread by STLS during the study period as per the EQA guidelines [6]. 204 discrepant results were obtained in this study and 54 (26.5%) of these discrepant results were attributed to STLS. Among the major errors, High false positive (HFP) errors were reported at a frequency of 8/54 (14.8%) and High False negative (HFN) errors were observed at a frequency of 10/54 (18.5%). Minor errors i.e. Low false negative (LFN), low false positive (LFP) and quantification errors (QE) were observed at a frequency of 11/54 (20.3%), 23/54 (42.59%) and 2/54 (3.7%) respectively.

Significantly high number of errors committed by the STLS in this study is a major concern especially when RBRC is used as the method of choice for assessing the overall performance of the smear microscopy

and STLS is the controller of the procedure. Although there seems to be no obvious reason for such high number of errors, careless work by the STLS and lack of motivation could be the possible reasons. Unfortunately no study till this date has been done to highlight the need of reporting errors committed by the STLS as RBRC is thought to be the method of assessing the performance of Laboratory technicians and not the STLS.

The method for assessing the performance of STLS as per the EQA guidelines is the panel testing done once in a year during the On-site evaluation (OSE) visit by the IRL team to the district. It is worth mentioning that panel testing is considered to be the weakest method of EQA and it gives an indication of capability rather than of true performance. STLS may score extremely well in this test because they know their work is being evaluated, but their daily work may remain unsatisfactory because of carelessness. The study therefore highlights the importance of having an in-built system to assess and monitor the performance STLS along with of the technicians of the periphery microscopy centers.

The observation of the current study indicates that significant numbers of errors are committed by the controllers during RBRC and as per the existing reporting formats these errors are never reported. RBRC at a reference centre can provide a method for assessing the performance of STLS and laboratory technicians simultaneously. This however may not be possible in all the states owing to the distance between the districts and reference centre. We however do recommend that more stringency in the supervision of RBRC at district level should be made in order to make the rechecking more effective. A thought may also be given to the improvement of the current reporting format of RBRC and a column for errors committed by the STLS may be included so that necessary actions can be taken in due time.

### References

1. World Health Organization (2014) Global tuberculosis report.
2. Enarson DA, Reider HL, Arnadottir T, Trébuçq A (1996) Tuberculosis guide for low income countries. Verlagsgruppe, Frankfurt am Main.
3. World Health Organization (1994) Framework for effective tuberculosis control. Geneva.

**\*Corresponding author:** M Hanif, New Delhi Tuberculosis Centre, Jawaharlal Nehru Marg, Delhi Gate, New Delhi-110002, India, Tel: 011-23234270; E-mail: [irldnc@mtcp.org](mailto:irldnc@mtcp.org)

**Received** June 30, 2015; **Accepted** August 30, 2015; **Published** September 07, 2015

**Citation:** Sidiq Z, Hanif M, Chopra KK, Ahmad V, Vashistha H, et al. (2015) Reporting the Unreported- A Case of Neglected Errors of Supervisors in Random Blinded Rechecking of AFB Smears. J Biotechnol Biomater 5: 197. doi:10.4172/2155-952X.1000197

**Copyright:** © 2015 Sidiq Z, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

4. Aziz M, Ba F, Becx-Bleumink M, Bretzel G, Humes R, et al. (2002) External quality assessment for AFB smear microscopy. Centers of Disease Control and Prevention.
5. Revised National Tuberculosis Control Program (RNTCP) (2005) External quality assurance manual. New Delhi, India.
6. Revised National Tuberculosis Control Programme Laboratory Network (2005) Guidelines for Quality Assurance of smear microscopy for diagnosing tuberculosis. Central TB Division, Directorate General of Health Services, Ministry of Health and Family Welfare, Nirman Bhavan, New Delhi, India.