Discussion Brief: Minimum Volume of Testing for Maintaining Proficiency in Tb Diagnosis
By Sophie Beauvais, Tim O’Shea, MD

As stated by the World Health Organization, “lack of diagnostic capacity is a crucial barrier preventing an effective response to the challenges of TB-HIV and drug-resistant TB, with less than 5% of the estimated burden of MDR-TB patients currently being detected.” In this discussion, members exchange recommendations and key references that inform the minimal volume of specimens for lab smear, culture and drug susceptibility testing needed in order to maintain lab proficiency.

Key Points

- The WHO “Laboratory Services in Tuberculosis Control” guidelines state that 10-15 smears per week should be considered the minimum volume to maintain lab proficiency. The Union “Red Book” does not give a minimum but does state that proficiency can be maintained in reading smears if as few as 1-2 positives are identified per week.
- Members noted that, to their knowledge, there are no guidelines available with information on minimum volumes of cultures or drug susceptibility tests to maintain and/or assess proficiency, but notably recommended the use of control specimens in addition to other strategies.
- Formal guidelines for minimum volumes of specimens required to maintain proficiency in Tb diagnosis are limited.
- In general, the more specimens a laboratory examines, the more proficient it will be.
- A minimum of 1-2 specimens per day is considered a reasonable minimum; however this is based on expert opinion.
- Strategies to increase proficiency regardless of specimen volume include: Ongoing training; External quality assurance programs; Increasing workers’ motivation with incentives and motivational programs; More frequent supervisory visits; On-the-spot retraining sessions; Reach out to an External Supra-national or National Reference Laboratory via Global Laboratory Initiative Tuberculosis Network; Of note: Transportation of smears can be very costly and very difficult to organize.

Key References

- Priorities for Tuberculosis Bacteriology Services in Low-Income Countries, International Union Against Tuberculosis and Lung Disease (The Union), Second Edition, 2007 (PDF available in English, Français, Russian, Chinese, Spanish, Italian, Portuguese, Serbian, Japanese, Vietnamese)
- World Health Organization (WHO): Laboratory services in Tuberculosis control, Part 1Organization and management, p. 15, 1998: “[…] On the other hand, proficiency in reading ZN smears can only be maintained by examining at least 10 to 15 ZN smears per week, ie. a minimum of 2-3 examinations per day.”
- WHO Global Laboratory Initiative (GLI)

Enrich the GHDonline Knowledge Base
Please consider replying to this discussion with the following information

- Your organizations experience with maintaining quality control and laboratory proficiency in the diagnosis of tuberculosis
- Any reference or guideline which establishes minimum specimen volumes for tuberculosis smears, culture or drug susceptibility testing