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A comparative analysis of Xpert MTB/RIF Versus AAFB Smear in the diagnosis of suspects of TB/HIV and multidrug Resistant TB: a nine-month retrospective data from Northwestern Nigeria

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Background: HIV remains the strongest risk factor for Tuberculosis (TB).The World Health Organization (WHO) recommended genexpert technology as the initial diagnostic test for individuals suspected of having Multi Drug Resistance TB (MDR-TB) or HIV and TB. However, access to modern diagnostic technique like Genexpert is still poor in low and middle income countries where many laboratories are underfunded and sputum microscopy still remains only available TB diagnostic method. Using the hub and spoke matric model, Management Science for Health with funding from USAID in July 2015 rolled out financial support for transportation and logging of sputum samples for Genexpert investigation from 6 remote local governments and hospitals to Federal Medical Center Birnin Kebbi, Northwestern Nigeria where the Genexpert machine is domiciled.

Objective: The objective of the study is to determine capacity of Sputum Alcohol Acid fast bacilli (AAFB) compared with genexpert technology in the diagnosis of TB/HIV co-infection and multidrug resistance TB with the view to argue for increased roll out of better diagnostic approach in low resource settings.

Methodology: By reviewing 9-month (July 2015 and March 2016) Sputum investigation data in both Sputum AAFB as well as Genexpert registers, data were disaggregated into no of samples collected in the review period, HIV positive and negative samples, samples with unknown status, No of Mycobacterium TB (MTB) and MDR-TB detected in the total samples, samples with MTB and MDR-TB among the total HIV positive samples that were processed in both AFB and genexpert registers for the review period. This helped to analyze MDR-TB cases and compare the MTB/HIV as well as MDR-TB/HIV co-infected rates for both investigations.

Results: Genexpert technology has higher MTB/HIV (8.24%) as well as higher MDR-TB/HIV co-infection (3.12%) detection rates compared with sputum AAFB with MTB/HIV and MDR-TB/HIV co-infection detection rates of 3.12% and 0% respectively. 15.7% and 0% of total samples sent for AAFB were MTB and MDR-TB detected respectively while 15.9% and 1% of total samples for genexpert were MTB and MDR-TB detected respectively. 83% and 12% of sputum samples sent for AAFB and Genexpert respectively have unknown HIV status.

Conclusion: Genexpert technology has been shown to be a better diagnostic tool in detection of TB/HIV co-infection and multidrug resistance TB but comparative capacity to detect MTB.TB/HIV collaboration is important to scale up HIV testing in TB settings which is still low. Governments and donors need to scale up genexpert technology for improved access to TB diagnosis in low resource settings. Further studies need to investigate access of the TB/HIV co-infected and MDR-TB cases to anti-TB drugs and impact of early detection with genexpert technology on treatment outcomes in this setting.

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