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Poster Session III

Recent advances in molecular diagnosis of M. tuberculosis

EXPERIENCE WITH THE IMPLEMENTATION OF XPERT MTB/RIF ASSAY IN RWANDA, A LOW HIV/MDR-TB BURDEN SETTING

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Background and Objectives: Laboratory capacity for diagnosing and monitoring MDR-TB patients varies widely in developing countries with most of them having little or no diagnostic capacity to perform culture. Consequently, in these countries including Rwanda, sputum smear microscopy for acid-fast bacilli (AFB) is still the most important and widely available diagnostic tool. Xpert® MTB/RIF test was introduced in Rwanda in December 2012 to strengthen and sustain accessible, quality assured bio safe molecular TB diagnostic at the point of care to improve case detection of TB, drug-resistant TB and HIV-associated TB.

Methods: Several meetings were held with national TB Control Program (NTP), National Reference Laboratory (NRL) and partners to discuss on implementation plan and diagnostic algorithms. One sub-district and five district health facilities were selected in the first phase in collaboration with CDC thereafter; Xpert will be rolled out to 5 additional intermediate laboratories under the World Bank project and in 2 regional district hospitals under Global Fund project. These sites were selected on the basis of their high suspicion rate of TB and MDR-TB, high workload, and high TB/HIV co-infection rate. In addition these sites were selected in order to generate experience from urban and rural settings. These sites were visited and assessed prior to the implementation and at the same time registers, operating procedures and tools were revised. Central training on the Xpert® MTB/Rif assay was carried out at the NRL with laboratory technicians and clinicians coming from selected sites followed by on-site machines installation

Results and lesson learnt: over the first 1-year period of this initial implementation phase, a total of 1,014 samples were processed with Xpert MTB/RIF in all the six sites with an average of 7, 6 % error rate. Out of the total specimens, overall positivity rate of Xpert MTB/RIF was 20 % (202/1,014), of which 3 (0.3%) were resistant to rifampicin. Compared to microscopy, Xpert MTB/RIF detected additional 20.7% resulting in increase in positivity rate from 14.8% (150/1014) on smear to 19.9 % (202/1014) on Xpert. A Major challenge during this initial implementation phase was revealed to be the low utilization rates in almost all the sites. This is being addressed through mostly sensitization of providers and refresher clinical training on diagnostic algorithm. Linking up with health care facilities that refer samples to the sites for cases referral and follow up was challenging.

Conclusions: Our experience with the initial implementation phase provided evidence that Xpert MTB/RIF is a valuable tool to significantly increase TB detection in sputum as compared to microscopy. However, effective incorporation requires regular clinical and technical training, healthcare providers' education and regular monitoring of adherence to algorithm.