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# PERFORMANCE OF GENEXPERT TEST IN DETECTING PTB AND RIFAMPICIN RESISTANCE IN PATIENTS ATTENDING KITUI COUNTY HOSPITAL

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**Main Objective:** To evaluate the performance of GeneXpert MTB/RIF in detection of pulmonary TB and drug resistant testing.**Specific Objectives:** To determine the relationship between TB prevalence and the risk factors of gender and age; determine the performance of GeneXpert MTB/RIF; evaluate the effectiveness of the assay in smear positive and smear negative pulmonary specimens and determine the operational feasibility and cost effectiveness of GeneXpert MTB/RIF in routine use.**Design:** Descriptive cross-sectional study.**Setting:** Kitui County Hospital.**Study subjects:** Adult patients of 18 years and above presenting to Kitui County hospital with symptoms suggestive of pulmonary tuberculosis or multi-drug resistant tuberculosis.**Main outcome measures:** Smear microscopy test method had the highest number of false positives (28%) and false negatives (9.6%).**Results:** 400 samples were analyzed, 37.5% were smear positive of which 60% ( $p < 0.05$ ) were male. For culture and GeneXpert, the positive samples were 33% and 32.25% respectively. Smear microscopy had the highest number of false positives (28%) and false negatives (9.6%). For bacilli identification, the sensitivity, specificity, positive predictive value and negative predictive values for smear microscopy were 81.8%, 84.3%, 72% and 90.4%; GeneXpert were 97.7%, 100%, 100% and 98.9% respectively. Drug susceptibility testing using culture method showed 23 isolates were rifampicin resistant with GeneXpert, they were 26, implying 3 false positives. The sensitivity, specificity, positive predictive value and negative predictive value for GeneXpert in drug susceptibility testing was 100%, 97%, 89% and 100%. Cost of testing samples with GeneXpert assay was high, but offers rapid detection.**Conclusion:** GeneXpert MTB/RIF offers high potential for rapid diagnosis of TB and drug susceptibility testing.**Recommendation:** GeneXpert be considered for routine drug susceptibility testing of TB samples.

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