

ABSTRAK

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PERBANDINGAN VOLUME SAMPEL DAHAK 0,5 mL DAN 1,0 mL PADA HASIL DETEKSI *Mycobacterium tuberculosis* MENGGUNAKAN XPert MTB/RIF ULTRA

xvi + 57 Halaman + 4 Tabel + 10 Lampiran

Tuberkulosis paru masih menjadi masalah kesehatan utama di Indonesia dengan angka kasus dan kematian yang tinggi. Pemeriksaan Xpert MTB/RIF Ultra merupakan metode diagnostik molekuler yang memiliki kemampuan tinggi dalam mendeteksi *Mycobacterium tuberculosis*, namun hasil pemeriksaan dipengaruhi oleh faktor pra-analitik, salah satunya volume sampel dahak. Penelitian ini bertujuan untuk membandingkan volume sampel dahak terhadap hasil deteksi *Mycobacterium tuberculosis* menggunakan Xpert MTB/RIF Ultra. Penelitian menggunakan desain deskriptif komparatif dengan pendekatan *post-test only*. Sampel penelitian berupa 16 spesimen dahak pasien suspek tuberkulosis paru yang dihomogenkan dan dibagi menjadi dua volume, yaitu 0,5 mL dan 1,0 mL. Pemeriksaan dilakukan menggunakan Xpert MTB/RIF Ultra dan dianalisis secara deskriptif berdasarkan hasil deteksi *Mycobacterium tuberculosis* dan kategori beban bakteri. Hasil penelitian menunjukkan bahwa volume sampel dahak 0,5 mL menghasilkan *MTB detected* sebanyak 3 sampel (18,75%), sedangkan volume 1,0 mL menghasilkan *MTB detected* sebanyak 4 sampel (25,00%). Analisis uji bias menunjukkan nilai sebesar 33,3% yang menggambarkan adanya kecenderungan peningkatan hasil deteksi pada volume 1,0 mL dibandingkan volume 0,5 mL. Analisis *recovery* menunjukkan nilai sebesar 133,3%, yang menunjukkan bahwa hasil deteksi pada 1,0 mL sebesar 1,33 kali dibandingkan volume 0,5 mL. Penelitian ini menunjukkan bahwa volume sampel dahak 1,0 mL cenderung memberikan hasil deteksi *Mycobacterium tuberculosis* yang lebih baik dibandingkan volume 0,5 mL pada pemeriksaan Xpert MTB/RIF Ultra.

Kata kunci: tuberkulosis, dahak, Xpert MTB/RIF Ultra, hasil deteksi, *Mycobacterium tuberculosis*

ABSTRACT

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COMPARISON OF 0,5 mL AND 1,0 mL SPUTUM SAMPLE VOLUMES IN THE DETECTION OF Mycobacterium tuberculosis USING XPERT MTB/RIF Ultra
xvi + 57 Pages + 4 Tables + 10 Appendices

Pulmonary tuberculosis remains a major public health problem in Indonesia, with high case and mortality rates. The Xpert MTB/RIF Ultra test is a molecular diagnostic method with high sensitivity for detecting Mycobacterium tuberculosis; however, test results are influenced by pre-analytical factors, one of which is sputum sample volume. This study aims to compare the effect of sputum sample volume on the detection of Mycobacterium tuberculosis using the Xpert MTB/RIF Ultra. The study employed a descriptive comparative design with a post-test only approach. The study samples consisted of 16 sputum specimens from patients suspected of having pulmonary tuberculosis, which were homogenized and divided into two volumes: 0.5 mL and 1.0 mL. Testing was performed using the Xpert MTB/RIF Ultra and analyzed descriptively based on Mycobacterium tuberculosis detection results and bacterial load categories. The results showed that the 0.5 mL sputum sample volume yielded 3 MTB-positive samples (18.75%), while the 1.0 mL volume yielded 4 MTB-positive samples (25.00%). Bias test analysis showed a value of 33.3%, indicating a tendency for increased detection results at the 1.0 mL volume compared to the 0.5 mL volume. Recovery analysis showed a value of 133.3%, indicating that the detection results at 1.0 mL were 1.33 times higher than at the 0.5 mL volume. This study demonstrates that a sputum sample volume of 1.0 mL tends to yield better Mycobacterium tuberculosis detection results compared to a 0.5 mL volume in Xpert MTB/RIF Ultra testing.

Keywords: tuberculosis, sputum, Xpert MTB/RIF Ultra, test results, Mycobacterium tuberculosis