

## Validitas Metode *Polymerase Chain Reaction GeneXpert* MTB/RIF pada Bahan Pemeriksaan Sputum untuk Mendiagnosis *Multidrug Resistant Tuberculosis*

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### Abstrak

Pengendalian tuberkulosis saat ini terkendala oleh metode diagnostik konvensional yang lambat terutama untuk mendeteksi *multidrug resistant tuberculosis* (MDR-TB). Deteksi dini MDR-TB sangat penting untuk mencegah penyebaran MDR-TB dan mengurangi angka kematian. Penelitian ini bertujuan menganalisis validitas pemeriksaan *polymerase chain reaction genexpert* MTB/RIF suatu pemeriksaan molekuler otomatis yang cepat untuk mendeteksi MDR-TB. Penelitian dilakukan di Poliklinik *Directly Observed Treatment Short-Course* (DOTS) Rumah Sakit Dr. Hasan Sadikin Bandung. Subjek penelitian adalah penderita tersangka MDR-TB. Sampel penelitian berupa dahak yang dilakukan pemeriksaan mikroskopis, uji kepekaan metode proporsi media Lowenstein Jensen dan *polymerase chain reaction genexpert* MTB/RIF. Selama periode Agustus 2012 sampai Januari 2013 didapatkan 88 subjek penelitian, kelompok usia terbanyak 25–34 tahun. Hasil pemeriksaan kultur didapatkan 54 sampel tumbuh, 34 sampel tidak tumbuh, dan 3 sampel merupakan *Mycobacteria* lain dari tuberkulosis. Sebesar 97,5% sampel yang resisten rifampisin juga resisten terhadap isoniazid. Pemeriksaan *GeneXpert* MTB/RIF menunjukkan sensitivitas 92,3% dan spesifisitas 75% dengan akurasi 88,2%. Simpulan, pemeriksaan *GeneXpert* MTB/RIF memiliki validitas tinggi untuk mendiagnosis MDR-TB terhadap baku emas uji kepekaan *M. tuberculosis* metode proporsi pada media Lowenstein Jensen. Pemeriksaan ini disarankan sebagai alat skrining MDR-TB. [MKB. 2013;45(4):234–9]

**Kata kunci:** *GeneXpert* MTB/RIF, MDR-TB, uji kepekaan metode proporsi

## Validity of *Polymerase Chain Reaction GeneXpert* MTB/RIF Method on Sputum Sample Examination to Diagnose *Multidrug Resistant Tuberculosis*

### Abstract

Control of tuberculosis is hampered by slow conventional diagnostic methods especially for the detection of multidrug resistant tuberculosis (MDR-TB). Early detection of MDR-TB is essential to interrupt MDR-TB transmission and reduce the death rate. The aim of this study was to assess the validity of *polymerase chain reaction genexpert* MTB/RIF examination, which is a rapid automated molecular examination for the detection of MDR-TB. The study was conducted at the *Directly Observed Treatment Short-Course* (DOTS) clinic at Dr. Hasan Sadikin General Hospital Bandung. Subjects were patients with suspected MDR-TB. The research sample was sputum which was subjected to microscopic examination, susceptibility test proportion methods in Lowenstein Jensen media and *polymerase chain reaction genexpert* MTB/RIF examination. During August 2012 until January 2013, 88 subjects were obtained, with most of them were 25–34 years old. There were 54 samples obtained that grew in culture and 34 samples did not grow while 3 samples were other *Mycobacteria* of tuberculosis. It was also found that 97.5% of rifampin-resistant samples were also resistant to isoniazid. Examination of *GeneXpert* MTB/RIF showed a sensitivity of 92.3%, specificity of 75% with an accuracy of 88.2%. In conclusion, *GeneXpert* MTB/RIF examination has high validity for diagnosing MDR-TB against *M. tuberculosis* gold standard resistance test using the proportion method in Lowenstein Jensen media. The examination is recommended for MDR-TB screening. [MKB. 2013;45(4):234–9]

**Key words:** *GeneXpert* MTB/RIF, MDR-TB, susceptibility test proportion methods

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