

**QUALITY OF SPUTUM COLLECTED FOR ACID-  
FAST BACILLI (AFB) TEST FROM PATIENTS AT  
DR. GEORGE MUKHARI HOSPITAL, PRETORIA.**

**BY  
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## **DECLARATION**

I, Dr. R. Iqbal, hereby declare that the work on which this thesis is based, is original (except where acknowledgements indicate otherwise) and that neither the whole work, nor any part of it , is to be, has been, or is being submitted for another degree at this or any other University.

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# **SUMMARY**

## **BACKGROUND AND OBJECTIVE**

In order to obtain optimal results using sputum smear microscopy for acid-fast bacilli (AFB) detection in the diagnosis of pulmonary tuberculosis (PTB), good quality sputum with an adequate volume of at least 5.0ml is required. An inadequate amount of sputum sample may result in missing cases of active PTB. This study was aimed at showing that a single sputum sample of at least 5.0ml would lower the chances of missing active PTB cases, and increase sputum smear positivity by microscopy thus enabling prompt treatment of PTB and restricting its transmission.

## **METHODS**

An analytical cross sectional study was carried out at Dr George Mukhari Hospital in Pretoria, South Africa. Two sputum samples, one of 5.0ml and the other with 2.0ml were collected from each adult patient suspected of having active PTB. Sputum collection was supervised and patients were given instructions on how to enhance sputum expectoration. Sputum samples were taken to the laboratory with a minimal amount of delay between collection and processing. Sputum samples were processed using the *N*-acetyl-L-cysteine (NaLc-NaOH) method and stained with Auramine O. Sputum analysis was done with the aid of fluorescence microscopy.

## **RESULTS**

A Total of 330 sputum samples were analysed of which 77 were found to be culture positive. The results of this study showed a good sensitivity (76.6%) and high specificity (99.6%) for AFB 5.0ml in the diagnosis of TB among previously untreated patients suspected of having TB.

This result was slightly superior to that of the 2.0ml sample used for smear microscopy with a sensitivity of 75.3%.

The smear positivity rate of 76.6% obtained using the 5.0ml sputum specimen and 75.3% obtained using the 2.0ml specimen from patients suspected of having TB in this study correlated with the range of sensitivity for smear microscopy reported to vary from 30% to more than 70%.

## **CONCLUSION**

Since the results obtained in this study reflect a better yield and sensitivity with the use of the 5.0ml sputum sample than the 2.0ml sample, it can be deduced that the greater the volume of a good quality sputum specimen in a patient suspected clinically of having infective PTB, the greater the chance of early diagnosis by detecting AFB using sputum smear microscopy.

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# **CHAPTER 1**

## **INTRODUCTION**