

## ABSTRACT

### **SETTING:**

Nairobi City Council Chest Clinic, Kenya.

### **OBJECTIVES:**

To establish the efficiency, costs and cost-effectiveness of six diagnostic strategies using Ziehl-Neelsen (ZN) and fluorescence microscopy (FM).

### **DESIGN:**

A cross-sectional study of 1398 TB suspects attending a specialised chest clinic in Nairobi subjected to three sputum examinations by ZN and FM. Lowenstein-Jensen culture was used as the gold standard. Cost analysis included health service and patient costs.

### **RESULTS:**

Of 1398 suspects enrolled, 993 (71%) had a complete diagnostic work-up involving three sputum specimens for ZN and FM, culture and chest X-ray (CXR). Irrespective of whether ZN or FM was used on one, two or three smears, the overall diagnostic process detected 92% culture-positive cases. Different strategies affected the ratio of smear-positive to smear-negative TB; however, FM was more sensitive than ZN ( $P < 0.001$ ). FM performance was not affected by the patient's HIV status. The cost per correctly diagnosed smear-positive case, including savings, was 40.30 US dollars for FM on two specimens compared to 57.70 US dollars for ZN on three specimens.

### **CONCLUSION:**

The FM method used on one or two specimens is more cost-effective and shortens the diagnostic process. Consequently, more patients can be put on a regimen for smear-positive TB, contributing to improved treatment and reducing transmission.