

**Factors associated with Patient and Health Service Delays in the Management  
of Tuberculosis Patients in Central Equatoria State, Southern Sudan**

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## ABSTRACT

Delays in tuberculosis (TB) diagnosis and start of treatment increase morbidity and mortality from tuberculosis (TB), and the risk of its transmission in the community. This study was conducted to investigate factors that affect patient and health service delays in pulmonary tuberculosis (PTB) in Central Equatoria State, Southern Sudan.

A cross-sectional survey was carried out at three TB treatment centers in Central Equatoria State, Southern Sudan. A total of 129 smear positive TB were enrolled in three study sites and interviewed within two days of beginning treatment using a structured questionnaire between September and December, 2007. Health seeking behaviors were evaluated for association with patient delay and health care provider delay for TB diagnosis and treatment. The univariate analysis of chi-square and odds ratios (OR) and 95% confidence intervals (CI) were used for statistically evaluation of the association.

Of 129 enrolled in the study, median patient delay was 4 weeks compared to median health care provider delay, 10 weeks. The total pre-treatment delay (patient and health care provider delays) was 16 weeks. Poor access to Tuberculosis Management Units (TBMU) and lack of knowledge of the early symptoms by patients were reported as the main reasons for patient delay. The health care provider delay for patient diagnosis and start of treatment had greater contribution to overall total pre-treatment delay ( $\chi^2 = 53.8$ ;  $P \leq 0.001$ ).

In Central Equatoria State, health care provider delay was the most frequent type of delay observed and was a major contributor to the overall total delay.

Most of patients delay was due to poor access and lack of knowledge of the early symptoms of TB by patients. Both patient and health care provider delays in the study area were higher in

urban TB treatment centres compare to those of rural TB treatment centre, because of the agencies that were involved.

Overall, the finding of this study clearly indicates that health care provider delay for TB diagnosis and treatment are high in Southern Sudan. Majority of the patients are not aware of the early symptoms of TB. Thus there is need to strengthen and increase the competency of health care provider for early diagnosis and detection of TB in the study area. Targeted health education to the public on tuberculosis is very necessary to improve the knowledge of disease and the early symptoms.