

論文の内容の要旨

**論文題目 Factors associated with patient and health
system delays of tuberculosis treatment in the eastern region of
Afghanistan**

アフガニスタン東部における結核治療の遅延に関与する
患者・医療制度要因

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Background: Tuberculosis (TB) is a major public health problem in Afghanistan. Directly Observed Treatment Short-course (DOTS) has been adopted since 1997 in Afghanistan's modern TB control program, which focuses on early diagnosis and prompt effective treatment. However, the TB case detection rate, 64% in 2007, is far below the global 70% target set to be met by 2005, and indicates that many cases remain undiagnosed /untreated or receive treatment late. This could be due to a number of factors, including principally patients' delaying health care or the health care system's failure to diagnose patients in a timely manner. Delay in the diagnosis

and treatment of tuberculosis results in more severe disease and higher mortality. It also leads to an increased period of infectivity in the community.

Objectives: The aims of this study are to determine the length of delays in two distinct areas (privileged and disadvantaged) of the eastern region of Afghanistan and to analyze the factors affecting the delays from the onset of symptoms of pulmonary smear-positive tuberculosis (TBSS+) until the initiation of treatment.

Method: In all public hospitals which have TB diagnostic and treatment facilities in the eastern region of Afghanistan (Nangarhar and Laghman provinces for the privileged area; and Kunar and Nuristan provinces for the disadvantaged area), we conducted a cross sectional study with consecutive recruitment of TBSS+ patients from September 13th, 2008, to February 8th, 2009. We extended the survey to several other health facilities (a hospital and three urban clinics in Nangarhar and a comprehensive health center (CHC) in Kunar) in the course of the study period because they also provided TB care. Delay was categorized as patient delay (period from onset of symptoms to first visit to a health care provider) and health system delay (period from the first visit to the health care provider until initiation of anti-tuberculosis treatment). These delays contribute to total delay, the time from the onset of symptoms to the time of the commencement of treatment. Patients were interviewed using a structured questionnaire at the time of diagnosis or within one month of initiation of the anti-TB treatment. Stepwise multiple linear regression analysis was applied to analyze the risk factors of patient and health system delays.

Results: Of 295 TB patients surveyed, a total of 248 TBSS+ patients (129 in the privileged area and 119 in the disadvantaged area) were analyzed. The mean patient, health-system and total delays in the privileged area were 25.9, 35.5, and 61.4 days and 208.5, 140.2, and 348.6 days in the disadvantaged area. Both types of delay were significantly shorter in the privileged areas than in the disadvantaged area ($p < 0.001$). In the privileged area, longer patient delays were positively associated with unemployment and seeking alternative health services, while they were negatively associated with initially visiting private health care providers (HCPs) ($p < 0.05$). In the disadvantaged area, longer patient delays were associated with initial seeking of alternative health services, initial visits to private HCPs, and longer time needed to reach private HCPs' clinics ($p < 0.05$). Health system delays were associated with multiple visits to HCPs in both areas and with initial consultation with mid-level HCPs in the disadvantaged area ($p < 0.01$).

Discussion: Diagnostic delay for tuberculosis is unacceptably high in both areas, but the delays in the disadvantaged area are the highest ever reported globally. Health system delays in both areas and patient delays in the disadvantaged areas are mainly responsible for such delays. The tendency to seek alternative health services in both areas and poor access to quality care in the mountainous areas are the main reasons for patient delays. However, the main reason for health system delays is the long journey of multiple visits in both areas and the tendency to consult mid-level HCPs in the disadvantaged area. Efforts that include encouraging patients to make early visits and improving the diagnostic abilities of both private and public HCPs in both areas and active case finding with symptoms and contacts screening in the disadvantaged areas are vital to reduce the delays.

Conclusion: Diagnostic delay for tuberculosis in the eastern region of Afghanistan is found to be unacceptably high. While patient and health system delays in the privileged areas were 25.9 and 35.5 days, those in the disadvantaged areas were 208.5 and 140.2 days, respectively. Several factors relevant to this region were associated with these delays.