

# Tuberculosis Control

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Effect of the involvement of members of the Iraqi Women's Federation (IWF) on the outcome of DOTS strategy for pulmonary tuberculosis patients in Iraq: an intervention study

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## Abstract

This project aimed at studying the effect of the involvement of members of the Iraqi Women's Federation (IWF) on the outcome of the strategy of directly observed treatment short course (DOTS) in the treatment of tuberculosis patients. A total of 172 newly diagnosed cases in Saddam City, Baghdad, were systematically randomized into 2 groups, one using the conventional method of administering DOTS in primary health care centres, and the other with involvement of members of the IWF supervising DOTS.

**Results** Involvement of the IWF had a significant impact on the outcome of the DOTS strategy for tuberculosis treatment. The cure rate in the intervention group was 83.7%, compared to 68.6% in the control group. All patients in the intervention group were compliant, compared to 86% in the control group. The cure rate for patients was found to be significantly negatively associated with the number of doses missed, and the cut-off point was found to be 8 doses. Smear conversion rates were significantly higher in the intervention group compared to the control group. On the other hand, neither the defaulter rate nor mortality was affected by this intervention.

**Conclusion** This study provides evidence that involvement of nongovernmental organizations would significantly improve the treatment outcome of tuberculosis patients under the DOTS strategy. The introduction of this intervention in the National Tuberculosis Control Programme is highly recommended.

## Background

There have been several reports regarding the involvement of nongovernmental organizations (NGOs) in home visiting of tuberculosis patients in order to supervise the directly observed chemotherapy short course, DOTS. Moreover, NGOs have collaborated with national tuberculosis programmes in DOTS implementation, health education, contact tracing, defaulter retrieving, advocacy and financial support to tuberculosis patients. This study aimed at evaluating the impact of the involvement of the Iraqi Women's Federation (IWF) in improving the DOTS outcome compared to the conventional method of DOTS administration.

## Material and methods

An intervention study was conducted from February to December 2001 in the Primary Health Care Centres of Saddam City, Baghdad. A total of 172 newly diagnosed cases were systematically randomized into intervention or control groups (86 in each group). Diagnosis took place in the Tuberculosis Institute, Baghdad, based on 3 consecutive positive sputum smears by Ziehl-Neelsen Stain.

**Intervention** Twenty members of the IWF were nominated and selected from the local branch of the IWF in Saddam City and trained for 2 days on the problem of tuberculosis and on the direct daily close supervision of DOTS. Training included how to approach patients daily and how to administer the antituberculosis drugs directly from their hands during the 2 months of intense treatment of DOTS. They were trained on the adherence to the visit, the schedule of treatment and the provision of direct daily hand-to-mouth

## Conclusions and implications of the study

- This study reported the beneficial impact of involving nongovernmental organizations on the outcome of tuberculosis patients managed under the DOTS strategy.
- There is a need to implement this successful intervention on a wider scale in the country and in other countries where tuberculosis is a public health problem.
- A minimum of 8 missed doses of anti-tuberculous drugs could significantly affect the cure of patients.

therapy for patients assigned to them; thereafter, they were responsible for their patients' monthly follow-up. They were also taught to educate the patient and his family on the disease and its transmission, and trained in the completion of the questionnaires. These individuals were strictly observed by the tuberculosis coordinator. After the period of intensive treatment using the same regimen (rifampicin, isoniazid, pyrazinamide, ethambutol or streptomycin), the patients were referred to the tuberculosis coordinator to complete their treatment of daily rifampicin and isoniazid administered by the nearest primary health care centre.

The conventional method of delivering antituberculosis drugs to the patients took place in the primary health care centre for a 6-month period, during which the drugs were delivered on a daily basis to the 86 patients belonging to the control group. Patients from the two groups were followed-up in a timely fashion to measure the smear conversion rates at the end of the first, second, third and fifth months, the defaulter rates, non-compliance, cure rates, treatment failures and mortality rates.

### ■ Main study findings

There were no significant differences between the intervention and control groups regarding age, gender, type of family and occupation. On the other hand, house ownership was significantly higher in the intervention group, and the crowding index was significantly higher in the control group. In more than one-third of patients, a household index case was identified, mainly a second-degree relative, compared to almost one-quarter of patients with a non-household index case. The ratio of household to non-household index cases was 1.64.

The cure rate was significantly higher in the intervention group (83.7%), compared to the control group (68.6%).

The risk of being smear-positive was significantly higher through the period of follow-up in the control group compared to the intervention group. Alternatively, the seroconversion rates were significantly higher in the intervention group compared to the control group, and showed a significant trend with the duration of follow-up.

Moreover, the noncompliance problem was absent from the intervention group supervised by the members of the IWF. In the control group, noncompliance to treatment varied in duration according to the duration of follow-up, but the overall noncompliance rate was 86%. Noncompliance in this group was not associated with gender, family type, ownership of a house or marital status. On the other hand, the duration of follow-up was the only significant determinant of noncompliance, and noncompliance was significantly associated with treatment failure.

In fact, the cure of a patient was found to be negatively associated with the number of doses missed ( $P = 0.03$ ), and the cut-off point was found to be 8 doses ( $P = 0.04$ ).

The defaulter and the mortality rates were not significantly different among the 2 groups in this study. Defaulter rates in the two groups were 11.18% and 10.6% in the intervention and control groups, respectively. Regarding mortality, 2 cases died, 1 in each group (1.2%). However, a larger sample size is needed before drawing conclusions about defaulting and mortality rates. This is one of the study limitations.

### ■ Conclusions and recommendations

This study provides evidence that involvement of nongovernmental organizations would significantly improve the cure rate, smear conversion rate and the compliance rate of pulmonary tuberculosis patients, thus reducing infectivity days, preventing the spread of the disease at the community level, and reducing relapses.

Research on the cost-effectiveness of this intervention is recommended in order to provide additional evidence about the importance of its introduction within the DOTS strategy in low-income countries with a heavy tuberculosis burden.