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Food Supplements for Adherence to DOTS in Tajikistan

Food Supplements for Tuberculosis Patients – do they reach the target group?

Von Raffael Ayé und Kaspar Wyss

Tuberculosis has made the headlines of media in recent years because the epidemic is still rampant in many low-income countries and because drug-resistant strains have led to outbreaks in different parts of the world. For the control of the tuberculosis epidemic and for minimisation of resistance, adherence to treatment is key. In order to improve treatment adherence for tuberculosis, patients in Tajikistan are incentivised with food supplements.

The present study investigated to which proportion of patients receive the food supplements that they are entitled to. Further, it quantified the local market value of the food supplements and any payments that are potentially made by patients in association with the food supplements. The study concludes that food supplements are very likely to contribute to improved health of TB patients and could be used in other countries, too.

Tuberculosis in Tajikistan

Tajikistan is the poorest country among the former Soviet republics and its per capita gross domestic product amounts to $1600 purchasing power parity. The country has undergone a civil war from 1992 to 1998 during which time much of the infrastructure has been damaged. Many villages and even whole districts are cut off in winter from electricity supply and transportation axes in this mountainous country. The grey economy in Tajikistan exceeds the official economy in several aspects (World Bank 2005). Especially young men leaving the country for several months or years to work in Russia is very common. Corruption is widespread and Transparency International ranks Tajikistan number 151 out of 180 countries in their perceived corruption index (Transparency International 2008). The health system has inherited its basic structure from the Soviet Union. It is focused on the specialist level and at least nominally is very comprehensive (World Bank 2004).

The Ministry of Health of the Republic of Tajikistan is leading the implementation of health sector reform in Tajikistan, whereby among others primary health care is being strengthened and a system of co-payments is introduced for selected services. In parallel, a DOTS

programme (DOTS is the TB control strategy recommended by the World Health Organisation) was started to improve tuberculosis (TB) control with support from several international agencies. Project Sino is supporting both, health sector reform and the implementation of DOTS, and works on the integration of TB services into general (primary) health care. Project Sino provides support for the DOTS programmes of Danghara, Shahrinaw, Tursunzoda and Varzob. The TB incidence in Tajikistan was recently estimated at 204 cases per 100'000 population per year (WHO 2008).

Disease exerts a heavy economic burden on vulnerable households. This is particularly true for chronic and long-lasting illnesses, including TB. The economic burden is an important reason for patients to prematurely stop their treatment, especially in the context of poverty. TB control programmes have used different strategies to ease the economic hardship that the disease and its treatment exert on households, including cash payments to patients, meals alongside TB treatment, travel vouchers and provision food supplements to patients' households. These measures have been shown to effectively reduce defaulter rates and to improve treatment outcomes (Farmer et al. 1991). Food supplements, in addition to easing the economic hardship of ill-health, contribute to improved nutrition of the patients and their families. This is particularly important because many TB patients are malnourished and because nutritional status is thought to play an important role in the interplay of TB and the immune system. Historically, nutritious food was one of the main components of TB care.

Several studies conducted in the framework of Project Sino have shown that there is a strong need for measures to ease the economic hardship of TB. A focus group study on access and adherence to TB treatment identified costs of illness at the household level as the key barrier to access TB care and for treatment adherence. Results of a survey among 204 TB patients indicate that the costs encountered are a heavy burden for the patients and their households. Total costs related to an episode of TB amounted to 1050 USD (4900 USD purchasing power parity) on average. More than a third of households sold assets and almost half of households took out loans to cope with the financial demands of treatment. Such a catastrophic economic burden may prevent patients from adhering to treatment and may make other household members more vulnerable to disease.

The food supplements consist of wheat flour, vegetable oil, peas and salt, the exact amount is depending on family size. The food supplements are brought to distribution centres, from where the patients organise transport to their home themselves. In rayons with food supplement provision, all TB patients are eligible for food supplements as long as they adhere to the treatment regimen. Food supplements are distributed three times to each patient, the first food supplement usually being provided after the completion of the intensive phase of treatment. Correspondingly, the third food supplement would variably be received two to five months after the end of treatment.

Food supplement distribution programmes commonly encounter problems of accountability. To look into this issue, we studied the following questions:
1) Do TB patients receive food supplements three times as they should?

2) What is the estimated market value of the food supplements that patients receive?
3) Do patients report informal payments in relation to the food supplements?

Review of the Distribution of Food Supplements

Information on how often food distributions took place was collected from Project Sino and Project Hope, who carry out the food distributions together with the United Nations World Food Programme.

The data for the present study was gathered in the framework of the study on costs of illness at the household level mentioned above. We collected information on the reception of food supplements and on expenses associated with food supplements. The study was conducted in twelve rayons of Tajikistan, six of which had a programme of food supplements. In the other six rayons, no food supplements were provided at the time of the study. We conducted two interviews with each patient who was enrolled – the first one in the intensive phase of TB treatment and the second one two to four months later in the continuation phase. In the first interview, patients were asked whether they would be eligible for food supplements during their TB treatment. In the second interview, patients were asked whether and how many times they had received food supplements, what the approximate value of these food supplements on the local market was, and how much they had spent to receive the food supplements and for the transport to bring them home from the point of delivery. Thus, most information about food supplements is self-reported by the patients. The date when the patient had started treatment and the date when the continuation phase was started, were recorded, too.

For the analysis, the proportion of patients who had received zero, one, two and three food supplements respectively were calculated. The number of food supplements received was plotted against the time in treatment (in days). The mean amounts spent to be eligible for food supplements (informal payments) and for transportation to pick up and bring home the food stuffs were calculated.

Number of Food Supplements Received by Patients

Food distribution cycles were planned to happen quarterly, but due to recurring contract negotiations between Project Sino and WFP, this interval was not always regular. The average number of four food distribution cycles per year was kept up. About 300 TB patients and their family members have received food supplements each year in the four Project Sino pilot rayons.

Table 1: Awareness of patients about their entitlement to food supplements and about the number of food supplements.

Awareness of food supplements	patients interviewed	patients who knew whether they were entitled or not	patients who knew correct number of food supplements
Rayons without food supplements (6 rayons)	116	80 (69%)	11 (9%)
Rayons without food supplements (6 rayons)	89	54 (61%)	n/a
Total (12 rayons)	205	121 (59%)	n/a

The study spanned the period from December 2006 to August 2007. During this period, four food distributions took place in each of the rayons with the exception of two rayons. In the latter two rayons, only three distributions each took place. All the food distributions took place between 26th March and 27th June 2007. Consequently, there were gaps in food distribution from December 2006 to March 2007 and from June 2007 to August 2007. These gaps were due to characteristics of the contracting process between the organisations involved.

During the first interview, 204 patients were interviewed. In the rayons, where there are no food supplements, 54 out of 89 patients (61%) knew that they were not entitled. On the other side, 116 patients (57%) lived in rayons, where food supplements are provided and thus were entitled to food supplements. 69% of these patients were aware about their entitlement: 80 out of 116. Eleven patients (9%) knew that they were entitled to three food supplements.

At the time of the second interview, 25 patients indicated they had already received all three food supplements (30% of the eligible patients). Thirty-four patients (40%) indicated they had received two food supplements, 17 patients (20%) one, and 8 patients (10%) none. There was no clear relationship between time since start of treatment and the number of food supplements that had been received (Fig. 1). In non-Sino rayons, patients reported having received fewer food distributions (69% reported having received one food supplement). Remarkably, the reported value of food supplements in these rayons was almost double. Possibly, the total amount of food received was similar.

Patients from rayons without food supplement provision expressed bitter grieve about the inequity that they were not entitled to the same benefits as patients from other rayons. For example, Hissor rayon does not have food supplements, but is encircled by three rayons, all of which have food supplements (Dushanbe, Rudaki and Shahrinaw). There were also episodes of patients who accused TB doctors of theft. They had witnessed that food supplements were

given to TB patients in other rayons, but never received any themselves, because they lived in a rayon without food supplements. They had wrongly concluded that the doctor had taken possession of their food supplements.

Monetary Value and Expenditures

Patients were also asked to estimate the value of the food they had received. The mean value (the median value was almost identical) of one food donation was estimated at 81 USD (±s.e.=4.0 USD). The most valuable item in the food donations were the bags of flour. Patients mostly estimated that the local market price of one bag of flour (50kg) lay between 16.0 to 18.9 USD.

On the question, whether they had paid anything (or made any in-kind gifts) in order to be eligible for food supplements, 13 out of 68 patients (19%) reported having paid to be eligible for food supplements. The mean self-reported payment of those who did pay was 1.1 USD (±0.61) per food supplement.

On average, patients paid 4.9 USD (±0.43) each time for the transport to pick up and bring home the food donations.

Discussion

According to the information collected, almost all the scheduled food supplement distribution cycles have taken place, although in some cases delayed by several months.

The awareness of patients about their entitlement to food supplements could be further improved. More detailed discussions with patients revealed that most of them have heard about or even witnessed the distribution of food supplements. However, they were not very confident that they themselves would also receive food supplements. The irregular intervals at which food supplements are distributed probably contribute to the patients' uncertainty.

The patients' uncertainty, whether they will receive food supplements or not, does not seem justified in the light of the study findings: a large proportion of patients in the study had already received all three food supplements before the end of the treatment. It seems likely that those who had not yet received the third food supplement have received it after the interview. However, there was no relationship between time in treatment and the number of food supplements that had been received. The lack of such a relationship was attributed to the fact that all the food distribution cycles took place in a relatively short time span.

While this study did not investigate the exact amount of food that was received, informal discussions with beneficiaries showed that many patients were aware that food supplements were given based on the number of household members up to a threshold. Patients also reported the use of scales during food distributions as foreseen by the programmes. Some patients reported that they had received a smaller amount than what they were entitled to.

One patient said that he had protested, but that his protests were ignored. Such examples show that it is important for the involved organisations to closely follow the distribution process on the ground.

Assuming that all patients did receive three food donations in the end, the programme contributed 244 USD on average to each patient's household budget, according to the patients' estimates. Subtracting the mean payments reported in direct relation to the food supplements, this amount comes to 225 USD. The total illness-related costs at the level of TB patients' households were found in the main study to be around 1050 USD. Correspondingly, the food supplements made a substantial contribution to the household budgets of patients during times of economical hardship. The contribution to the household budget fell, however, well short of balancing the total household costs.

While this study did not investigate the influence of food supplements on the treatment outcomes, the dire need and economic hardship of TB patients that has been documented are clearly alleviated by the contribution of food supplements. Consequently it is very likely that food supplements enable patients to better adhere to the treatment and thus contribute to improved treatment outcomes. Furthermore, nutritious food is important both in the prevention of adverse reactions to the treatment regimen and in the interaction of TB and the immune system. Hence, food supplements are a valid option for the improvement of treatment outcomes in TB control programmes in Tajikistan and elsewhere.

From the study results it can be concluded, that TB patients have received food supplements as foreseen by the programme, albeit sometimes with delays of several months. The study showed no indication of important proportions of food supplements failing to reach the patient. Three food supplements make a contribution to the patients' household budgets of about 225 USD. It is very likely that this has contributed to better treatment outcomes.

In order to improve TB control in Tajikistan it would be advisable to expand food supplements to those rayons where they do not exist currently. The absence of food supplements in certain rayons constitutes an inequity and is bitterly felt by the affected patients. In some instances, it also negatively affects the relationship of trust between patients and TB doctors.

Raffael Aye is a PhD candidate and consultant in epidemiology at the Swiss Centre for International Health of the Swiss Tropical Institute. His research focuses on access to medical care and household costs, which he studies on the example of tuberculosis in Tajikistan. Contact: raffael.aye@unibas.ch

Kaspar Wyss is associate professor at the University of Basel and heads a unit at the Swiss Centre for International Health of the Swiss Tropical Institute (STI) focusing on health systems performance and monitoring. He directs a number of research and implementation projects, including the "Tajik-Swiss Health Reform and Family Medicine Support Project" and various other projects in Switzerland, Eastern Europe and Africa. Contact: Kaspar.Wyss@unibas.ch

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Kontakt

Deutschschweiz
Medicus Mundi Schweiz
Murbacherstrasse 34
CH-4056 Basel
Tel. +41 61 383 18 10
info@medicusmundi.ch

Suisse romande
Medicus Mundi Suisse
Rue de Varembé 1
CH-1202 Genève
Tél. +41 22 920 08 08
contact@medicusmundi.ch

Bankverbindung
Basler Kantonalbank, Aeschen, 4002 Basel
Medicus Mundi Schweiz, 4056 Basel
IBAN: CH40 0077 0016 0516 9903 5
BIC: BKBBCHBBXXX