

The forgotten disease

Evaluation of a Community Tuberculosis Control Programme in Rural Bangladesh

(This is the second instalment of the article)

Methodology

Two thanas were picked for evaluations: one with low case finding record (Kahaloo in Bogra district) and the other with higher record (Fulbari in Dinajpur). Another thana (Domar in Nilphamari district), closely located and socio-economically similar to the above two, was selected for comparison.

The following activities were carried out for the evaluation:

a. Prevalence Study: Over three thousand households spread over 10-18 randomly selected villages were interviewed in each thana. Interviewers looked for individuals with chronic cough for at least three weeks in each household and collected three samples of the sputa (night, early morning and day) from

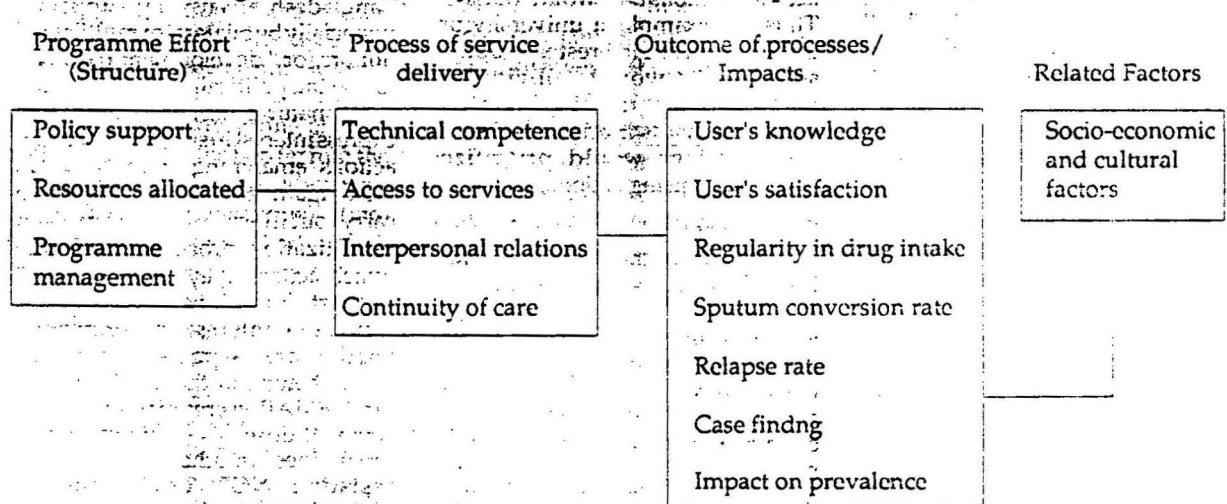
each symptomatic. These were then smeared and microscopy done by trained technicians using the Ziehl-Neelson method. For quality control, a random selection of the slides was re-examined by technicians from the government's TB control project who found quality of staining, smearing and microscopy to be within acceptable standards.

As the data collection nearly came to an end, initial examination of the laboratory results signaled a low prevalence of the disease as indicated by the number of AFB positive cases identified. Apprehending under-reporting, a re-visit was done in all the households by using the same methodology as previously used. This, however, did not result in a marked increase in the number of cases identified.

b. Relapse Study: This part of the study selected all patients who completed their treatments with BRAC programme in the two programme thanas. A total of 465 such cases were visited but only 435 could be traced. They were interviewed with a pre-designed questionnaire, and three sputa were collected from each and tested for AFB using the same procedure as in 'a'.

c. Quality of Care Study: Assessment of the quality of care is a judgment on the process and level of care provided by health practitioners (Donabedian, 1978). The importance of the quality of care in the success of a programme cannot be over-emphasized but its evolution as a framework for evaluation is recent. The framework of analysis suggested by Bruce (1990) was adapted and used here. The type of variables we included in our model is indicated in Figure 1.

Figure 1: The Quality of Care Framework (adapted from Bruce, 1990)



The indicators used to address some of the above variables are given in Table 2. The framework provides opportunities for analysing the whole gamut of the programme, much beyond the narrow perspective of the quality of care as is attempted here. This will be taken up further later on.

Source: *In Touch*, Vol. 14, no. 154, June 1996

Table 2: List of variables addressed

Variables	Indicators
<u>Process of services delivery</u>	
1. Technical competence	1.A. Skills - Case finding - Initiation of treatment - Time elapsed between identification and treatment - Change of regimen 1.B. 'Actual Performance' - Side-effects after initiating treatment - What measures BRAC has taken
2. Access to services	2.A. Geographic - Visit of patient to VHW's house 2.B. Economic - Deposit money 2.C. Organizational - Visit by VHW - Visit by BRAC staff
3. Interpersonal relations	3.A. Problems faced by the VHW when the patients visit their house for medicine 3.B. Client's satisfaction
4. Continuity of care	4.A. Follow-up by VHW and BRAC staff 4.B. Regularity of sputum follow-up 4.C. Regularity of drug intake 4.D. Availability of services
<u>Outcome of processes</u>	
1. Knowledge	1.A. Name of the disease that is being treated 1.B. Phase of the treatment the patients are in now? 1.C. Length of the treatment period 1.D. Storage of medicine 1.E. Measures taken by the patients for side-effects 1.F. Other health providers for the treatment of TB?
2. Acceptance and continuation	2. Regularity in drug intake - Whether the patients took medicine yesterday
3. Health status	3. Sputum conversion rate
4. Satisfaction	4.A. Whether the patients are satisfied with BRAC's treatment 4.B. Reasons for being satisfied/not satisfied
<u>Socio-economic characteristics</u>	1. Age (in years) 2. Sex 3. Education 4. Occupation (in which job most of the time is spent in a year) 5. Poor/Non-Poor (Poor population includes households having less than 50 decimals of land)
<u>Cultural attitudes of family members and villagers</u>	Attitude towards TB

The indicators mentioned in Table 2 have been addressed by interviewing and/or observing the following groups of individuals in the two programme thanas (Kahaloo and Fulbari):

- All currently treated TB patients (141 in number);
- Community members;
- VHWs; and
- Local BRAC staff.

Structured interviews, focus group discussions and observations (e.g., how carefully the drugs are kept by patients and VHWs in their homes) were used in collecting information.

Data for all the above studies were collected by separate group of experienced interviewers who were appropriately trained for the respective purposes. The training included both class-room and field training. They were supervised by field supervisors and senior researchers from BRAC's Research and Evaluation Division. Two of the researchers (AI and MSI) were also involved in the National and Manikganj TB surveys.

(To be continued in our next issue)

A. Mushtaque R. Chowdhury,
Md. Nazrul Islam,
Akramul Islam,
Kaosar Afsana,
Shah Noor Mahmud,
Ahmed Ali,
Fazlul Karim,
Sadia A. Chowdhury,
M. Sirajul Islam

This is a revised version of a paper presented at the 18th Eastern Regional Conference of the International Union Against Tuberculosis and Lung Disease, Dhaka, 28 - 31 October 1995.

The authors belong to BRAC, 66, Mohakhali C/A, Dhaka-1212, Bangladesh

The forgotten disease

Evaluation of a Community Tuberculosis Control Programme in Rural Bangladesh

Abstract

Tuberculosis remains a major world-wide public health menace despite the scientific advances made in the discovery of its causative organisms and effective treatment procedures. Control programmes in different countries have been facing problems in terms of case finding and compliance of treatment.

In 1984, an innovative community-based programme was tested in a thana of rural Bangladesh with voluntary health workers (VHWs) as the nucleus. With incentives given to VHWs for case finding and getting patients sign a bond to complete the treatment, the treatment completion rate rose to 66%. In 1992, the programme was extended to 10 more thanas with a population of 1.7 millions. Within three years, the programme reached to 4,720 smear positive patients, 85% of whom started the free treatment. The treatment completion rate was 84%. From early 1995, the 12-month therapy was discontinued and the 8-month therapy was introduced.

In mid 1995, an independent evaluation using epidemiological and social science methods was carried out to measure the impact of the programme in terms of prevalence of TB, relapse rate, and also to explore selected dimensions of 'quality of care' aspects in the programme. The prevalence of sputum-positive TB in the programme area was found to be half of what was found for a contiguous non-programme area, but the programme could identify only about half of the TB patients. Among those completing the treatment two or more years previously, the relapse rate was

nearly 8%. Quality of care in terms of technical competence, access to services, inter-personal relations, sputum conversion rate, and regularity of drug intake was found to be of reasonably high standard, and clients were satisfied with the services provided.

Introduction

Tuberculosis (TB) remains a global public health problem. In the developed countries where the disease was thought to have been eradicated long ago, it is now staging a comeback partly through the epidemic of the acquired immunodeficiencies syndrome (AIDS). But in developing countries it has never been eradicated despite the availability of highly effective treatment regimens; in such countries TB, which disproportionately affects the poor and other neglected segments of the population, is politically a low priority programme.

The major challenge of any TB control programme is case finding and compliance of treatment. Although the disease is much dreaded in societies like Bangladesh (Chowdhury and Kabir, 1988), the taboos and stigma attached and the poor facilities and unfriendly attitude of providers discourage the patients to report the illness to health centres (BRAC, 1991). The treatment is rather long (6 to 12 months) and as such the compliance is low. Recognising the depth of the problem, both in terms of disease prevalence and treatment challenges, BRAC, a non-governmental organization (NGO), began a community-based tuberculosis control programme in 1984 in a thana with village-based voluntary health

workers (VHWs). With encouraging results (Chowdhury et al., 1991; 1992), BRAC extended the programme to 10 more thanas in 1992. At the end of three years, an evaluation was carried out by BRAC's independent Research and Evaluation Division. This paper presents the programme and the findings of the evaluation.

The magnitude to the problem

A radiological survey found 3.2 million cases of pulmonary tuberculosis in Bangladesh in 1964-65 (Islam, 1981). It was estimated that 390,000 of these cases (or 0.5% of the population) were sputum positive. A recent national survey found 0.87% sputum positive cases in the population 15 years old and over (Director General Health Services, 1989); men were infected twice as often as women and the problem was more acute in urban areas (Table 1).

Table 1: Tuberculosis in adults 15 years and over as determined by the National Prevalence Survey on Tuberculosis in Bangladesh (1987-88).

Population groups	% sputum positive
Total	0.87
Male	1.08
Female	0.60
Rural	0.80
Urban	1.61

In another survey carried out in 50 villages of Manikganj district in 1984, twenty percent of the population aged 15 years or over had a history of chronic cough. Examination of sputum from these patients revealed that 2.7% were AFB (acid fast bacilli) positive and out of those cultured, 3.1% showed the growth of *M. tuberculosis*. Sixty three percent of smear-positive cases were also culture positive. Smear-positive rates in the community were estimated to be 0.33% to 0.55% and culture positive rates 0.39% to 0.64%. Drug sensitivity tests indicated that 70%

of the strains were sensitive to all 12 anti-tuberculosis drugs and the remainder were resistant to one or two combinations of streptomycin, INH, thiacetazone and ethionamide (Islam et al., 1986).

Control programmes in Bangladesh
There are essentially three types of tuberculosis control programmes in Bangladesh (Ishikawa, 1985):

Type A. Hospital or clinic based programmes that have no or insignificant links with the community (government programmes);

Type B. Hospital or clinic based programmes that have strong links with community health workers (most programmes run by non-governmental organisations (NGOs); and

Type C. totally community based programmes with no hospital or clinic where village health workers are the 'nucleus' (the BRAC programme described later in this paper).

There is also a large private health sector. The anti-tuberculosis drugs are available for purchase over the counter from pharmacies and most of these drugs are produced in Bangladesh.

The National Control Programme
The Bangladesh national treatment programme is clinic-based with 57 hospitals and clinics (with 1,076 beds). All of these are located in urban areas and if the estimated number of active tuberculosis cases is correct, there are 0.0019 beds available for each case. It has been estimated that only 25% of the patients turning to these facilities complete their treatment. The participation and contribution of the 460 thana level Health Complexes in the tuberculosis control programme is considered to be insignificant (Islam, 1987).

Although the integration of tuberculosis control in the health services has been an accepted policy of the government since 1976, little progress has been made in this regard. A large number of government health workers posted in the community (approximately 15 per 20,000 population), yet none of them is involved in any activity directly related to tuberculosis control except for BCG given in the EPI programme (BRAC, 1990). The health staff is not sufficiently trained in tuberculosis control; supervision of patients for compliance in hospitals and especially at the community level is lacking. Finally, as elsewhere in developing countries, tuberculosis control is politically a low priority programme; this is despite increased donor interest shown in recent years.

Some NGOs have undertaken small scale programmes, which are unable to make any impact on the global control of tuberculosis in Bangladesh.

In recent times, however, the government has been showing some definite interests. With new donor support, the government has undertaken an ambitious programme called "Further Development of TB and Leprosy Control Services", where the NGOs will play an important role.

The preventive approach to tuberculosis through BCG vaccination has improved from less than 2% coverage in 1986 to 80% in the 1990's for the population under one year of age.

**The TB Control Programme of BRAC
The Manikganj Experience**

Since 1976, BRAC has been running an integrated development project in Manikganj, a thana situated 65 kilometres west of Dhaka city. Programmes on education for adults and children, health, income

generation, credit and women's development have been carried out in 235 villages with a total population of about 220,000. The cornerstone of the BRAC programme is the development of cooperative group of poor female villagers where a member has been trained by BRAC to become a voluntary health worker (VHW). Patients with common illnesses are treated for a small fee by VHW who also sells selected essential drugs. The VHWs are mostly illiterate female, with an average age of 35, and belong to the poorest section of the community (BRAC, 1987).

BRAC also trained these women in TB treatment. In their daily rounds in the village, they looked for individuals with chronic cough. The symptomatics gave their early morning sputa for microscopic examination for acid fast bacilli (AFB) in the field laboratory. Positive cases were contacted, told about the results, and asked to register to receive a 12 month free treatment course. Patients refusing to participate were motivated through other family members and influential people in the village.

Patients willing to participate were asked to deposit Taka 100, equivalent to three days' of wages, as a guarantee to complete the treatment course, and to sign a deed to this effect in the presence of other villagers and family members. Upon successful completion of the course, the patient received Taka 75 back and Taka 25 was given to the VHW for her service over the year. Patients too poor to pay the deposit received a waiver but family members and other influential villagers were required to provide a guarantee that he/she would not default. In some cases, the group to which the patient belonged paid it for him/her.

The treatment began with a streptomycin course of 30 injections

every other day for two months, accompanied by INH (300 mg) and thiacetazone (150 mg), ('Diabeten') once daily for 12 months. In case of adverse reactions to the latter drug, two ethambutol (400 mg) tablets and three isoniazid (100 mg) tablets were given daily. The injections were given by the VHW, who also provided the drugs for one to two weeks; before replenishing the supply she made sure that the drugs previously given were consumed.

During treatment, the sputum was again tested at least at 6 and 12 months. Patients with complications or sputum positive after 12 months were referred to specialised clinics or hospitals in Dhaka. The VHW also received Taka 20 for each positive case identified.

Results showed that over 66% of the identified cases completed the treatment regime. A study of those completing the treatment four years or more previously found a relapse rate of 10% among such individuals.

Extension to 10 Thanas
In 1992, BRAC extended the

programme to 10 additional thanas. As experiences gained, new changes were made in the programme strategy. The VHWs remained the nucleus of the programme. The bond money has now increased Taka 200, to provide more incentives to the VHW. The treatment regimen also changed: since early 1995 all the patients are given the 8-months regime. The drug regimen given now is Rifampicin + Isoniazid + Ethambutol + Pyrazinamide for 2 months (please note: streptomycin injection is discontinued) followed by Isoniazid + Thiacetazone for 6 months. Supervision has also been intensified and a medical officer is in charge of the programme at the thana level whose responsibility also include other health activities carried out by BRAC in the thana. The whole programme is overseen by a sector specialist based in the Dhaka headquarters of BRAC. A consultant also periodically supervises the programme. The ten thanas with a population of nearly two millions are located in the districts of Dinajpur, Bogra and Mymensingh.

The Evaluation
The evaluation, carried out from July to September 1995, had the following objectives:

1. to estimate the impact of the programme in terms of prevalence, case finding, cure rate and relapse rate; and
2. to explore the quality of (QoC) provided by the programme.

(To be continued in our next issue)
A. Mushtaque R. Chowdhury
Md. Nazrul Islam,
Akramul Islam,
Kaosar Afsana,
Shah Noor Mahmud,
Ahmed Ali,
Fazlul Karim,
Sadia A. Chowdhury,
M. Sirajul Islam

This is a revised version of a paper presented at the 18th Eastern Regional Conference of the International Union Against Tuberculosis and Lung Disease, Dhaka, 28-31 October 1995.

The authors belong to B-66 Mohakhali C/A, Dhaka, Bangladesh

Governance and membership development

The concept of governance has slowly but surely crept into the development discourse. It is getting popular in Bangladesh's development circle. It has made itself evident in various forms and under different names; governance, good government, democratic participation, public management reform etc. The definition of governance varies according to the role of the organisation by which it is defined. The term governance is not used explicitly except in relation to lawful governance which may be considered to have

another name such as, rule of law. Actually there is no general definition of governance and all the elements deemed necessary for the working of a democratic polity may be considered to constitute governance. Governance related common concerns of development are - public management, rule of law, accountability, and information.

Governance has three major components:

Form of a country's political authority (parliamentary or presidential, civilian or military,

autocratic or democratic).

The means to exercise the authority

Ability of governments to discharge their functions.

Good governance:

Effective governance includes perceptions of legitimacy, freedom of association and participation, legal frameworks, bureaucratic accountability, transparency, availability and validity of information, effective and efficient public sector management. The concepts of good governance include accountability, transparency, democracy, openness and participation.

Decentralization through democratic process is

The forgotten disease

Evaluation of a Community Tuberculosis Control Programme in Rural Bangladesh

(This is the last part of the article)

Impacts

The programme appears to have several major impacts. The knowledge about the programme in the study villages seemed universal. The people even knew some of the very details of the various processes including sputum examination, bond and treatment system.

The intake of drugs by the patients was regular as measured by asking direct questions and indirectly by an examination of sputum conversion rates. Over 85 percent of the sputa turned negative at the end of the second month of treatment.

The programme has attained a treatment completion rate of over 80 percent at the end of the treatment period. This is much higher than the pilot phase in Manikganj, and 3-times higher than the national programme. The present study found the cure rate to be 100 percent; microscopic examination of sputa from the patients whose treatment completed less than 30 days before the survey found none positive.

There was evidence of impact on prevalence of TB. The prevalence rate in the two programme thanas was half of what was found for the comparison thana. The prevalence rate found was, however, lower than expected. In Domar where no organized TB control programme was in operation, the prevalence rate was 0.15 percent of the adult population. This certainly is lower than other estimates. The methodology used in the present study was very similar to what was used in the national or Manikganj surveys, except that the sample size was somewhat smaller in the present

one. Also, the background information on the patients indicated agreement with the known epidemiology of TB. Most of the patients were male, illiterate, middle aged or older, and poor. Two of the researchers were also involved in the earlier studies. This, however, should not affect our argument about the probable impact of the BRAC programme. The methodology used in the programme and comparison thanas was the same and there is no reason to believe that the populations are otherwise dissimilar. The impact is, therefore, probably real.

The study also provided some disquieting information on the success of the programme in terms of case finding. BRAC has probably been successful in identifying only about half of the 'open' cases. The other interesting aspect is the gender differential in case finding. It appeared that BRAC was successful in identifying more female than male patients. This may be due to the fact that all VHWs are female.

Lastly the relapse rate. In the pilot project in Manikganj where patients treated four years or earlier were traced, the relapse rate in such patients was found to be 10 percent. In the expanded programme, a fairly 8 percent relapse rate was found among patients whose treatment course completed two years or earlier. It seems the situation has not improved much. It will be interesting to observe the situation in the future as the 8-month regimen has just been introduced in the programme.

Such promising results were also found in other settings such as South Africa (Wilkinson, 1994) and USA

(Weis et al., 1994) where similar 'directly observed therapy' was used. With support from the government and donors, BRAC is planning to extend this programme to 115 more thanas over the next few years. The challenge in such an expansion will be how BRAC continues to monitor its progress, increase case finding, reduce relapse and maintain a high cure rate.

Acknowledgment

A large number of persons assisted in different stages of the evaluation. Particular to mention are: Dr. Ishikawa, Hashima-e-Nasreen, SM Rowshan Alam, Bivaker Roy, Ali Mehryar Karim, Jalaluddin Ahmed, and Syed Shoaib Ahmed. The authors are grateful to them.

References

1. BRAC. The Manikganj health, nutrition and family planning programme. Dhaka (unpublished) (1987).
2. BRAC. A tale of two wings: health and family planning programmes in an upazila in northern Bangladesh, Dhaka (1990).
3. BRAC. Health and Population Programme Report (July 1993 - December 1994), Dhaka, (undated).
4. Bruce J. Fundamental elements of the quality of care: a simple framework. *Studies in Family Planning*, 21: 61-91 (1990).
5. Chowdhury AMR. & Kabir Z.N. Perceptions about the six immunisable diseases and vaccination in two areas of rural Bangladesh, Dhaka, BRAC (unpublished) (1988).
6. Chowdhury AMR, Ishikawa N. Controlling a forgotten disease: voluntary health workers for tuberculosis control in rural Bangladesh, IUATLD Newsletter, December (1991).
7. Chowdhury AMR et al. Tuberculosis control in Bangladesh. *Lancet* 339: 1181-82 (1992).
8. Director General Health Service (DGHS). Report on the national prevalence survey on tuberculosis in Bangladesh 1987-88, Dhaka (1989).
9. Government of Bangladesh. Annual report of activities of tuberculosis Control Programme in 1987, Dhaka (1988).
10. Ishikawa N. Promotion of the community based tuberculosis programme in Bangladesh. *Proceeding of the XIV Eastern Regional Tuberculosis Conference, Kathmandu, (1985).*

Source: *In Touch*, Vol. 14, No. 156, August 1996

11. Ishikawa N. DOT as a way to secure the cure, Newsletter from KIIYOSE, TOKYO, No. 9, September (1995).
12. Islam I. National tuberculosis control programme in Bangladesh. Proceedings of the XIIth Eastern Regional Conference, Dhaka (1981).
13. Islam M.S. Tuberculosis in Bangladesh, ADAB News, 121 (82):3-7 (1987).
14. Islam M.S., Koseki Y. & Ishikawa N. Epidemiological study of tuberculosis in a rural area in Bangladesh. World Conference of IUAT, Singapore, (1986).
15. Jain AK. Managing quality of care in population programmes. West Hartford, Kumarian Press (1992).
16. Nabi G., Imanuzzaman A.M. & Ishikawa N. Some attempts for motivation of tuberculosis patients in Bangladesh. Proceedings of the XIVth Eastern Regional Conference of IUAT, Kathmandu, (1986).
17. Parker N.R. Tuberculosis control in rural Bangladesh. MPH thesis, University of Sydney (1986).
18. Wilkinson D. High compliance tuberculosis treatment programme in a rural community, Lancet 343 : 647-8 (1994).
19. Weiss S.E. et al. The effect of directly observed therapy on the rates of drug resistance and relapse in tuberculosis, New England Journal of Medicine 330:1179-1184 (1994).

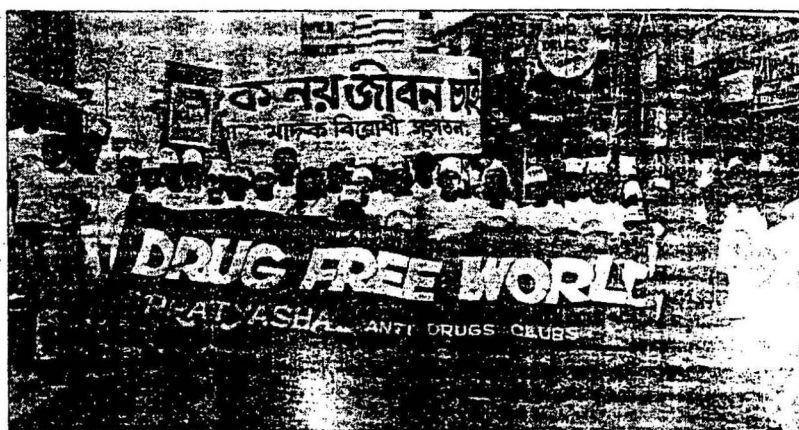
This is a revised version of a paper presented at the 18th Eastern Regional Conference of the International Union Against Tuberculosis and Lung Disease, Dhaka, 28-31 October 1995.

A. Mushtaque R. Chowdhury,
Md. Nazrul Islam,
Akramul Islam,
Kaosar Afsana,
Shah Noor Mahmud,
Ahmed Ali,
Fazlul Karim,
Sadia A. Chowdhury,
M. Sirajul Islam

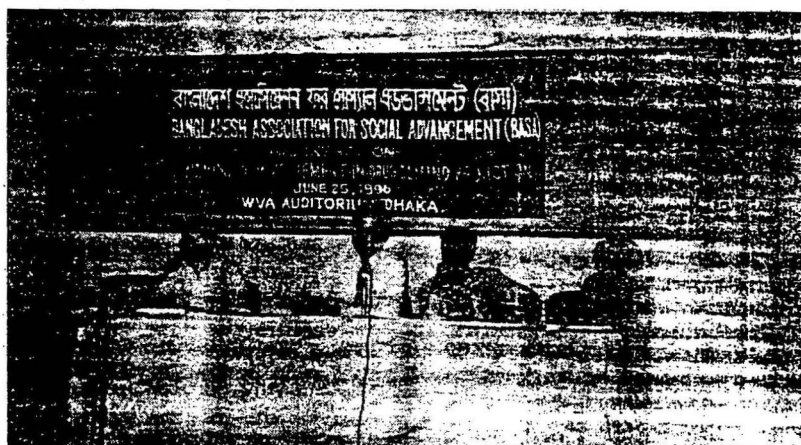
This is a revised version of a paper presented at the 18th Eastern Regional Conference of the International Union Against Tuberculosis and Lung Disease, Dhaka, 28-31 October 1995.

The authors belong to BRAC, 66, Mohakhali C/A, Dhaka-1212, Bangladesh.

Activities on drug prevention



Pratyasha, an anti drug organization brought out a colourful procession in observance International day against drug abuse and trafficking in Dhaka on June 26



Workshop arranged by BASA recently on drug demand reduction. Seen in the picture are Mr. Timothy Landering, Mr. Z.H. Razi, Dr. Shamim Chowdhury and Mr. S.



Workers of Pratyasha, an anti drug organization are fixing house holding numbers with anti drug message in the Narinda area of Dhaka city

The forgotten disease

Evaluation of a Community Tuberculosis Control Programme in Rural Bangladesh

(This is the third instalment of the article)

Results

Programme Achievements

The programme trained 3,023 VHWs in the 10 thanas who identified 4,720 AFB positive cases. Nearly 85 percent of them were brought under treatment by BRAC and 84 percent of them completed the 12-month treatment course. The cure rate was 100 percent as revealed from their sputa examination at the end of the treatment cycle.

The Impact on Prevalence

A total of 9,597 households were visited in the three thanas (population 44,558) and 846 symptomatics (with cough during the three weeks previous to survey) were identified, half of whom alone were from Domar, the comparison thana. Two thirds of the symptomatics were male and one third female. Of the symptomatics, 96.4 percent provided their sputa at least once; 92 percent provided it all three times. Of the sputa tested, 2.7 percent tested AFB positive in Kahaloo, 2.5 percent in Fulbari and 3.4 percent in Domar. When the number of AFB positive cases were compared against the respective population 15 years and older, the following prevalence rates were found: 0.07 in Kahaloo and Fulbari and 0.15 for Domar. Table 3 provides some of these information in a tabular form which shows that the prevalence rates in the programme thanas was half that of the comparison thana ($p < .05$).

The number of patients identified was small. However, the characteristics of the patients agrees well with the known epidemiology of the disease. Seventy five percent

of the identified cases were male, all except one were 35 years or older, three quarters were illiterate and nearly half came from economically poorer households. An important difference between the thanas should be noted: number female patients in the programme thanas was nil or very small compared to the comparison thana. The table below also indicates that the programmes has probably been successful in identifying only about half of the patients.

Table 3: Population surveyed, number of symptomatics and AFB positive cases in the three thanas studied.

Thana	Programme/ Comparison	Population ≥15 yrs	No. with symptoms No.	% ¹	AFB +ve No. ²	Prevalence % ³ (%)
Kahaloo	Programme	7,146	181	2.5	5	2.7 0.07
Fulbari	Programme	8,639	236	2.7	6	2.5 0.07
Domar	Comparison	8,720	378	4.3	13	3.4 0.15

1. Of the population

2. Of the cases, none in Kahaloo, 1 in Fulbari and 5 in Domar were female

3. Of the symptomatics

Relapse Cases

Out of 435 cases visited, 18 had their sputa positive, 9 each in the two thanas. Of the 18 cases, 17 were either 3+ve (more than 10 bacilli per microscopic field) or 2+ve (1-10 bacilli). Overall relapse rate was 4.1 percent. When this is calculated separately according to the number of months since treatment completed, it was 7.8 percent for those completing treatment more than two years ago, 3.3 percent for those completing between 12-23 months and 4.3 percent for those completing treatment less than a year ago. It should be mentioned here that all these were given the 12-month standard regimen.

Quality of Care

Process of case finding: The process of case finding includes the training of VHW in the village to identification of symptomatics to final detection of the disease. In each stage, BRAC staff and/or VHW have been involved. Results showed that most (69%) of the patients were identified by the VHW alone and the rests were identified by BRAC staff. However, results presented earlier showed that the BRAC programme has been able to identify only about half of the patients.

Process of initiation of treatment: In this process as well, the VHWs and BRAC staff participated. The programme service statistics suggested that 84.7 percent of the

identified patients started the treatment. However, only about half were started within seven days, which is the stated goal.

An important element in the initiation of treatment process is realization of the bond money. All the patients interviewed stated that they deposited the money, but not all paid in the full amount. Proportion not paying the full amount was negligible (11%).

Measures taken for side effects:

Over half of the patients complained of side effects from drug which included loss of appetite, tingling sensation of the limbs, vomiting or skin rash. However, BRAC had been

prompt in providing advice on how to deal with the side effects, as revealed from interview with patients.

Geographic access:

Access was not a problem as all the VHWs were village-based. Of the patients in the 'intensive phase' (which is first two months of treatment), over half were given their daily supply of drugs by the VHWs from their houses, and in the remaining the medicines were delivered to the patients' houses. The patients preferred the drugs to be delivered to their houses as some of them were too weak to go to VHWs' houses. This is an example of the "directly observed therapy" (DOT) which is considered to be a must for a successful programme in a society like Bangladesh (Ishikawa, 1995).

Economic access:

Economic access refers to the affordability of the drugs and services. It was mentioned at the outset that both of these are provided free of cost. The deposit bond is a contentious issue but most seemed able and willing to pay it.

Organizational access:

Organizational access refers to the extent to which services are conveniently organized for patients, for example, the mode of delivery. The mode of service delivery during the intensive phase of treatment has already been discussed. During the continuation phase (between the third and eighth month), the delivery of services takes place at patient's house. Nearly three quarter of the patients were visited either by VHW or BRAC staff during the week previous to the survey.

Interpersonal relations:

The dimension of interpersonal relations refers to the interaction between providers and patients. Regular visit of the patient by the health providers is an indication of interpersonal relationship. Almost

all the patients showed general satisfaction with the treatment provided by BRAC. Moreover, 95 percent of the VHWs did not encounter any problem in working for the TB patients. They mentioned that they 'enjoyed the work', that it was 'no waste of time', and that it caused 'no harm to their own work' nor 'inconvenient'.

Sputum collection:

With 12 months treatment, sputum is collected six times. The findings revealed that out of 36 patients in this category about 94.4% had sputum collected at the end of the first month, 97.2% at the end of the second month, 77.8% at the end of the third month and 83.3% at the end of sixth month of treatment.

The short-course drug regimen (8-month) is being implemented now, and in this sputum is collected three times. Out of 56 patients who had completed 2 months of treatment, 85.7% had sputum collected at the end of the second month.

Availability of services:

The results showed that 93.8% of the patients from the continuation phase had medicine available at home. Of them, 14.3% had medicine available for more than 7 days. A few patients (6) availed of the medicine from the VHW daily.

Knowledge:

The patients were asked whether they knew the name of the disease they have been suffering from, and 94.8% of the patients named it as either TB or *Jakkha*. All of the patients correctly mentioned the on-going phase of the treatment and the length of treatment period.

The storage of medicine was observed by the data collectors. More than 95% of the patients stored medicine in a 'satisfactory' manner.

Regularity of drug intake:

In order to measure regularity of drug intake, the patient was asked

whether s/he took medicine yesterday. The findings suggested that 96.3% took medicine regularly.

Sputum conversion rate:

Sputum conversion rate was quite good. Under the 8 month-regimen, 92.3 percent of the sputum positive cases turned negative at the end of 2 months whereas under 12 month-regimen, 86.1 percent of the sputum positive cases converted to negative at the end of second months and 94.4% at the end of 6 months.

Satisfaction:

Almost all (98%) the TB patients seemed satisfied with BRAC's services. The most frequently mentioned reasons for being satisfied was 'BRAC helps me to get well', 'They don't charge for treatment' and 'BRAC provides treatment at home'.

Attitude of family members and villagers toward TB patients:

Approximately half of the TB patients said that their family members or villagers did not show any stigma against them. About 20% others reported that they were isolated when the family members came to know of their having the disease. About 20% of villagers and a few of the family members hated or were afraid of them at the early stage. Some patients also received encouragement from a section of the villagers in continuing their treatments.

Discussion

Tuberculosis, although a major public health problem, has remained largely forgotten in the context of health care in most developing countries. The twin challenges of any control programme are case finding and treatment compliance. Because of weak delivery mechanisms, public health programmes in such countries have not been much successful in effectively addressing either of these. The epidemic of AIDS has made the situation even worse in some countries.

BRAC tried an innovative programme in rural Bangladesh during 1984-90. With village voluntary health workers (VHWs) as the nucleus, the programme introduced an incentive system through which VHWs participated in a process of case finding and treatment provision. In order to make the patients continue with the treatments, a bond was introduced through which the patients deposited a sum of money with BRAC, a part of which was returned to them if they completed the treatment. Such a procedure had a tremendous impact on the treatment completion rate which reached 66 percent. In 1992, the programme was extended to 10 more thanas, with some modifications. This paper presented the salient features of the programme and results from an independent evaluation carried out on this programme.

The present study used a framework suggested by Bruce (1990) with appropriate adaptation for tuberculosis. The framework essentially provides a tool of analysis in terms of the programme effort or structure, process of service delivery

and outcome of processes or impacts (see Figure 1). Let us now discuss each of these in the light of the BRAC programme.

Programme effort

As already mentioned, the TB control programmes in Bangladesh had not been very successful due to their irrelevance in terms of strategies and management. BRAC spent the initial 5 or 6 years in learning and modifying strategies. At the pilot phase, BRAC spent its own resources, but when the question of replication came, donor support was readily available through UNICEF, the British Overseas Development Administration, the Swedish International Development Agency and the Swiss Development Cooperation. A major head of expenditures is medicine (and reagents for microscopy) and the government came forward to supply all the needed medicines and reagents to BRAC free of cost. This is an example of close collaboration between the government and an NGO. Over the next few years, the programme will be expanded to 115 new thanas and the collaboration will continue and further improve

in the same manner.

Process of services delivery

The nucleus of the programme are the VHWs. Although most of them are illiterate, studies have proved their competence in diagnosing illnesses and in earning the respect of their fellow villagers. The programme is supported by skilled paraprofessionals and qualified physicians. Results presented here have shown how the VHWs and BRAC staff are involved in the whole process of case finding to provision of treatment and to taking care of side effects. Because of the confidence earned, there has not been much problem in realizing the bond money, even from the very poor. The success rate in sputa collection was very high.

(To be continued in our next issue)

A. Mushtaque R. Chowdhury,
Md. Nurul Islam,
Akramul Afsana,
Shah Noor Mahmud,
Ahmed Ali,
Fazlul Karim,
Sadia A. Chowdhury,
M. Sirajul Islam.

The authors belong to BRAC, 66, Mohakhali C/A, Dhaka-1212, Bangladesh

Dimensions of the global drug problem and U.S anti-drug programmes

There is not a country in the world that does not suffer from the menace of drugs and drug abuse, and in many cases the path to combating this enormous, global problem lies within our communities. Surely our governments have a very important role to play as well, but as many of us know, government resources are limited, and very often the task really falls on the shoulders of the community, the city, the neighborhood, the family.

Narcotics: The Global Dimension

In spite of recent gains, the international drug trade remains a powerful, sophisticated, and adaptable force. Despite our collective effort, in 1995, trafficking organizations managed to produce and move tons of cocaine and heroin to nearly every country in the world. They nurtured new markets in Eastern Europe, the countries of the former Soviet Union, Africa and the Middle East. They flaunted their undeniable capacity to corrupt

governments. And they showed that often, far from crippling an organization, the arrest of a drug baron may only create a temporary job opening.

The drug trade always seeks new opportunities. To offset potential losses in the Western Hemisphere, the cocaine syndicates have set their sights on new markets throughout the world. In Europe, where a combination of new affluence and social discontent provides the ideal conditions for drug consumption, cocaine was seized in nearly every country between Denmark and Turkey. traditional markets for Southwest Asian heroin. Eastern Europe was a prime target. Brazil became a hub for Nigerians moving

