

**REVIEW OF TUBERCULOSIS CONTROL IN ASIAM IN 1992**

1. The extent of the tuberculosis problem
2. Precise information about the level of transmission of *M.tuberculosis* in Asiam is limited. A tuberculin survey among schoolchildren, aged 5-9 year, carried out by WHO in 1970 in four provinces showed that the estimated annual risk of tuberculous infection at that time varied from 4.7% till 2.7%.
3. The approximate size of the tuberculosis problem can, however, be estimated on the basis of the findings of tuberculosis sampling surveys carried out in the eighties by the National Anti-tuberculosis Centre. These surveys found 374 smear-positive cases in a total population of 71,398, i.e. 5.2 cases per 1,000 population. The lowest rate was 2.2 per 1,000 and the highest 8.4 per 1,000.
4. Through the years 1982 till 1991 the number of newly reported smear-positive cases fluctuated between 5,100 and 8,700 and the number of cases of all forms between 6,500 and 10,900. The case-detection rate per 100,000 population in 1991 was approximately 100 for new smear-positive cases and 130 for cases all form There are, however, considerable differences between provinces in the case-detection rates for new smear-positive cases, varying from 220 to 20 per 100,000.
5. Information about site of disease, age and sex available of 10,872 new cases reported in 1991 shows that 81.3% had smear-positive pulmonary tuberculosis, 13.2% smear-negative pulmonary tuberculosis and 5.5% extra-pulmonary tuberculosis. 59% of the patients were males and 41% females.
6. The resistance patterns of *M.tuberculosis* in Asiam have not been studied systematically. Limited information shows that 42% of the cases were resistant to any one of the drugs tested. 16% were resistant against isoniazid, 26% against streptomycin, 21% against pyrazinamide and 5% against rifampicin.
7. No official information is available as yet about the prevalence of HIV in the general population or high-risk groups. The prevalence of HIV in tuberculosis patients is not yet known either.
8. Case-finding and diagnosis
9. In Asiam case finding of tuberculosis cases is based in principal on identification and examination of self-reporting suspects, which attend at the general health services institutions. If identified at an institution without diagnostic facilities, suspects are to be referred to one of the 95 diagnostic centres. The proportion of smear-positive cases among the suspects examined for Acid Fast Bacilli is constant about 20% over the past few years.
10. All laboratories are properly equipped to perform direct microscopy of smears, but some reported shortages of slides and therefore reused smear-negative slides. Sputum

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containers are only available at the National Anti-Tuberculosis Centre. In other places streptomycin vials are used to collect sputum samples.

11. All laboratories are keeping special sputum registers, which are generally well kept. The registers have separate columns for diagnostic and follow-up smear examinations. The consultant observed that the number of diagnostic smears per patient was according to the national policy in all places.
12. At present there are no facilities for culturing *M.tuberculosis* and for sensitivity testing against anti-tuberculosis drugs.
13. X-ray facilities are available in the major hospitals. According to the official policy chest X-ray examination is only indicated after six negative smear results and when strong suspicion of tuberculosis remains to exist.
14. Quality control of sputum examinations
15. During the visit to the different anti-tuberculosis centres the performance of the microscopists was checked. The microscopists number and store the slides in special boxes for this purpose. The provincial supervisors are supposed to take samples and take those to the capital during their quarterly visits. In practice only 4-5 provincial supervisors do this regularly. According to the central laboratory staff the false-positive rate is about 1-2% and the false negative-rate 6%. The results of the readings of the routine laboratories and the reference laboratory are not recorded systematically.
16. Chemotherapy
17. The National Tuberculosis Program has the following treatment regimens:
  - (1) 3SHZ/9S2H2 or 3EHZ/9EH, for new tuberculosis cases, all forms;
  - (2) 3SRHZ/9EH for new tuberculosis cases, all forms, with severe disease;
  - (3) 3ERHZ/9EH for previously treated cases, who return for treatment.
18. The microscopists of the diagnostic centres are allowed to initiate patients on the first line regimen (1), but require permission from national level for the use of ethambutol and rifampicin (2). The retreatment regimen (3) is only permitted at provincial level.
19. At least an estimated 50% of new cases receive the intensive phase of treatment on ambulatory basis. It is common practice to give the patients during this phase the total amount of drugs for 2 till 4 weeks for self-administration. Patients arrange streptomycin injections at dispensaries, with private nurses or even with unauthorised persons.
20. The continuation phase for new cases consist in the great majority of cases of 9S2H2. Drugs are given for one month and administered as described above.
21. At the national tuberculosis centre several cases per month are given rifampicin capsules for a period up to one month for self-administration. In general in the capital the majority

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of cases receive the intensive phase of treatment unsupervised by the program or any official health institution.

22. The treatment of patients admitted during the intensive phase is generally according to the NTP policy. Patient files are properly filled in and kept. Patients take the drugs under supervision of the staff. At district level the family takes care of the food of the inpatients.

### 23. Results of treatment and case-holding

24. At present the NTP is not able to provide precise information about the results of treatment in smear-positive cases treated with the first line regimen in the past years. The programme however reports the number of cases, all forms, which were declared cured or out of control during the year, and the number of deaths.

25. Through the years 1982 till 1990 the total number of cases started on treatment was 80,645. The total number of cases reported cured during this period was 37,145 (46%), the number reported to have died 1,024 (1%) and the number reported to have defaulted from treatment 24,426 (30%). Of 18,050 cases (22%) no information is available. If it is assumed that the outcome of treatment in the latter cases has a similar distribution, the overall treatment success-rate would be 56% and the default-rate 37%.

26. The results of treatment of new smear-positive patients started on 3SHZ/9S2H2 treatment during the first half of 1991 in the treatment centres visited were analysed on basis of the registers and the individual patients cards. The Annex shows the results of treatment in all centres visited by the consultant.

27. A total number of 622 new smear-positive cases were evaluated. 297 (48%) completed the treatment, 24 (4%) were reported to have died, 5 (1%) remained positive, 196 (32%) defaulted from treatment and 100 (16%) were transferred elsewhere and the result of treatment was therefore unknown. If it is assumed that the outcome of treatment in the latter cases has a similar distribution the overall treatment success-rate would be 56% and the default-rate 37%, i.e. similar to the percentages reported above.

28. The results in the capital are considerably below the national average. 17% of cases complete treatment, 46% abscond from treatment and 34% are transferred elsewhere. If assuming that the outcome of treatment in the latter group would follow the national distribution, the overall success-rate in cases started on treatment in the capital would be 36% and the final default-rate 59%.

### 29. Health education

30. The programme has developed posters on tuberculosis control, which were distributed to all districts and are present in most clinics visited. According to the staff, health education talks are to be given to patients in the wards and during consultations. A number of patients were interviewed during the visit to check their knowledge about the duration of

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treatment. In a number of places this knowledge was inadequate as patients stated that the duration of treatment is only 3 months.

### 31. Recording, registration and reporting

32. The program has a patient file and a patient treatment card for each case, which is started on treatment. Files and cards have sections for all necessary information and are generally filled in and used properly.
33. Each patient is registered in the register of the treatment centre where he or she is started on treatment or transferred to. The register has per case columns for the patient registration number, name, age, sex, address, and result of sputum at diagnosis, date of start of intensive phase and date of start of continuation phase of treatment. There is a final column to write the outcome of treatment. There are no columns to enter the results of follow up smear-examinations.
34. In all places visited the registers are filled in with great care, but the column for the outcome of treatment is generally not filled in.
35. Monthly and quarterly reports are prepared by the NTP staff to report the number of cases started on treatment, separate for the intensive phase and continuation phase, and the number of patients who completed treatment, who were reported to have died and who absconded from treatment during the period under report. On basis of these reports the National Tuberculosis Centre calculates the drug supplies for each province.
36. Generally the reports are well done and copies are kept in the treatment centres.

### 37. Operational evaluation of the program

38. The program has no system for operational evaluation of the program activities by analysing the outcome of treatment in subsequent cohorts of patients started on the different regimens.

### 39. Epidemiological surveillance

40. After 1970 no tuberculin surveys have been carried out to measure the level and trend of the annual risk of tuberculosis infection.

### 41. BCG immunisations

42. BCG immunisations are carried out under the responsibility of the EPI. In 1991 188,324 infants were immunised (73%) and 57,714 children.

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### 43. Staff establishment of the program

44. The staff establishment of the programme at present is as follows:

- (1) National Tuberculosis Centre: total number of staff 140, including 10 medical officers, 14 medical assistants, 4 pharmacists and 17 laboratory technicians.
- (2) Provincial level. The present number of provincial supervisors is 20;
- (3) District level. The present number of district supervisors is 93.

### 45. Training program and seminars

46. Through the years 1980 till 1991 the program trained more than 600 microscopists and provincial supervisors. It has been planned to train 30 microscopists annually in the coming years. The course duration is 4 weeks. Since 1 year the training is combined for tuberculosis, leprosy and malaria.

47. Each year a 2-weeks seminar is organised for the provincial supervisors to review and discuss the program with the staff of the National Tuberculosis Centre.

### 48. Supervision and transport

49. According to the policy of the program a team of the National Tuberculosis Centre has to visit all provinces regularly. The provincial supervisors have to visit all districts in the province every month and the National Tuberculosis Centre every quarter or half year.

50. The district supervisor ought to visit dispensaries involved in treatment of tuberculosis cases.

51. On the basis of discussions with personnel at the three levels of the program the consultant concludes that the present level of supervision is deficient both as regards frequency and quality.

52. The transport means of the program at present are as follows:

- (1) Central level: 2 vehicles
- (2) Provincial level: 7 motorcycles
- (3) District level: many bicycles not used of out of order

### 53. Program planning

54. In October 1990 the National Tuberculosis Centre published the third 5-year plan for the period 1991-1995. The plan gives the goal and objectives for this period and provides detailed information for the inputs, which are needed.

55. Besides the annual meeting with the provincial supervisors there are no other coordinating meetings with the program staff.

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56. The consultant did not receive national annual reports describing the achievements of the program in each year and discussing the extent to which set targets had been reached.

### 57. Program manual

58. The programme does not have a manual for the program staff yet. A three-paged protocol with regard to diagnosis and treatment of tuberculosis exists, however, dated January 1992. A four-paged circular of January 1991 describes the preconditions for distributing drugs and materials to any anti-tuberculosis centre.

### 59. Supplies and distribution of anti-tuberculosis drugs

60. From 1980 till 1989 the National Tuberculosis Program received a major part of the need for anti-tuberculosis drugs from foreign donors. More recently additional support for the purchase of drugs has been received from the World Health Organization.

61. Due to the ending of the foreign support the program experienced a severe drug-shortage in 1990.

62. The drugs ordered by the National Tuberculosis Centre are after clearance stored in pharmacy department of the centre. The amounts distributed to the provinces are calculated on basis of the quarterly reports of the provincial supervisors.

63. In the pharmacy department the consultant inspected the bin cards of the anti-tuberculosis drugs, which showed that at the time of the visit the following amounts of drugs were in stock at the centre:

- (1) Streptomycin: 735,312 gram;
- (2) Pyrazinamide 500 mg: 889,000 tablets;
- (3) Ethambutol 400 mg: 2,568,500 tablets;
- (4) Rifampicin 150 mg: 318,200 capsules;
- (5) Isoniazid 100 mg: 16,241,000 tablets.

64. The stocks under (3) and (5) are expired batches, which were tested and said to be still 90% active.

65. At present there are sufficient amounts of anti-tuberculosis drugs in all centres, which were visited. The provinces and districts, however, have no reserve stocks. The microscopists keep registers, which show the amounts of drugs received from the central pharmacy of the district. These books in a number of instances do not show the daily issues or the stock balance per day for each drug. So the daily use of drugs cannot be calculated easily.

### 66. Collaboration with other programs and organisations

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67. The National Tuberculosis Program operates in close collaboration with one donor, which reinforces the program at national level. In several provinces NGO's are involved in tuberculosis control along with the program staff of the National Tuberculosis Program at provincial and district level.
68. At national level the national team regularly meets with representatives of the National Leprosy and Malaria control programs.
69. Program financing
70. The Government of Asiam is responsible for the salaries of all NTP staff and for the provision of fuel for the motorcycles at provincial level.
71. The program receives financial support and support in kind from the World Health Organisation, UNICEF, and some other organisation.
72. There is at yet no guaranteed financing for a medium term period