REVIEW OF TUBERCULOSIS CONTROL IN ASIAM IN 1996

1. The extent of the tuberculosis problem

2. Tuberculin surveys have been carried out in the capital by WHO in 1955, 1968 and 1995 and by the National Tuberculosis Institute in 1981. The results of these surveys are difficult to compare as the sizes of the study groups, the age-distribution of the children, the tuberculin units used and the BCG coverage percentages are different. However, the percentages of non-BCG vaccinated children with indurations of ≥10 mm declined from 36,7% till 18,4%, 12,3% and 6,7% in chronological order of the studies, i.e. a total decline of 81% or on average 2% per year during the period 1955 till 1995.

3. WHO further carried out tuberculin surveys in 4 provinces in 1955, 3 provinces in 1968 and 19 provinces in 1995. The respective proportions children with indurations of ≥10 mm were 33,2%, 14,7% and 5,5%. The total decline between 1955 and 1995 is comparable to the figure observed in the capital, i.e. 83% or an average decline of 2.1% per year.

4. Based on the findings of the 1995-tuberculin surveys the annual risk of infection is estimated to have been about 0.8% in recent years.

5. This level of risk is equivalent with a total incidence of 40 smear-positive cases per 100,000 population or 4,000 new smear-positive cases for the entire country.

6. Tuberculosis prevalence surveys carried out between 1981 and 1989 found 393 smear-positive cases in a total study population of 86,377 subjects, i.e. a prevalence rate of 455 smear-positive cases per 100,000 population. A smaller survey in 2,583 subjects in 1995 found a prevalence of 426 smear-positive cases per 100,000 population. Assuming that the majority of these cases were never treated before this prevalence level would indicate an incidence of about 215 new smear-positive cases per 100,000 population or 21,500 smear-positive cases per year for the entire country.

7. The annual number of new smear-positive cases notified by the programme increased from 5,579 in 1982 till 11,101 in 1995, i.e. an increase of 99% or 7.6% per year on average. The annual number of cases, all forms of tuberculosis, increased from 8,475 in 1982 till 14,599 in 1995, i.e. an increase of 72% or 5.6% per year.

8. The case-detection rate of new smear-positive cases was 95 per 100,000 population in 1982 and 122 per 100,000 population in 1995, i.e. an average increase of 2% per year. The case-detection rate of cases, all forms, per 100,000 population was 144 in 1982 and 141 in 1995. During this period the population increased from about 6 million in 1982 to about 10 million in 1995, i.e. an increase of 67% or on average 5.1% per year.

9. The case-detection rate of new smear-positive since the start of the new programme is about 115 per 100,000 population on average for the period 1993 till mid 1996. Assuming that 50% of cases are detected the total incidence would be about 230 new smear-positive cases per 100,000 population. A figure, which is in the range of the rates observed in the tuberculosis prevalence surveys.

10. The results of the tuberculin surveys, tuberculosis prevalence surveys and case-notification data in the country do not show the correlation, which is usually observed. One of the possible factors explaining this phenomenon might be a higher breakdown rate from infection to disease in a population affected by war and malnutrition. One other explanation might be a high proportion of chronic cases due to poor treatment in the past. Furthermore the tuberculin surveys might have underestimated the prevalence of infection due to methodological issues as the number of units used, weak immune response in the children tested and the quality of PPD.

11. A very important factor in the evolution of the tuberculosis problem in the country is the spreading HIV epidemic. HIV sentinel surveillance results for 18 provinces in 1996 show that 1.73% of 3,929 pregnant women tested were HIV-positive. It is estimated that the HIV-seroprevalence in the adult population will increase from 1.5% in 1995 till 2.7% in 2000. The proportion of HIV-seropositive tuberculosis cases is estimated to increase from about 11% in 1996 till 26% in 2000.

12. Case-finding and diagnosis

13. Information about site of disease, age and sex available of 13,994 new cases reported in 1995 shows that 80% had smear-positive pulmonary tuberculosis, 10% had smear-negative pulmonary tuberculosis and 10% had extra-pulmonary tuberculosis. The male/female ratio observed is approximately 1.

14. The method for case finding of tuberculosis cases used by the program is based 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 122 diagnostic centres.

15. After identification most suspects are admitted for diagnosis. It was observed that the time lapse between admission and diagnosis by sputum smear examinations could be sometimes as long as two weeks.

16. The number of slides examined by the programme increased from 64,878 in 1993 till 82,329 in 1994, 121,236 in 1995 and 75,039 by mid 1996, i.e. an increase of about 130% in three years assuming that in 1996 150,000 slides will be examined. The total number of slides examined by the programme in 1995 was 121,236, i.e. on average about 1,000 per year or 4 per working day per laboratory.

17. Through the years 1994 till mid 1996 30% of first sputum samples examined in suspects are reported to be positive by the programme. In 1995 9,674 slides (29%) in 32,914 first slides were reported positive. This proportion was confirmed by analysing the laboratory registers. The proportion of positive cases found in all suspects was on average about 30%, but in some centres as high as 50 to 60%.

18. When comparing the laboratory registers and tuberculosis registers it was noted that, in particular in the provincial centres, a certain proportion of cases occurring in the laboratory register were not registered for treatment in the tuberculosis register. This proportion was as high as 20% in some places. However, when analysing the national statistics for 1995 and 1996 it was observed that the number of smear-positive cases reported by the laboratories was below the number of positive cases notified by the

tuberculosis centres, i.e. the ratio cases diagnosed/cases put on treatment was 80% in 1995 and 88% in the first three quarters of 1996.

19. The majority of laboratories visited were well organised and properly equipped to perform direct microscopy of smears. In some laboratories the quality of the microscopes was poor as microscopes were aged and affected by humidity and fungus. In some places monocular microscopes were used. In most centres the mirror is used as light source. It was observed that the quality of the slides in use is poor. Slides in new packets are sticking together and affected by fungus. The sputum cups in use are not those recommended by WHO/IUATLD. The cups are not wide enough and do not have screw caps.

20. The quality of preparing, staining and reading of the smears is generally good. The staff reports the numbers of bacilli observed in 10 fields multiplied by 10. Negative and positive slides are stored separately in slide boxes for the purpose of quality control. In some laboratories staff pack the slides together wrapped in paper.

21. All laboratories are keeping special sputum registers, which are well kept. The registers have separate columns for diagnostic and follow-up smear examinations. The consultants observed that the number of diagnostic smears per patient was according to the national policy in all places.

22. At present there are no facilities for culturing M.tuberculosis and for sensitivity testing against anti-tuberculosis drugs.

23. X-ray facilities are available in the capital and the major provincial 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. The interval between the two series of three slides is usually only 2 weeks. During this period the patients are treated with two courses of different general antibiotics to exclude possible infections with other bacteria.

24. Quality control of sputum examinations

25. A quality control system has been introduced at the start of the new programme. Samples of positive and negative slides are sent to the central laboratory every quarter for rereading. In 1995 2,590, i.e. 2%, of all slides were re-examined. 6% of the positive slides of the routine laboratories were considered false positive and 2% of the negative slides were considered false negative. Total disagreement was 4%. Results in 1996 were similar.

26. Chemotherapy

27. Since 1994 the National Tuberculosis Program treatment policy recommends the following treatment regimens:

    (1) 2EHRZ/6EH for new smear-positive pulmonary tuberculosis cases and cases with severe forms of smear-negative and extra-pulmonary tuberculosis (Category I);

(2) 2SHRZE/1HRZE/5H3R3E3 for previously treated smear-positive pulmonary tuberculosis cases (Category II).
(3) 2HRZ/2HR for new smear-negative and extra-pulmonary tuberculosis cases (Category III);

28. The new regimens for categories I and III were introduced gradually province by province and district-by-district. In 1994 23% of the 120 tuberculosis centres were using the short-course regimens. This percentage increased to 57% in 1995 and 78% by mid 1996. In areas not yet covered by the new treatment policy new cases of all forms are treated with 2EHZ/10EH. Previously treated cases are treated with the category II regimen in all centres since 1994.

29. The programme shifted tuberculosis treatment from the provincial to the district level. In 1993 only 43% of the cases were treated at district level, while in 1996 70% of the cases were treated at that level. At the provincial level treatment of tuberculosis was integrated in the general hospitals by establishing tuberculosis wards, which in the former system used to be at the provincial health directorate compounds.

30. The majority of patients are admitted during the intensive phase for DOTS. Treatment prescribed and dosages are generally according to the NTP policy. Patient treatment cards are properly filled in and kept. Since 1995 the World Food Program is providing supplementary feeding to tuberculosis cases in 50% of the hospitals through NGOs. The support involves daily rations of 500 gram rice during the admission period and monthly rations of 15 kg rice during the continuation phase.

31. In some places patients living near the hospital are allowed to receive the intensive phase of treatment on ambulatory basis. As treatment cards do not indicate which patients follow ambulatory DOTS the exact proportions could not be calculated by the consultants.

32. In one district and in the capital, the programme has started with daily home-delivery of intensive phase drugs to a small number of patients. In the district the project is run on a pilot basis with support of an NGO.

33. Results of treatment and case-holding

34. Results of treatment are available of 1,829 new smear-positive cases were started on category I treatment during 1994 and of 2,334 new smear-positive cases were enrolled on this treatment during the first half of 1995. These numbers present respectively 17% and 40% of all new smear-positive cases reported during these periods. During the first half of 1995 2,370 cases were enrolled on SCC. So the 2,334 cases evaluated represent 98% of the number enrolled on SCC during the first half of 1995. The data of the 1994 and 1995 cohorts are presented in detail in table 3.

35. Of the total 4,163 cases 77% was cured, 12% completed treatment without a smear result, 3% died, 1% remained positive, 5% defaulted and 2% was transferred out. Table 3 shows that during the first half of 1995 84% of cases was declared cured and 8% of cases completed treatment without a smear, i.e. 92% of cases completed treatment with or without smear.

36. In 1994 the program registered 540 relapse cases. The results of treatment were evaluated in 124 cases, i.e. in 23%. During the first half of 1995 300 relapse cases were registered. The results of treatment were evaluated in 144, i.e. 48%, of these cases.

37. Of the total 268 relapse cases which were evaluated, 69% was cured, 19% completed treatment without a smear result, 6% died, 3% remained positive, 2% defaulted and 1% was transferred out.

38. In 1994 the programme registered 109 failure cases and 300 cases, which were put on the retreatment regimen on return after default. The results of treatment were evaluated in 100 cases, i.e. in 24%. During the first half of 1995 181 cases in the group failure and treatment after default were registered. Out of these 71, i.e. 39% were evaluated.

39. Of the total 171 cases evaluated 33% was cured, 45% completed treatment without a smear result, 7% died, 6% remained positive, 4% defaulted and 5% was transferred out.

40. Health education

41. 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 given to patients in the wards and during consultations. The majority of patients, which were interviewed during the visit, knew the duration of intensive phase and continuation phase treatment as well as the numbers of tablets they had to take.

42. Recording, registration and reporting

43. The programme has introduced the WHO/IUATLD recommended registration and reporting system. In all centres visited laboratory and tuberculosis registers were present, in use, well filled in and up to date. The quality of maintenance of the registers as observed during the visit is high. Information is complete regarding all required data. Results of follow-up examinations at 2, 5 and 8 months are available in 95% of cases started on treatment. Laboratory serial numbers are written in the tuberculosis register with all sputum results.

44. During the visit the consultants systematically cross matched the laboratory register, tuberculosis register and the quarterly case-finding and treatment results reports concerning the patients registered during the first half of 1995. Hardly any errors were observed during this exercise in all centres visited.

45. All centres forward the quarterly reports to provincial and central level timely and regularly.

46. The NTP produced excellent annual reports for 1994 and 1995. Besides these reports extensive statistical data are available for 1994, 1995 and the first three quarters of 1996. These reports provide data per province and within each province for all tuberculosis centres. The data include case-finding statistics, results of treatment, results of laboratory examinations, results of the quality control system and programme coverage.

47. BCG immunisations

48. BCG immunisations are carried out under the responsibility of the EPI. At the request of the MoH and UNICEF cluster immunization coverage surveys were carried out in November and December 1996 in 12 provinces representing 80% of the total population of the country. In each province, EPI status of 210 children aged 12-23 months were reviewed. 83.6% of the 2,520 children examined had a BCG scar.

49. Staff establishment of the program

50. The staff establishment of the programme at present is as follows:
    (1) NTC: total number of staff 140, including 10 medical officers, 14 medical assistants, 4 pharmacists and 17 laboratory technicians.
    (2) Provincial level. Each province has one provincial programme supervisor and one provincial laboratory supervisor;
    (3) District level. The present number of district tuberculosis coordinators is 122.

51. Training program and seminars

52. Training materials for medical and laboratory service, based on the WHO training module, had been developed in the local language. Three training teams were formed to conduct one-week workshops in all provinces on monthly basis aiming at covering the entire country in two years.

53. The mapping of tuberculosis centres and introduction of the new regimens were discussed at the provincial level before conducting the workshops. After the workshops provinces were supervised to assess the quality of the tuberculosis activities, i.e. sensitivity and specificity of slides, crosschecking, high percentage of follow-up at the end of month two, staff motivation, availability of drugs and quality of registration and reporting.

54. SCC was introduced in most districts two to six months after launching of the programme depending on the performance assessment as above.

55. Supervision and transport

56. Supervision is conducted by six central teams of one medical officer and one laboratory staff to 122 hospitals, which are each visited two to four times per year. The total number of supervision days by the central staff is 250 per year.

57. At provincial level the provincial tuberculosis coordinator and the a provincial laboratory staff visit all tuberculosis centres once monthly.

58. At central level the NTC has its own transport. At provincial level the coordinators usually make use of the available transport of the provincial health directorate.

59. The consultant confirmed by interviewing staff that supervision is carried out regularly as

described above.

60. Program planning and coordination

61. In November 1993 the NTP published the fourth 5-year plan for the period 1993-1997. The plan gives the goal and objectives for this period and has a detailed plan of action for the implementation of the new strategies. In July 1996 a draft development plan for the period 1997 till 2000 was published.

62. All provincial coordinators have been meeting at national level to discuss the progress of implementation with CENAT in an increasing frequency from twice to four times yearly. At provincial level all tuberculosis supervisors meet monthly at the provincial health office.

63. Program manual

64. In June 1994 the NTP published the technical guide for tuberculosis for staff involved in tuberculosis control at the different levels of the programme. In June 1994 also a technical guide for tuberculosis for laboratory staff was published. The contents of both guides are generally in accordance with the technical guides produced by WHO and IUATLD.

65. The guides were used as a training tool during the introduction of the programme and serve presently as reference documents for programme staff.

66. Supplies and distribution of anti-tuberculosis drugs

67. The supply of anti-tuberculosis drugs had improved considerably compared to the years before 1992. As a result of external support the NTP achieved to have a continuous supply of anti-tuberculosis drugs and laboratory materials through the years 1993 till 1996. Drug storage and distribution was integrated in the system of the Central Medical Stores.

68. All hospital pharmacies visited kept well-maintained bin cards for anti-tuberculosis drugs. The amounts on ledgers were similar to actual stocks everywhere. The pharmacies sent quarterly reports to the CMS detailing drugs received, issued and in stock at the end of the quarter.

69. NTC advises CMS about quantities to be distributed quarterly to the provinces using the quarterly reports on case-finding and the stock balance data of the three monthly reports of the provincial pharmacies.

70. All centres visited kept sufficient amounts of anti-tuberculosis drugs. In some places the consultants found rifampicin combination tablets, which had arrived in July 1996 and were to expire in April 1997.

71. Collaboration with other programs and organisations

72. The National Tuberculosis Program operates in close collaboration with NGOs at central, provincial and district level. Collaboration has started with the National AIDS programme. The Director of the NTP is officially responsible for the national leprosy control programme. However, in the field the two programmes operate separately.

73. Program financing

74. The Government of the country is responsible for the salaries of all NTP staff and for the provision of fuel for the motorcycles at provincial level.

75. From 1994 till 1996 the Government provided respectively 5%, 11% and 14% of the direct project costs. Main external donors during this period were WHO, WFP, NGOs, Germany, England, France and Japan. The total costs of the programme were 2.1 million US$ in 1994 and 1996. In 1995 2.8 million US$ was spend. The main components of the support regard provision of laboratory materials and anti-tuberculosis drugs (35 till 50%) and food for tuberculosis patients (40%).

76. From 1997 onwards the Government will finance 65% of the direct project costs through a World Bank loan. WPF will extend its support till mid 1998. Assistance will continue to be given as well by Japan (10%) and Germany (8%).

77. Health Reforms

78. The MoH is putting in place a process of reform of the health sector, which started in 1995. Reform consists of a process of carefully managed change. The main components of the reform concern improving the performance of the civil service, decentralisation, improving the functioning of the MoH, broadening health financing options, introducing managed competition and working with the private sector.

79. The focus of the reform is the development of operational health districts, which were defined and mapped in the health coverage plan, which was developed from July 1995 till February 1996. Technical assistance in the process is provided by WHO through the strengthening of health services (SHS) project. The proposed number of operational districts is 71 with in total 900 health centres.

80. The reforms will be financed through loans with the World Bank (30.6 million US$) and the Asian Development Bank (20 million US$).

81. The country Disease Control and Health Development Project (WB) has the following components: health services strengthening in 10 provinces which will enter in health managements agreement with the MoH, support to the tuberculosis, malaria and HIV/AIDS control programmes and strengthening of the MoH.

82. The Basic Health Services Project (ADB) concerns strengthening of community health services, strengthening District Health Offices and introducing Health Sector Reform in 5 provinces.