

Epidemiology Bulletin

REPUBLIC OF CHINA

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Tuberculosis Control in Taiwan

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1. Epidemiology:

1) Infection Rate:

The average infection rate of tuberculosis in Taiwan was 3% in 1951. Since the BCG vaccination program in 1940, the infection rate has been estimated from surveys of people not vaccinated with BCG. The rate thus estimated may not reflect the real infection rate, the downward trends provide some information. The average infection rate in 1972 was 1.3%. It had declined in the years between 1982 and 1987 to 1%, 0.68%, 0.77%, 0.7%, 0.56%, and 0.51% respectively. The average infection rate of developed countries is lower than 0.1%; that of the developing countries is between 0.1% and 1%, and declining at 4-5% annually. More needs to be done in the control of tuberculosis in Taiwan.

2) Morbidity rate or prevalence rate:

A prevalence survey of tuberculosis is conducted every five years since 1957. The last survey (the 7th) was conducted in 1988. The prevalence rates of suspected tuberculosis cases (through x-ray diagnosis) and infectious tuberculosis cases (through bacteriological diagnosis) are shown in Figure 1. The 7th survey of persons above 20 years of age show (after adjustment for age) prevalence rates of suspected and infectious tuberculosis cases as 0.94% and 0.09% respectively. The prevalence rate for male is three times higher than the female; it also increases with age. The prevalence rates of suspected tuberculosis cases in large cities, small cities, urban townships and rural townships are 0.9%, 1.17%, 1.21% and 1.33% respectively. They also vary from area to area: 1.53% in the eastern part of Taiwan, 1.17% in the south-western part, 1.14% in the mid-western part, and 0.99% in the north-western part of the Island. The survey estimated the numbers of suspected and infectious tuberculosis cases in Taiwan to be 96,624 and 9,622 respectively.

3) Mortality rate:

Mortality rates of tuberculosis in the years 1947, 1957, 1967, 1977 and 1987 are 299.44, 65.66, 35.64, 18.16, and 9.38 per 100,000 population respectively. The rate declines by about 50% every ten years. For the last four years since 1985, tuberculosis has no longer been one of the ten leading causes of death in Taiwan. In 1952, deaths from tuberculosis of children under 4 years and of persons above 55 years of age occupied 16.1% and 22.0% respectively of total tuberculosis deaths. In 1984, deaths from tuberculosis of children under 4 years of age declined to only 0.5% of total tuberculosis deaths; deaths of persons above 55 years of age, however, occupied 78.3% of total tuberculosis deaths for that year.

The World Health Organization defines that tuberculosis is considered brought under control in an area when the mortality rate of that area is under 2 per 100,000 population per year; the number of tuberculosis cases of population above the age of 20 years is under 0.143%; and the natural infection rate of tuberculosis for children aged 14 years is under 1%. Though the mortality rate, prevalence rate and infection rate of tuberculosis in Taiwan Area are declining, they are still far from the criteria set by WHO, tuberculosis control should be continued.

2. Tuberculosis control program:

1) BCG vaccination:

(1) First doses:

- a Newborns: healthy infants with body weight above 2,500g at delivery are vaccinated 24 hours after delivery, coverage rate about 10%;
- b Infants and children: vaccination available twice a year in spring and autumn, coverage rate about 85%;
- c Children entering primary schools: for those without BCG scars, tuberculin tests will be made; BCG is given to the negative ones

(2) Booster dose all graduating children of primary schools negative on tuberculin test will be given BCG vaccination

In 1988, 479,706 persons were vaccinated: 10.6% newborns, 42.9% infants, 1.5% pre-school children, and 44.9% school children

2) Case-finding:

(1) Chest x-ray examination:

- a x-ray mobile clinics visit townships once or twice a year for chest x-ray examination; adults above the age of 40 years or persons with respiratory symptoms are the priority targets;
- b Contacts: family members of cases or family members of children positive on tuberculin test are examined

In 1988, 573,782 persons were examined; of them, 1.3% were suspected tuberculosis cases

(2) Further examination: persons with symptoms are referred to health stations or medical care institutions for further examinations. Between July 1988 and June 1989, 3,116 persons had been referred by public and private medical care institutions for treatment. Of them, 2,506 were registered as open cases, and 1,002 were given free treatment.

(3) Sputum test: sputum test is done at health stations and tuberculosis control institutions; culture of tubercle bacillus bacillus is done at the tuberculosis control institutions; and drug-resistance test at tuberculosis control bureaus

In 1988, some 240,000 sputum tests were made. Of them, 1.9% were found positive

3) Free chemotherapy:

Since 1978, Isoniazid, Ethambutol and Rifampin have been used in chemotherapy. In the first years (1978-1983), 20,005 patients accepted the therapy; of them, 16,196 (81%) completed the therapy, and 12.4% lost to the therapy. In the second five years (1983-1988), 12,097 patients accepted the free therapy; 10,175 (84.1%) completed the therapy, and 2.5% lost to the therapy.

4) Health education and training

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Figure 1. Puture Trends of TB Mortality, Prevalence of TB Suspects, Infectious Cases (Estimated by the Method of Least Squares)

