Reproduced hereunder is the full text of the paper, submitted by the Ministry of Health, Peking.

TUBERCULOSIS CONTROL IN NEW CHINA

Under the leadership of the Chinese Communist Party and Chairman Mao Tsetung our socialist revolution and socialist construction have developed at a tremendous speed and our medical and health work have made spectacular achievements. The enthusiasm of the broad masses for struggle against diseases and unhygienic habits has been greatly enlivened. Mass initiative in running medical services and producing drugs has witnessed an upsurge all over the country; medical and public health revolution is surging vigorously forward.

Guided by Chairman Mao's proletarian revolutionary health line, implementing the four principles of "serve the workers, peasants and soldiers, put prevention first, unite doctors of traditional Chinese medicine with those of Western medicine, integrate health work with mass movements", our anti-tuberculosis work, like other branches of health work, has made rapid progress in the past 25 years. Owing to the superiority of the socialist system and as a result of the steady improvement of our people's living standard and the endeavours of the broad masses of our health and medical personnel, our tuberculosis epidemiologic situation has greatly improved. Tuberculosis mortality since Liberation has decreased 90% and morbidity 60-70%. Before Liberation our people, suffering gravely from the exploitation and oppression of imperialism, feudalism and bureaucrat-capitalism, led a very hard life, while epidemic diseases were rampant among them. Tuberculosis mortality reached over 200/100 000 population and ranked first among the causes of death at that time. In Shanghai, Peking and Tientsin a mere 70 000 chest X-ray examinations and less than ten thousand BCG vaccinations were done during some ten years before Liberation. So in old China there was nothing to speak of in terms of tuberculosis control service.

After Liberation, the Party and Government listed tuberculosis as one of the important infectious diseases to be controlled and undertook a series of effective measures such as by establishing specialized institutions and training a host of politically sound and technically proficient doctors and
nurses. "Labour Insurance System" was created for the workers and free medical care for the government employees. With the further development of our socialist revolution and socialist construction, the Cooperative Medical Service came into being and Barefoot Doctors were trained in the rural areas. Drugs were produced on a large scale and their prices were drastically cut six times. All these created very favorable conditions for antituberculosis work.

I

We performed our antituberculosis work by following Chairman Mao's directive, i.e., "In medical and health work, put the stress on rural areas." City antituberculosis workers were organized into mobile medical teams touring the countryside; some moved with their families to settle down in these areas to deliver preventive and curative services to the poor and lower middle peasants and herdsmen, and at the same time to train basic health and medical personnel and to help in setting up antituberculosis services. For example, the medical workers of the Honan Province in central China went to the high plateau to help the Tibetans to develop their tuberculosis control service, which was warmly received and praised by the emancipated serfs. Those of Shanghai went to the rural areas of the far northern Heilungchiang Province and far southwestern Yunnan Province to do the same; whereas, the medical staff of Ti Tan Tuberculosis Hospital left Peking to get settled among the herdsmen in Kansu Province in the northwest. All of them were heartily welcomed by the local people.

In old China antituberculosis organizations were very few in number, there being only 12 dispensaries, about 600 beds and a few dozens of specialized doctors in the whole country. At present, the network of tuberculosis control organizations covers practically the whole country. As an example, the Yien-Bien Korean Nationality Autonomous District has a tuberculosis control institute at the district level; all its eight counties have tuberculosis control sections; all the 110 commune health centres have part-time tuberculosis doctors and all the barefoot doctors in the production brigades are familiar with antituberculosis measures so that both prevention and treatment of tuberculosis can be undertaken locally without the necessity of going outside the district. We adopt an integrated approach so that specialized control institutions work in conjunction with general medical care establishments. Thus tuberculosis dispensaries and tuberculosis control centres collaborate with the general hospitals, polyclinics and commune health centres and are mutually supportive in developing tuberculosis control work.

Rural cooperative medical service and barefoot doctors evolved as socialist new things during the Great Proletarian Cultural Revolution, being new undertakings of great importance created by the poor and lower middle peasants under the guidance of the Party and relying on collective strength in their fight against disease. It fully demonstrated the superiority of socialism and of the commune for being bigger in size and greater in strength as well as more developed socialization. Thus within a few years, the erstwhile lack of medical personnel and drugs in the vast countryside has been changed, showing the great vitality and vigour of the new system. The barefoot doctors are farmers as well as doctors. They are not divorced from collective productive labour, or
from the masses whom they serve in the prevention and treatment of diseases. In antituberculosis work many of them undertake to do BCG vaccination, carry out propaganda, discover suspects and supervise patients in regularly taking the drugs prescribed. Antituberculosis work in the rural areas is integrated with the treatment and prevention of other commonly seen and frequently recurring diseases and with the Patriotic Health Movement, using Chinese and Western medicines for treatment and making preventive and curative facilities available to the people at grassroots level. After the initiation of antituberculosis work in the rural areas the tuberculosis situation began to show a downward trend, e.g., the prevalence rates of tuberculosis among peasants in Chungking and Canton suburban areas have dropped, from 1964 to 1974, 43% and 53%, respectively.

In the city neighbourhood areas health posts are established to provide facilities for preventive and curative services to the local inhabitants. In the factories and mines, offices and schools, health propaganda and education, periodic physical examination, case-finding and case-registration and training of worker-doctors are carried out so as to effectively protect the health of the workers and the staff and consequently promote production. In the eastern city district of Peking the worker's prevalence rates for 1962 and 1974 were respectively 68.8% and 20% of that in 1952; for the urban population in Shanghai the 1974 prevalence rate has fallen to 26.7% of that in 1957.

"Prevention first" is an important principle which guides us in serving the people. In antituberculosis work we adopt combined preventive and curative measures. The Government does its best to improve the people's health through betterment of living and working conditions, promotion of mass participation in athletics, sports and calisthenics. The Patriotic Health Movement, aiming at the eradication of the common pests and diseases and changing the old ways of viewing diseases and of living habits, has resulted in the improvement of environmental as well as personal health. Active treatment and isolation of infectious patients and prophylactic inoculation have contributed largely to the reduction of tuberculosis infectivity with consequent fall of tuberculosis morbidity and mortality. Thus in Shanghai, tuberculosis mortality ranked first among the causes of death at the time of Liberation, but in the seventies it has dropped to the eighth place; that of Peking in 1949 was 230/100 000; it has come down to 14.8/100 000 in 1973.

In order to perform antituberculosis work well we implement the principle of integrating health work with mass movements. This not only brings into full play the active participation of the specialized medical personnel, but, what is more important, mobilizes the broad masses themselves to consciously struggle against diseases and unhygienic habits. Through movies, lantern-slides, pictorial posters, broadcasting, plays, pamphlets and other means, antituberculosis information is delivered to the masses. Through periodical training, the basic health workers are given the knowledge of prevention and treatment of the disease. Practice has amply proved that persevering in the mass line, launching vigorous mass movement and combining the efforts of leadership, the masses and the antituberculosis workers are the sine qua non of success in antituberculosis work.
II

Tuberculosis control in China started with BCG vaccination, case-finding, case-registration and rational therapy.

1. Active prevention through BCG vaccination

BCG vaccination has been shown to be very effective in the prevention of tuberculosis in general and of childhood tuberculosis in particular. After Liberation, the Ministry of Health successively issued a number of directives: "Temporary measures for BCG vaccination" and "Programme of BCG vaccination" to promote active immunization through BCG vaccination. Subsequently, the number of BCG vaccinations increased from year to year, its scope gradually extending to the rural areas and frontier regions.

The newborns are given priority; in many places vaccination of newborns has reached over 95%. The antituberculosis institutions and sanitary and anti-epidemic stations at different levels are responsible for organizing BCG vaccination programmes at their respective localities, while the maternity hospitals, maternity departments of general hospitals and local district delivery stations and rural cooperative medical service stations are responsible to vaccinate the newborns. For revaccination some have permanent stations, where routine and crash programmes are carried out; others divide their areas into parts where revaccination is carried out by rotation every 3 to 4 years. Before mass vaccination, short courses of training are given by the antituberculosis institutions to all taking part in the programme, instructing them on the principles of BCG vaccination and techniques involved, including certain matters for attention. In the rural areas the barefoot doctors, who had received technical training, are mainly responsible for the vaccination.

We produce all the BCG vaccine used ourselves. In order to meet the need of the frontier regions, in 1956 we prepared the lyophilized vaccine. Vaccination is given intradermally or by epidermal scarification (in many places direct vaccination by epidermal scarification is done without preliminary tuberculin test). As a result of widespread use of vaccination, childhood tuberculosis morbidity and mortality have significantly dropped, particularly those of tuberculous meningitis. Taking the newborn BCG vaccination rate and the childhood (0-4 years) tuberculosis mortality of Peking as an example, it can be seen that as the percentage of the newborns given BCG vaccination increased the tuberculosis mortality of 0-4 years age-group children rapidly decreased (see table below).

<table>
<thead>
<tr>
<th>Period</th>
<th>Percentage of newborns BCG vaccinated</th>
<th>Tuberculosis mortality of 0-4 years children (per 100,000)</th>
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<tbody>
<tr>
<td>At Liberation</td>
<td>21.6</td>
<td>270.9</td>
</tr>
<tr>
<td>1950's</td>
<td>86.7</td>
<td>68.3</td>
</tr>
<tr>
<td>1960's</td>
<td>93.5</td>
<td>3.9</td>
</tr>
<tr>
<td>1970's</td>
<td>96.9</td>
<td>0</td>
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</tbody>
</table>

In this city there was no death due to tuberculosis amongst children of this age-group in 1973.
In Shanghai the tuberculosis morbidity of children 0-14 years for 1972 was only 3.2% of that for 1957, a reduction of 96.8%.

2. Case-finding, case-registration and control

It is well known that early detection and early treatment are the keystones on which anti-tuberculosis work is built. In case-finding we use mass fluoroscopy (some use the miniature film) or examine the "suspects" only. In the cities the workers and staff of the factories and mines, enterprises and offices, and the utility services, university and middle school students and personnel working in the primary schools and children's institutions are given chest examination once every 1-2 years. Many rural commune health centres are equipped with small to medium size X-ray machines with which to do case-finding among suspects, namely, those with a past history of the disease, those having suggestive symptoms of tuberculosis and those who have had close contact with known cases. Before the survey, training classes and discussion meetings are first held to inform the barefoot doctors and the local community concerned about the symptomatology of tuberculosis, etc. With this knowledge the masses are asked to find out suspects of tuberculous disease and these suspects are subjected to fluoroscopic examination. The experience of various places has shown that by this method only about 10% of the population requires screening and 40-70% of the total number of active pulmonary tuberculosis patients and 60-80% of the sputum positives can be discovered. In pursuing our detection activities we also pay attention to case-finding during our regular medical practices, such as referred cases from the other services, antenatal cases, contacts with known cases and children reacting strongly positive to tuberculin test are also subjected to X-ray examination of the chest.

All diagnosed cases are registered in the local antituberculosis institute or department. Only a small number of patients are treated in the sanatorium or hospital, by far the large majority are treated ambulatorily or domiciliarly. Those who are capable of part-time labour are given light work while recuperating. Home visits are regularly made. Patients are also called together and pertinent information regarding tuberculosis control is given, particularly on the infectiousness of the disease, the need to take drugs uninterruptedly and to undergo periodic follow-up examinations, advice to contacts for regular check-ups and instructions on methods of isolation and sputum disinfection and disposal.

3. Combined use of Chinese and Western medicines and promotion of rational therapy

Chairman Mao pointed out that "Chinese medicine and pharmacology are a great treasure house, and efforts should be made to explore them and raise them to a higher level." Our tuberculosis workers and other medical personnel alike are resolutely taking the road of combining the use of Chinese traditional medicine and Western medicine. Many of our anti-tuberculosis doctors have now grasped both systems of medicine. Chemotherapeutic drugs like streptomycin, isoniazid, PAS and thiacetazone are in general use for the treatment of tuberculosis. All these drugs were imported before Liberation. As a result of development of our pharmaceutical industry after Liberation we can now produce all these drugs to meet the needs of the country. We can also produce the second-line anti-tuberculosis drugs like kanamycin, ethionamide, cycloserine
and pyrazinamide. Following the rapid development of the mass movement in collecting, planting, processing and using Chinese herbal medicine for treatment purposes, different localities are utilizing locally grown Chinese herbal medicine in accordance with local circumstances for the treatment of tuberculosis.

Treatment of tuberculosis with Chinese herbal medicine and acupuncture and moxibustion has met with some success in different localities. Acupuncture anesthesia has the advantage of being simple, safe, devoid of complications and rapid recovery of patient. In operations for pulmonary and bone tuberculosis acupuncture anesthesia has been widely used and has met with good results. In the Peking Tuberculosis Research Institute during successive nine years more than one thousand chest operations were done under acupuncture anesthesia, of which 97% met with satisfactory result and 80% complete success.

Government employees and workers receive full or a large part of their salary or wages while undertaking treatment. There is therefore no fear of loss of employment and the patient can rest and undergo treatment without worry. The peasants can attend the cooperative medical service station for treatment. If treated early with adequate dosage of drugs, an uninterrupted course and combined and prolonged therapy the results have been generally satisfactory. For example, in Shanghai, the decline of cavitation and sputum positive rates of its urban population for the period 1957-1974 by 70% and 69.2%, respectively, reflects conclusively the effectiveness of rational therapeutic measures. In the rural areas we experimented with INH 300 mg and T~ 100 mg daily, and INH combined with Chinese herbal medicine with a view to reducing the cost.

Under the leadership of the Chinese Communist Party our antituberculosis workers, persist to work in the direction of socialism. Following illustrious June the 26th directive of Chairman Mao's and having gone through the Great Proletarian Cultural Revolution and the Movement of criticizing Lin Piao and Confucius, they have become more conscientious to serve wholeheartedly the workers, peasants and soldiers. Large numbers of urban medical and health workers have gone down to the rural and remote areas to work and identify themselves with the workers and peasants. Recently they studied the theory of proletarian dictatorship, criticized revisionism, bourgeois thinking and bourgeois way of doing things in the medical field. All these have promoted the remoulding of their work outlook.

China is a developing socialist country, belonging to the Third World. The practice of our antituberculosis work has shown that, in spite of the weakness of our tuberculosis control service in the past, if we follow the leadership of the Communist Party of China, rely on the strength and wisdom of the masses, fully arouse their enthusiasm and creativity, always start from the actual situation, hold fast to the principles of self-reliance and independence, taking measures suitable to the local condition, be industrious and thrifty, making full use of our own resources, develop our own pharmaceutical industry and train our own antituberculosis personnel, we can achieve more rapid development of our tuberculosis control work.
Although our antituberculosis work has reaped certain successes, it still falls short of the needs of the broad masses and there still exist certain weak links which require solution in the future. It is our wish to learn assiduously from the successful experiences of other countries in order to increase our efforts in the control and eradication of tuberculosis in our country at an early date.