Public Health Practice

Tuberculosis control in Kyrgyzstan – an opportunity
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Tuberculosis incidence and mortality rates are rising steeply, reflecting economic hardship and the deterioration of the health infrastructure. The human and technical resources needed to reverse this trend are on hand, but cannot be used effectively without an adequate financial input. The cost of controlling tuberculosis now is modest compared with the cost of allowing it to increase.

Tuberculosis is widespread in Eastern Europe and the former USSR. Although case notification and mortality rates markedly decreased after the Second World War, they are currently two to three times as high as those in Western European countries (1, 2). As in most industrialized countries and some developing ones, case rates have stopped declining in Eastern Europe and the former USSR. The reasons for this are not entirely clear, as HIV infection is not widespread in the area (3), and there is little immigration from countries with high prevalence. The most likely causes are a rapid increase in poverty, overcrowded living conditions, malnutrition, and lack of drugs (1).

Regional and national situation

In 1993, the highest case notification rates in the former USSR were those of Kazakhstan (62 per 100,000), and Turkmenistan and Kyrgyzstan (both 55 per 100,000). In addition, in the last three years, some of the highest tuberculosis mortality rates were observed in Kyrgyzstan (13.6 per 100,000 in 1994), Kazakhstan (10.7 per 100,000 in 1991), and Turkmenistan (10.6 per 100,000 in 1991). Comparing average rates notified in 1984–86 with those of the last four reports (1990–93), the countries in the former USSR showing increases were Turkmenistan (26%), Lithuania (9%), and Kyrgyzstan (5%).

Since the dissolution of the USSR the health situation has deteriorated in most of the new Republics. Each year, health budgets are a smaller percentage of the national budget, but expensive treatments of unproven efficacy are still being used; expensive, mass active case-finding activities still take place; prolonged and often unnecessary hospitalizations for
treatment are common; and vitamin and other drug support is prescribed in addition to antituberculosis agents (4).

The tuberculosis situation in Kyrgyzstan was reviewed jointly by the staff of the National Tuberculosis Research Institute in Bishkek and of WHO in October 1994 and March 1995. Notification and mortality data and other epidemiological information were obtained from national statistical reports produced by the Ministry of Health. Information on the control situation in Kyrgyzstan was gathered in the country and verified through field travels jointly by WHO and National Tuberculosis Research Institute staff. Several facilities involved with tuberculosis control at various levels, were visited. These activities produced the following findings.

Epidemiology

Kyrgyzstan has a population of 4.5 million living in six oblasts (regions) and the capital city of Bishkek. Even during the Soviet period, tuberculosis case notification rates were among the highest of the whole USSR (1). After a modest decline of on average 1% a year between 1975 and 1988, case rates increased by an average of 3.9% a year between 1989 and 1994, when 2650 cases (59.6 per 100 000 population) were reported (see figure). The largest proportion of cases still occur in young adults, who represent the most productive segment of the population, and in 1994 nearly two thirds of all cases occurred in persons less than 45 years of age. Reported rates may underestimate the burden of disease. Mortality from tuberculosis has increased by an average of 13.6% per year between 1988 and 1994. In 1994 it was 13.6 per 100 000 population, which is the highest in the whole of Europe and the former USSR. In the capital city of Bishkek the mortality rate was 29.7 per 100 000 in 1994. Resistance to the most important antituberculosis drugs, isoniazid and rifampicin, is reported to be on the increase, and tests performed between 1985 and 1987 showed high levels of initial and acquired drug resistance in both urban and rural areas.

Tuberculosis programme activities

Two types of problem are impairing the effectiveness of the current tuberculosis programme. The first is the general deterioration in the economy, which has reduced the health
budget and led to shortages of drugs and laboratory supplies. Both diagnostic and treatment activities have suffered as a result.

The second is the failure to use the existing well-developed infrastructure in a cost-effective manner. For instance, an expensive and low-yield active screening programme for large parts of the population by mass miniature radiography is still being conducted, although to a limited extent owing to lack of funds for maintenance of the mobile teams. In 1994, one third of the 745,000 people living in the oblast of Chui were screened. The money spent on this activity could have covered the cost of drugs for all cases reported in the country in 1994. Giving priority to case-finding by mass screening of the population before achieving high cure rates will add to the tuberculosis problem by producing chronic cases which are often resistant to one or more of the drugs. Diagnosis is based on various tests, some of which are expensive, and gives priority to chest radiography rather than smear microscopy. Although duration of hospitalization is shorter than in the past owing to lack of food and drugs, tuberculosis patients are still often hospitalized for long periods, and kept in sanatoria for months. In Kyrgyzstan, a large number of beds are available for tuberculosis patients: in 1993 at any given time there were nearly two beds for each new case of tuberculosis reported during the whole year. Patients are not treated with standard regimens, and treatment is often individualized. Recent interruptions in the supply of essential drugs have resulted in frequent modifications of drug combinations. Often, isoniazid and rifampicin are alternated in order to make scarce drugs go further. This can result in low cure rates, chronic infectious cases, and high resistance rates. In addition, more and more patients are defaulting and refusing hospitalization because of scarce food and poor conditions.

**Options for effective action**

Despite the severity of this public health problem, no donor agency has yet undertaken any far-reaching, comprehensive and sustainable activity to help counteract the deterio-

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*Tuberculosis case notification rates and mortality rates, Kyrgyzstan, 1975–94*
ration of tuberculosis control. In other countries of the former USSR, we are aware only of the involvement of Project Hope in Kazakhstan (5) and of Medical Emergency International (MERLIN) in Siberia (6), while WHO has initiated assistance to the three countries of the Caucasus (Armenia, Azerbaijan, and Georgia). In all these projects, WHO’s strategy for tuberculosis control has been adopted, but the risk exists that uninformed humanitarian relief may consist only of drug provision. Of course, drugs are essential in tuberculosis control, but donations without support for revitalizing national programmes may be counterproductive. Without an effective tuberculosis programme, drugs may be administered erratically and, worse, without direct supervision. The end-result will be the production of chronic cases infected with bacilli resistant to antituberculosis agents. In this case, the worst possible service will have been provided to the country, as future efforts of tuberculosis control will be hindered by the presence of nearly untreated cases.

However, all the tools necessary to control the tuberculosis epidemic exist. Tuberculosis control, according to the World Development Report 1993, is among the most cost-effective of all interventions (7). A new strategy of tuberculosis control in Kyrgyzstan and in

The benefit would result from the rapid reduction in the pool of previously treated smear-positive cases, and more rapid treatment and cure of new smear-positive cases. In epidemiological terms, it can be estimated that the benefits could be a rapid reduction of tuberculosis prevalence, and a yearly decline of 5% or more in the annual risk of tuberculosis infection (8). In addition, mortality from tuberculosis would decline within as little as one or two years. Eventually, a decline in the annual number of new cases due to reduced transmission of tubercle bacilli in the community would follow, as the best way to prevent tuberculosis is to cure patients.

To achieve these results, national tuberculosis programmes should define a precise strategy which places the emphasis on providing standardized short-course chemotherapy to all tuberculosis patients, particularly the smear-positive cases, which are the infectious source of transmission within the community. They should aim to cure 85% of their smear-positive patients under treatment and detect 70% of their existing cases by the year 2000, as the World Health Assembly stated in 1991 (resolution WHA 44.8).

At the First Meeting of the National Tuberculosis Programme Managers of Central and Eastern Europe and the former USSR, held in Warsaw from 20 to 22 June 1994, participants from 25 countries endorsed these targets and agreed to adopt the following five-point policy proposed by WHO in order to achieve them.

- The government should be committed to a nationwide tuberculosis programme as a permanent activity of the health system.
- Case detection should be done predominantly by passive case-finding, i.e. using smear microscopy to detect cases in patients who present of their own accord at the health services.
Pilot projects

The World Bank has made tuberculosis control a priority in the Health Reform Project it is assisting in Kyrgyzstan. The Global Tuberculosis Programme has therefore agreed with the Ministry of Health of Kyrgyzstan to start two pilot projects to implement the WHO-recommended tuberculosis control strategy in four districts where the current situation has been studied and the potential for successful projects ascertained.

The main objective of the pilot project is to evaluate the feasibility of the WHO-recommended approach to tuberculosis control in Kyrgyzstan, making better use of the primary health care system to deliver the services needed. The effectiveness of hospital-based treatment during the first two months of chemotherapy will be compared to that of chemotherapy which is provided on an outpatient basis from the start.

The three major components of the project will be:

- Improvement and free provision of diagnostic services in at least one facility per district (raion) or city (whether a tuberculosis dispensary or a general health facility) and upgrading the quality of bacteriological services at district and city level.

- Provision, free of charge, of standard short-course chemotherapy and other treatment services to all tuberculosis cases, with directly observed therapy, and achievement of high cure rates for smear-positive pulmonary cases.

- Improvement of case management by adoption of the WHO-recommended recording and reporting system, and adequate supervision.

- Definitions of all tuberculosis cases should be standardized so that the correct choice of chemotherapy can be made; and administration of short-course chemotherapy, at least in the initial phase, for all smear-positive cases, should be directly supervised.

- A regular drug supply system, which guarantees adequate stocks of drugs at each programme level, should be established.

- A standardized recording and reporting system for monitoring case detection and treatment outcomes should be set up.

Key operations to restructure national tuberculosis programmes have been proposed by WHO (9).

The strategy, the targets, the policy package, and the essential operations have been well defined by WHO and were agreed on by most country representatives at the meeting in Warsaw, but the necessary financial support for carrying out effective tuberculosis programmes in the countries of the former USSR is lacking. Particularly in Central Asia, the economic crisis is expected to continue for a number of years. Health budgets will therefore continue to suffer, with potentially disastrous consequences for the health of millions of people. Tuberculosis has always been one of the best mirrors of the socioeconomic conditions of a society (10), and unless decisive steps are taken, it will continue to take lives and to infect younger generations, thus perpetuating its presence in the community.

This is a moment of opportunity. The well-developed health infrastructure of Kyrgyzstan and other former USSR countries still exists: facilities, doctors and other health care workers, with abundant expertise and competence, are still there. The adoption of a revised tuberculosis control strategy can bring the disease under control, but tools must be
created and health care workers trained soon in the new approach. First, critical documents on tuberculosis control and training must be adapted to the local situation. Second, and more importantly, tuberculosis experts in

many countries of the former USSR need training courses, as they are not yet familiar with the cost-effective modern tuberculosis control strategy. All this requires money and time.

As LeVine observed in Newsweek international (12 December 1994), Kyrgyzstan’s careful adherence to a programme of market liberalization and reduced spending has resulted in much lower rates of monthly inflation. This suggests that investing in health in Kyrgyzstan could yield substantial benefits. The current shortcomings of the health system could be overcome with relatively little effort if some of its economic difficulties were alleviated. For these reasons the international community should support Kyrgyzstan and other countries of Central Asia and the former USSR now, while it is economical to do so. The cost of waiting for two or three years could be tremendous in economic terms, with loss of productivity, the need for expensive treatment for drug-resistant cases, and massive expenditures to reconstitute the infrastructure for tuberculosis control. In human terms, the cost, with inexorably rising numbers of tuberculosis cases and deaths, would be incalculable.

References