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Review of the National TB Programme in Kyrgyzstan

Kyrgyzstan, 1–13 March 2004

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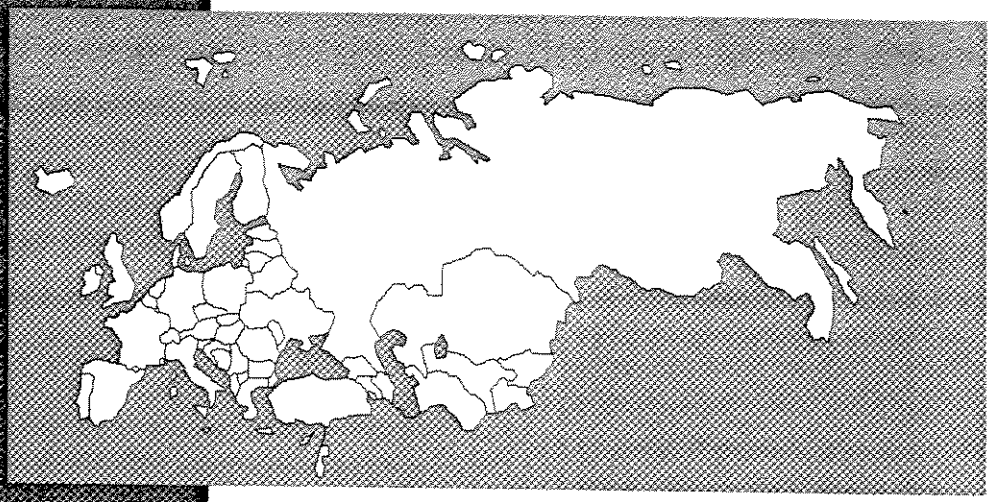

Review of the National Tuberculosis Programme, Kyrgyzstan

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CONTENTS

Page

Abbreviations i

Executive summary and main recommendations iii

Background iii
Key findings iii
Key recommendations iv

1. Introduction 1

2. Epidemiology of tuberculosis and HIV/AIDS 2

Epidemiology of tuberculosis 2
Epidemiology of HIV/AIDS 3

3. The National Tuberculosis Programme 3

3.1 Goal, objectives and strategy 3
3.2 DOTS achievements 4
3.3 Organization and management 5
3.4 Financial resources 7
3.5 Cooperation with partners 8
3.6 Diagnostic services 9
3.7 Treatment services 12
3.8 Logistics 14
3.9 Monitoring and evaluation 16
3.10 Training 18
3.11 Information, education, communication 19
3.12 Research 19
3.13 National drug resistance surveillance 20
3.14 DOTS-Plus 21
3.15 Tuberculosis in prisons 23
3.16 HIV-related tuberculosis 24

Annex 1. Map of Kyrgyzstan 25

Annex 2. Agenda of the review 26

Annex 3. Persons met during the review 27

Annex 4. Background documents 28

Annex 5. Organization chart of the Kyrgyz National Tuberculosis Programme 30

Annex 6. Case finding and treatment outcome of the Kyrgyz National Tuberculosis Programme 31

Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
CAR	Central Asian Republics
CDC	Centers for Disease Control and Prevention (USA)
CDPP	Chief Department for Punishment Performance
CRH	Central Rayon Hospital
DOT	Directly Observed Treatment
DOTS	WHO-recommended strategy for tuberculosis control
DOTS-Plus	WHO-recommended strategy for drug-resistant tuberculosis control
DRS	Drug Resistance Surveillance
DST	Drug Susceptibility Testing
EURO	WHO Regional Office for Europe
FAP	Feldsher Accoucheur Post
FDC	Fixed Dose Combination
FGP	Family Group Practice
FMC	Family Medicine Center
GDF	Global TB Drug Facility
GFATM	Global Fund to fight AIDS, Tuberculosis and Malaria
GLC	Green Light Committee of the Working Group on DOTS-Plus for MDR-TB
HIV	Human Immunodeficiency Virus
HSRP	Health Sector Reform Project
KFLHP	Kyrgyzstan-Finland Lung Health Programme
KfW	Kreditanstalt für Wiederaufbau (German Development Bank)
ICRC	International Committee of the Red Cross
IEC	Information, Education, Communication
MDR	Multidrug-Resistant
MHIF	Mandatory Health Insurance Fund
MOH	Ministry of Health
MOJ	Ministry of Justice
NGO	Nongovernmental Organization
NTP	National Tuberculosis Programme
OMH	Oblast Merged Hospital
PAL	Practical Approach to Lung Health
PHC	Primary Health Care
PMHS	Primary Medicine Health Service
RDOP	Rural Doctor Outpatient Point
RIT	Research Institute of Tuberculosis
SES	Sanitary Epidemiological Services
SF	Social Fund
SWAp	Sectorwide Approach
TB	Tuberculosis
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	United States Agency for International Development
WB	World Bank
WHO	World Health Organization

Executive summary and main recommendations

Background

DOTS (directly observed treatment, short course), the internationally recommended strategy to control tuberculosis (TB), was piloted in Kyrgyzstan in 1996 and implemented countrywide by October 1998. Currently, tuberculosis is still a serious public health problem and the National Tuberculosis Programme reports some stabilization in the progress towards the targets of detecting 70% of the new infectious cases and curing 85% of them by the year 2005. Drug-resistant tuberculosis has been reported at high levels in recent years. Moreover, HIV is increasing rapidly, due to the growing number of injecting drug users in the country, and this threatens tuberculosis control.

In 2003, the Global Fund to Fight AIDS, Tuberculosis and Malaria granted a tuberculosis project proposal to Kyrgyzstan. The project includes the treatment of drug-resistant tuberculosis patients. To assess how DOTS is being implemented in the country and its readiness to address the challenge of drug-resistant tuberculosis, WHO organized an external review of the National Tuberculosis Programme from 1 to 13 March 2004.

Key findings

According to the latest WHO estimates, in 2002 Kyrgyzstan had the second highest tuberculosis incidence rate and the twelfth highest number of new tuberculosis cases among the countries of the WHO European Region.

In 2003, the National Tuberculosis Programme detected 52% of the new pulmonary smear-positive cases occurring in the country. At this pace, the programme would achieve the target of 70% only in the year 2009. In the 2002 cohort of new smear-positive patients, the National Tuberculosis Programme achieved an overall treatment success rate of 82%. However large differences where reported among the oblasts.

DOTS is being implemented within the Health Sector Reform Project, which the government and the World Bank have been supporting since 1996. A number of international bilateral partners are also supporting DOTS financially and technically.

TB diagnostic and treatment services are provided through a network of specialized facilities and a much larger number of primary health care/family medicine units. In 2003, almost 90% of all symptomatic patients were investigated in a family medicine unit. However, only 5% of them were found sputum smear-positive by direct microscopy. Tuberculosis diagnosis provided in the family medicine units is limited by poor-quality sputum collection and microscopy and needs to be strengthened. In 2003, the National Tuberculosis Programme reported too many new smear-negative pulmonary and extrapulmonary cases (respectively 38% and 35% of all new tuberculosis cases).

The National Tuberculosis Programme considers 24 different treatment regimens for Category I, four for Category II and five for Category III patients. All newly diagnosed tuberculosis patients are admitted to hospital for the intensive phase treatment. Patients are often kept in the same

hospital ward, disregarding their infectiousness. Chronic tuberculosis patients represent a significant burden for the national programme, being composed of all patients with a history of tuberculosis treatment (DOTS or non-DOTS) in the past. Chronic tuberculosis patients are periodically admitted to hospital for "prophylactic" treatment twice a year or because of a deterioration in their clinical condition. They are treated with anti-TB drugs purchased through local oblast budgets.

In 2002, the National Tuberculosis Programme reported temporary shortage of some anti-tuberculosis drugs. Most of the drugs presently available at the central store will run out in April 2004.

DOTS monitoring, through reporting of case finding, sputum conversion and treatment outcome, is ensured quarterly by the national programme. However, field supervision is seriously limited by manpower and transport constraints.

Information, education and communication activities by the National Tuberculosis Programme specifically target tuberculosis patients and are undertaken in health facilities; they are mainly related to the commemoration of World Tuberculosis Day.

Operational research on tuberculosis is limited, despite the many challenges that DOTS implementation has to face in the context of the reforming health sector.

National anti-tuberculosis drug resistance surveillance has still not been established. Culture and drug susceptibility testing are performed only in Bishkek. A surveillance protocol has been drawn up, which should be revised according to the present capacity of the laboratory network and the need for starting surveillance as soon as possible. A DOTS-Plus project could start with limited extent and only after addressing carefully all the observations made by the GLC on laboratory quality assurance, criteria for inclusion and exclusion of patients, treatment regimens and management of adverse reactions, patient follow-up, nosocomial infection control, supply management, data collection and training of staff.

Tuberculosis is widely transmitted among detainees in the penitentiary system, representing a threat to the general population. Tuberculosis control in the penitentiary system is under funded and presently excluded from all international grants. It has recently received a lot of attention from the Ministry of Justice, the Ministry of Health and main international partners.

Key recommendations

To the Ministry of Health

1. The Ministry of Health should continue to strengthen DOTS through the primary health care network. The same quality of DOTS implementation must be ensured in all areas covered by HSRP.
2. The Ministry of Health should include TB control indicators among those for monitoring the HSRP progress. The quality of DOTS implementation should be preserved in designing the third HSRP, especially during the transition to SWAp.
3. The Ministry of Health should progressively increase its financial support to TB control and ensure its future sustainability.

4. The Ministry of Health should further reduce the number of laboratories by assessing the real needs for maintaining the quality of TB microscopy. The needs assessment should pay attention to: physical accessibility (mapping of laboratories), quality of equipment and infrastructure, staffing, actual performance and local factors.
5. The Ministry of Health should give priority to TB infection control in its plan for hospital rehabilitation.
6. The Ministry of Health should strengthen its collaboration with the Ministry of Justice to ensure DOTS implementation in the penitentiary system.

To the National Tuberculosis Programme

1. The National Tuberculosis Programme should give priority to improving case detection and cure rates and achieving the global targets for TB control by 2005.
2. The National Tuberculosis Programme should establish a technical committee, which includes expertise from other organizations, to update the national guidelines. A national manual should be developed and printed for wide distribution.
3. The National Tuberculosis Programme should establish an interagency coordinating committee, which is composed of the main DOTS stakeholders and meets monthly for technical coordination of DOTS implementation. Existing coordination mechanisms relevant to TB control should be reviewed to avoid duplications, with attention to their functional level and terms of reference.
4. The National Tuberculosis Programme should ensure free-of-charge access to TB diagnosis, including sputum smear microscopy and X-ray, in the most convenient place for the patient, either a PMHS or a TB facility. TB diagnosis should be improved through new and functional laboratory equipment, uninterrupted supply of consumables, and routine internal and external laboratory quality assurance.
5. The National Tuberculosis Programme should revise the present treatment guidelines by identifying the most appropriate regimen per category of patient. DOT should be strengthened through the primary health care network. Hospital admission should take place only when inpatient care is necessary.
6. The National Tuberculosis Programme should abandon the practice of providing "prophylactic" treatment twice a year to DOTS and non-DOTS chronic patients.
7. The National Tuberculosis Programme should revise the pool of chronic smear-positive patients and treat them with Category II regimen when a full course of this regimen was never provided. No further treatment should be given without drug susceptibility testing. The different categories of patients should be kept in separate hospital wards.
8. The National Tuberculosis Programme should pursue central procurement of first-line anti-TB drugs, and the oblasts should procure only ancillary drugs through their local budgets. An uninterrupted drug supply should be ensured by appointing oblast coordinators, providing a full buffer stock and training staff on drug management.
9. The National Tuberculosis Programme should ensure regular monitoring and supervision of DOTS by proper planning and allocation of necessary resources. Annual WHO missions could provide external monitoring of DOTS progress towards the TB control targets.

10. The National Tuberculosis Programme should lead the development of a feasible plan for DOTS training in the country, in cooperation with various organizations. More training should be provided for PMHS workers to improve TB case finding.

11. The National Tuberculosis Programme should conduct a knowledge-attitude-practice to identify communication means and tools for an effective social mobilization campaign. Based on the survey results, a social mobilization campaign should be undertaken round the year. Free-of-charge access to TB diagnosis and treatment should be highlighted.

12. The National Tuberculosis Programme should make use of operational research to guide DOTS implementation through the health reform process and to address the main challenges, such as MDR-TB, TB/HIV, TB control in prisons, etc.

13. The National Tuberculosis Programme should undertake TB culture in only one reference laboratory in each oblast and DST only in Bishkek and Osh. Safety cabinets must be made available, installed and annually serviced by a specialist. Internal and external quality control should be ensured by the supranational laboratory.

14. The National Tuberculosis Programme should start national drug resistance surveillance as soon as possible, based on countrywide sampling of sputum specimens and culture/DRS performed only in Bishkek. The present DRS protocol should be revised as appropriate.

15. The National Tuberculosis Programme should submit a revised DOTS-Plus application to the GLC that considers a cohort of about 100 MDR-TB patients with sensitivity pattern to first and second-line anti-tuberculosis drugs verified by the supranational tuberculosis laboratory in Borstel. The revised proposal should properly address all GLC requests as per specific advice provided during the mission review.

16. The National Tuberculosis Programme should strengthen its collaboration with the penitentiary system and proactively organize the continuation of TB treatment for the released detainees.

17. The National Tuberculosis Programme should establish closer collaboration with the HIV/AIDS national programme.

To the partners of the National Tuberculosis Programme

1. All financial partners should consider maintaining adequate resources to support DOTS until the achievement of the TB control targets in Kyrgyzstan.

2. All technical partners should ensure coordination and consistency of their assistance.

3. KfW and GFATM should procure immediately the anti-TB drugs which are lacking for distribution to the oblasts. Top priority should be given to uninterrupted supply of anti-TB drugs; fast-track procurement should be prepared in case of emergency.

4. Financial and technical partners should consider supporting DOTS implementation in the penitentiary system.

5. WHO should start a TB/HIV pilot project in Chui oblast and monitor it closely for piloting means and tools of programme collaboration that could help address the future threat of TB/HIV in Kyrgyzstan.

1. Introduction

Kyrgyzstan is the smallest of the five central Asian republics (CAR) in the WHO European Region. It borders China, Kazakhstan, Uzbekistan and Tajikistan. In 2003, the population of Kyrgyzstan was estimated at 5 010 800 people, of which 64% were living in rural area. Gross national income (GNI) per capita was US$ 290 in 2002, with 44% of the population living below the poverty line.

The DOTS strategy was introduced and expanded in Kyrgyzstan through the health reform programme undertaken by the Ministry of Health (MOH) and financially supported by a loan from the World Bank (WB). The National Tuberculosis Programme (NTP) started DOTS implementation in 1996 in four pilot areas, which was expanded to cover the whole country by October 1998. In 2003, DOTS was introduced in the penitentiary system by the Ministry of Justice (MOJ) in collaboration with the MOH.

Tuberculosis (TB) is still a serious public health problem in the Kyrgyzstan and the most recent data reported by the NTP suggest some stabilization in the progress towards achieving the global TB control targets by 2005. In 2003, Kyrgyzstan submitted to the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) a TB project proposal that was eventually approved for granting. One of the three areas of intervention is the implementation of DOTS-Plus, which is the World Health Organization (WHO) recommended strategy to control drug-resistant TB. Consequent to the GFATM grant and in coordination with the MOH, GFATM and the Green Light Committee of the Working Group on DOTS-Plus for MDR-TB (GLC), a WHO external review of the NTP in Kyrgyzstan was undertaken from 1 to 13 March 2004. The objectives of the review were to assess the following:

- performance of DOTS, next steps for TB control and DOTS expansion, readiness for DOTS-Plus implementation;
- performance of the laboratory network in TB detection and diagnosis by smear microscopy, culture and anti-TB drug susceptibility testing;
- management of TB patients and their follow-up;
- system of procurement and distribution of anti-TB drugs and laboratory supplies;
- surveillance system through recording/reporting of case detection and treatment outcome;
- intra- and intersectoral collaboration and coordination for TB control, in particular with Ministry of Justice, National HIV/AIDS Programme, World Bank, GFATM, GLC and other main stakeholders.

The review was conducted by four international experts: Dr Pierpaolo de Colombani (WHO Regional Office for Europe, Copenhagen, Denmark), Dr Sabine Ruesch-Gerdes (National Reference Center for Mycobacteria, Borstel, Germany), Dr Kai Vink (KNCV, The Hague, Netherlands) and Dr Marina Pak (CDC, Almaty, Kazakhstan). Dr Gombogaram Tsogt (WHO Regional Office for Europe, Almaty, Kazakhstan) had to abandon the mission after one day. The review team was accompanied by members of the NTP.

The reviewers visited TB and Primary Health Care (PHC) institutions and met people in three regions of the country, including rural and urban areas and most levels of administration, chosen by purposive sampling. The team reviewed existing documents, forms and records. Observations

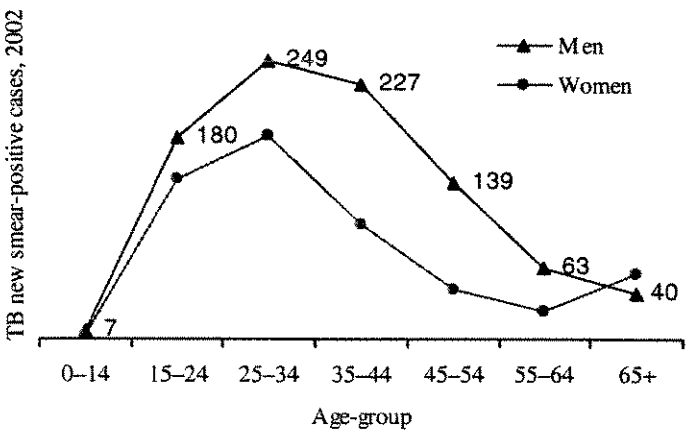
and interviews were conducted in households, government health facilities and institutions at community, district, region and central levels. The main recommendations of the review were discussed with the NTP Manager and during a meeting organized with the main financial and technical partners on the last day of the mission.

Following the introduction, this report describes to the epidemiology of TB in Kyrgyzstan and provides an analysis of the NTP and specific recommendations for improvements.

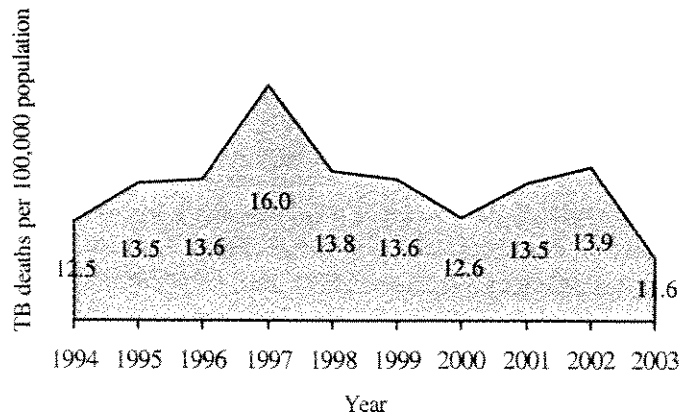
2. Epidemiology of tuberculosis and HIV/AIDS

Epidemiology of tuberculosis

In Kyrgyzstan, WHO estimates an incidence of 142 total new TB cases and 64 pulmonary smear-positive new TB cases per 100 000 population (2002). From these estimates, it would appear that more than 7000 people fell ill with TB in 2002. Therefore, Kyrgyzstan has the second highest TB incidence rate and the twelfth highest number of TB cases among the 52 countries of the WHO European Region.



The NTP reported 1413 new pulmonary TB smear-positive patients by age and gender in 2002, with a ratio of 0.6 female patients per each male patient. The highest number of both male and female patients was reported in the age group 25–34 years. The peak of new smear-positive patients in the 25–34 years age-group indicates the prevalence of TB exogenous re-infection and the still ongoing TB transmission in the community.



A high mortality rate due to TB was reported in the recent years, despite the implementation of DOTS countrywide since 1998. The reported decrease in TB mortality rate to 11.6 per 100 000 population in 2003 might be a sign of the epidemiological impact of DOTS implemented by the NTP, which needs to be confirmed in the coming years.

There is no national surveillance of TB drug resistance in Kyrgyzstan. The Republican Research Institute of TB (RIT) in Bishkek performs systematic sputum culture and drug susceptibility testing (DST) in its patients. These results are not representative of the whole country; however, they may give

some understanding of the levels of resistance to first-line anti-TB drugs. There are no DST data available on second-line anti-TB drugs.

Drug-resistant and multidrug-resistant (MDR) TB are reported to seriously have increased in the recent years. In 1997, MDR-TB was found in 8.8% previously untreated patients and in 30.9% previously treated patients.

In 2002, among 525 patients with a DST result and never treated for TB, 197 (37.5%) were found resistant to at least one first line anti-TB drug and 70 (13.3%) with MDR. Among the 113 previously treated TB patients tested, 85 (75.2%) had resistance to at least one drug and 52 (46.0%) had MDR.

In 2003, among 560 patients with a DST result who were never treated for TB, 288 (51.4%) were found resistant to at least one first-line anti-TB drug and 68 (12.1%) had MDR. The most common drug resistance was to streptomycin, found in 274 (48.9%) patients. Among the 104 previously treated TB patients tested, 79 (75.9%) had resistance to at least one drug and 49 (47.1%) had MDR. Moreover, MDR was reported in 66.7% of the patients previously treated in the penitentiary system.

Epidemiology of HIV/AIDS

Kyrgyzstan still has a low level of HIV prevalence; however, this has been increasing rapidly in the recent years. By September 2002, there was a total of 310 officially registered HIV cases, of which 115 were identified in 2001 and 142 in 2002. UNAIDS estimates the real number of HIV cases to be in the range of 330–680 in 2001. HIV infection prevails among males (81%), aged less than 29 years (64%) and detained in prison (56%). There is a clear overlapping with the 25–34 years old male population in which TB disease is mostly reported. At the end of 2002, 11 AIDS patients were reported, 7 of whom had died.

HIV/AIDS is closely linked to the increase in drug trafficking and the consequent number of injecting drug users (IDUs). About 85% of HIV cases are among IDUs. Kyrgyzstan has about 55 000 IDUs (one of the largest populations in central Asia). In 2000, between 12% and 19% of IDUs were found HIV positive in Bishkek and 32-50% in Osh. The prevalence of HIV among prisoners was 776 per 100 000, i.e. 130 times higher than among the adult population. HIV due to heterosexual transmission was 4% in 2001 and 23% in 2002. Syphilis and gonorrhea were reported with an incidence of 300 per 100 000 population in 2000, one of the highest rates in central Asia.

3. The National Tuberculosis Programme

3.1 Goal, objectives and strategy

Goal and objectives

Since 1996, the goal of the NTP is to reduce the mortality, morbidity and transmission of TB until it is no longer a public health problem in Kyrgyzstan. The objectives are: 1) to cure 85% of newly detected pulmonary TB smear-positive cases; and 2) to detect 70% of the new pulmonary TB smear-positive cases.

Strategy

The NTP operates within the ongoing health system reform in Kyrgyzstan. NTP has adopted the WHO-recommended DOTS strategy which, in the context of Kyrgyzstan, could be described as follows.

- Screening of respiratory symptomatic patients seeking care by sputum microscopy examination. Sputum is examined by laboratories at rayon level and above. The chest X-ray is also recommended in all cases.
- Short-course chemotherapy under directly observed treatment (DOT). Treatment is administered in hospital during the intensive phase and as outpatient care, organized as close as possible to the patient's residence, during the maintenance phase.
- System of uninterrupted supply of anti-TB drugs, laboratory reagents and other consumables through stores at central, oblast and rayon levels.
- System of recording and reporting to monitor the treatment of each patient and the performance of the programme by quarterly cohort analysis. Recording and reporting is both on paper and electronically.

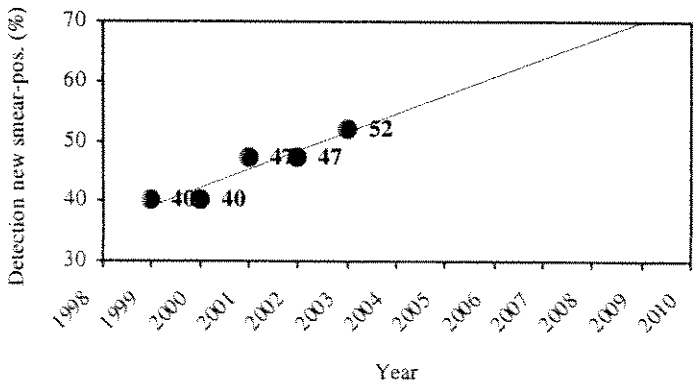
The NTP does not have a printed manual where the programme is outlined with its management, organizational and technical guidelines. A number of government orders (prikaz) have been issued for diagnosis and treatment of TB in the country.

Recommendations:

- *Establish a technical committee, which includes expertise from other organizations, to update the NTP guidelines to be included in the NTP manual.*
- *Develop and print the NTP manual for wide distribution to all DOTS providers and partners.*

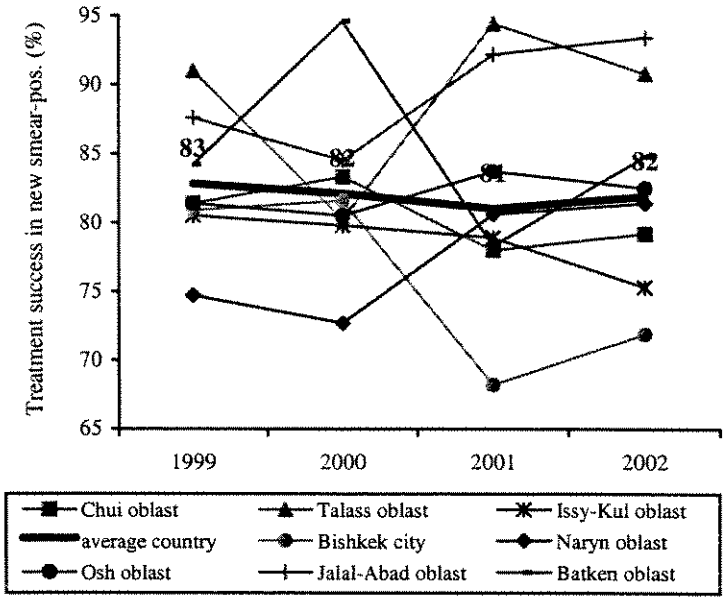
3.2 DOTS achievements

DOTS implementation started in 1996 in four pilot areas (Tokmok city, Chui rayon, Issyk-Kul rayon and Tiup rayon). It progressively expanded to cover all of Chui and Issyk-Kul oblasts by January 1998, Bishkek city and Bishkek oblast by March, Talass and Naryn oblast by May, Jalal-Abad oblast by July, and Osh oblast by October 1998.



The NTP reported 6568 TB cases for DOTS treatment in 2003. Among the new cases, 1642 (26.7%) were pulmonary smear-positive, 2363 (38.4%) were pulmonary smear-negative and 2147 (34.9%) were extra-pulmonary patients. Among all pulmonary cases, 2058 (46.6%) were smear-positive (new and relapses).

In 2003, the DOTS notification rate (per 100 000 catchment population) was 133 for all types of TB and 33 for new sputum-positive cases. The detection rate of new smear-positive cases was 52%. Considering the present epidemiological estimates, the NTP detects a large part of the TB cases occurring in the country. However, under the current trend, the NTP will achieve the target of 70% detection rate of new pulmonary smear-positive cases only in the year 2009.



In the 2002 cohort of new smear-positive patients, the NTP achieved an overall treatment success rate of 82%. However, this rate has not improved significantly and there are big differences among the oblasts.

In the 2002 cohort of relapsed smear-positive patients, the overall treatment success was 75% (63% cure and 12% treatment completion).

Recommendations:

- *Give priority to improving the detection rate of new smear-positive cases and to achieving the global target of 70% by the year 2005.*
- *Analyse the treatment success in new smear-positive cases in each oblast and identify the specific needs for improvement.*

3.3 Organization and management

Kyrgyzstan is administratively divided into Bishkek city, 7 regions (oblasts) and 54 districts (rayons).

The MOH is implementing a Health Sector Reform Project (HSRP) supported by the WB through the first HSRP (1996–2000) and the second HSRP (2001–2006). Preliminary discussions have already started between WB and MOH on a third HSRP, which would introduce the Sectorwide Approach (SWAp).

The first HSRP built on the recommendations of the "MANAS Health Care Reform Programme"[1] and had the objective of improving the health status of the population, the effectiveness of the service delivery system, the economic efficiency of the delivery system, the access to quality care, and the long-run financial viability of the system. It had four components: i) promotion of primary health care (PHC) and modern treatment protocols for diseases; ii) restructuring of the delivery system; iii) improved management of the pharmaceutical system;

[1] The "MANAS Health Care Reform Programme", undertaken during 1994–1995 in collaboration between the government, WHO and other donors, examined the health status of Kyrgyzstan and recommended future reforms and priorities.

and iv) introduction of an incentive-based medical provider payment system. DOTS was included in the "TB control" subcomponent of the PHC component. Having an impact on the entire health sector, the first HSRP launched the Family Group Practices (FGP) and the Family Medicine Centres (FMC) in the pilot areas of Chui oblast and Bishkek city, revised the management of pharmaceuticals (drug procurement, registration, distribution), and introduced payment systems capitation-based for outpatient care and case-based for inpatient care through the Kyrgyz Mandatory Health Insurance Fund (MHIF). The "TB control" subcomponent of the First HSRP was essential for the MOH to start implementing DOTS in 1996 and to expand it to the whole country by October 1998 (with the exception of the penal institutions, which were under a different ministry and not included in the project).

The second HSRP supports the strengthening and countrywide expansion of the health reform measures piloted during the first HSRP. It has the development objective of improving the performance and long-term financial viability of the health system by adjusting the delivery system to the available means and focusing on important health risks and diseases, improving access through better distribution of services and offering financial protection for the population against potentially impoverishing levels of out-of-pocket health spending, and improving the responsiveness of the health system to public expectations. The project has five components: i) health services delivery restructuring; ii) health financing; iii) quality improvement; iv) public health; and v) project administration and evaluation. DOTS is only indirectly addressed by the second project, through the component of public health and its subcomponents of "health protection" and "health promotion", which aim to modernize the Sanitary Epidemiological Services (SES) and streamline health promotion through the establishment of central and regional centres. The second HSRP passed its midterm recently, scoring a number of important achievements: the introduction of a single payer system[2] in all oblasts (with the exception of Bishkek and Osh), the introduction of the Program for State Guarantees for Health Services and explicit co-payment requirements, the right-sizing of oblast and central rayon hospitals and PHC facilities in all oblasts (with the exception of Bishkek and Osh), the development of human resources through continuous education and development of professional associations, the establishment of a new national health promotion centre and an upgraded SES laboratory, and the strengthening of institutional and managerial capacities of MMHIF and MOH and other relevant agencies. The further improvement of DOTS implementation during the second HSRP depends on the different implementation of the health reform in oblast and rayon.

TB control services are delivered from central (Republican), oblast and rayon level.

The NTP central management is carried out by the RIT in Bishkek. The RIT Director is the NTP manager, assisted by staff coordinated in four teams for "Registration of cases", "Drug supply", "Bacteriology" and "Increasing awareness". The RIT is the national reference institution for all TB clinical/scientific matters, with its 455 hospital beds and several departments. It is also in charge of DOTS national planning, training, management of TB facilities in the country, laboratory culture and drug susceptibility testing, drug supply, recording and reporting of cases, supervision, information-education-communication (IEC) and research. The NTP is not directly involved in the management of TB diagnosis and treatment in the general health facilities at PHC and secondary care level.

[2] In the "single payer" system, a single organizational entity is responsible for pooling health care funds and purchasing services from providers. It implies the transfer of responsibility for managing budget revenues from the oblast health/finance departments and the central rayon hospitals to the territorial department of the MHIF.

DOTS unit	1998	1999	2000	2001	2002	2003
TB dispensaries	22	22	22	22	17	17
TB laboratories	422	422	422	198	188	153
TB hospitals	11	11	11	11	11	11
TB hospitals beds	4205	3990	3945	3795	3701	3611
TB specialists	310	324	314	308	314	360
PHC units					64	64

At oblast level, outpatient TB services are provided mainly by the FMC (by family doctors and the TB specialist posted there), and/or by the TB dispensary. Inpatient TB services are provided in the TB department of the Oblast Merged Hospital (OMH) or in the local TB hospital. At rayon level, services were reorganized under HSRP by closing all TB dispensaries and integrating the TB cabinets into the FMC. Inpatient TB services are provided in some Central Rayon Hospitals (CRH).

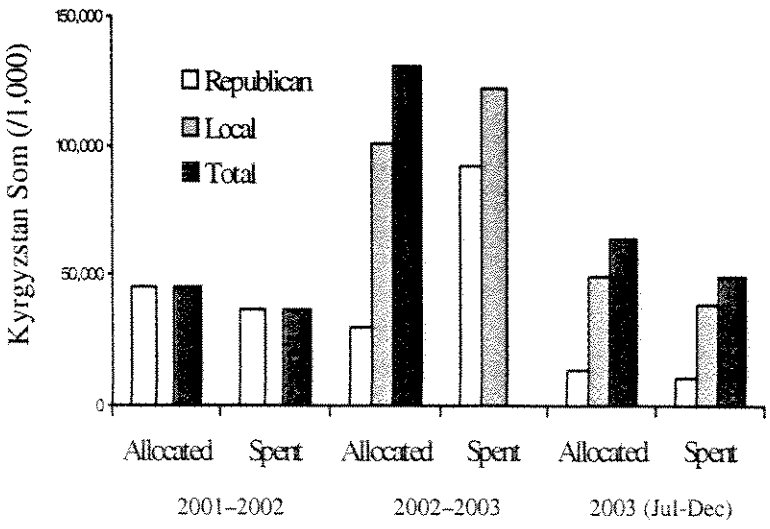
At community level, TB services are ensured by the Feldsher Accoucheur Posts (FAP) or by the Rural Doctor Outpatient Post (RDOP).

Recommendations:

- *Continue strengthening DOTS through the primary health care network.*
- *Ensure that the quality of DOTS implementation is the same in all areas and improved through HSRP. Consider the TB control indicators among those for monitoring HSRP progress.*
- *Ensure the quality of DOTS implementation in designing the third HSRP, especially during the transition to SWAp.*

3.4 Financial resources

The present National Tuberculosis Programme II (July 2001 – June 2006) is co-financed by the Kyrgyz Government and a number of international donors. The Kyrgyz Government finances the TB services in the country through a central (Republican) budget and a local budget. The Republican budget originates from the government taxes and the payroll taxes collected from the employees (2% of their salary) by the Social Fund (SF). The local budget originates from the local taxes (oblast, rayon) and the co-payment of health services. These revenues are eventually transferred to the mandatory Health Insurance Fund (MHIF) and its Territorial Departments (TD-MHIF). The "basic benefit package", which includes PHC and inpatient care (including TB), is paid by MHIF to the following categories of "insured" persons (representing about 70% of the country population): employees with formal contract, self-employed persons paying contributions to the SF, pensioners and registered



unemployed persons, persons under social welfare, children less than 16 years and students under 18 years, foreign nationals resident in Kyrgyzstan, other special cases. Sustaining the funding for health and MHIS remains the most critical challenge facing the second HSRP.

NTP reports under financing and limited disbursement by the government since 2001–2002. These constraints are in contradiction with the present standards set by the government, i.e. 56 Soms for food and 45 Soms for drugs, per TB bed per day. They have also limited the procurement of necessary equipment and drugs and some major repairs in the TB facilities.

KfW is presently the main financial partner of the NTP in Kyrgyzstan with €2.56 million provided in 1999–2003 and €2.56 million more allocated for 2002–2006 (penitentiary sector included). USAID is the other main financial partner with an estimated allocation of almost US$ 3.35 million between 2001–2002 and 2008–2009. USAID is now in the process of revising its agreement with its TB implementing partners in the CAR (with Project HOPE in Kyrgyzstan) for the next five years starting from March 2004. In August 2003, the GFATM granted US$ 19.8 million for five years (17 for HIV/AIDS and 2.8 for TB), of which US$ 4.8 million for the first two years (4.9 for HIV/AIDS and 1.2 for TB). US$ 93 000 were disbursed for TB in October 2003. WHO (Geneva and Copenhagen Offices) recently finalized its plan for technical assistance during the biennium 2004–2005. A Central Asia TB Study was recently undertaken by the WB, which follows a similar study, already completed, on HIV/AIDS. Discussions between the WB and MOH are ongoing for a future regional project on HIV/AIDS and TB, to be financed partly by an IDA grant and to complement the GFATM grant in the CAR.

Source	2001–2002	2002–2003	2003–2004	2004–2005	2005–2006	Total
Government	36 000	2 284 000	2 284 000	2 284 000	2 284 000	9 172 000
KfW	1 440 000	1 440 000	640 000	640 000	640 000	4 800 000
USAID		798 500	510 000	510 000	510 000	2 328 500
GFATM			606 418	606 418		1 212 836
WHO	10 200	6 160	5 000	138 500	138 500	298 360
Total	1 486 200	4 528 660	4 045 418	4 178 918	3 572 500	17 811 696

Notes: all amounts in US$; 1 US$ = 43.7937 Soms (KZS)

Recommendations:

- *Financial partners to ensure adequate resources in supporting the NTP until the achievement of the TB control targets in Kyrgyzstan.*
- *MOH to progressively increase its financial support to TB control and ensure its sustainability in future.*

3.5 Cooperation with partners

A number of international partners are supporting DOTS in Kyrgyzstan (see table). The International Committee of the Red Cross (ICRC) might join them in future, depending on the results of the ongoing mission exploring TB control interventions in prisons. Technical assistance is provided by all NTP partners, according to each area of work and expertise. A number of NGOs are working on HIV/AIDS, but none on TB.

NTP Partner	USAID OSI	KfW	WB	GFATM	Project HOPE	CDC	RPM	KFLHP	WHO
Policy			F						T
Training	F		F	F	T	T	T		
Laboratory	F	F		F	T	T			
Supply drugs		F		F					
Surveillance	F		F	F		T			T
Supervision	F			F	T				
Research									
IEC	F		F	F	T				
DOTS-Plus				F					
PAL									T
TB/HIV	F							F/T	T
									T

Note: F = financial support; T = technical support

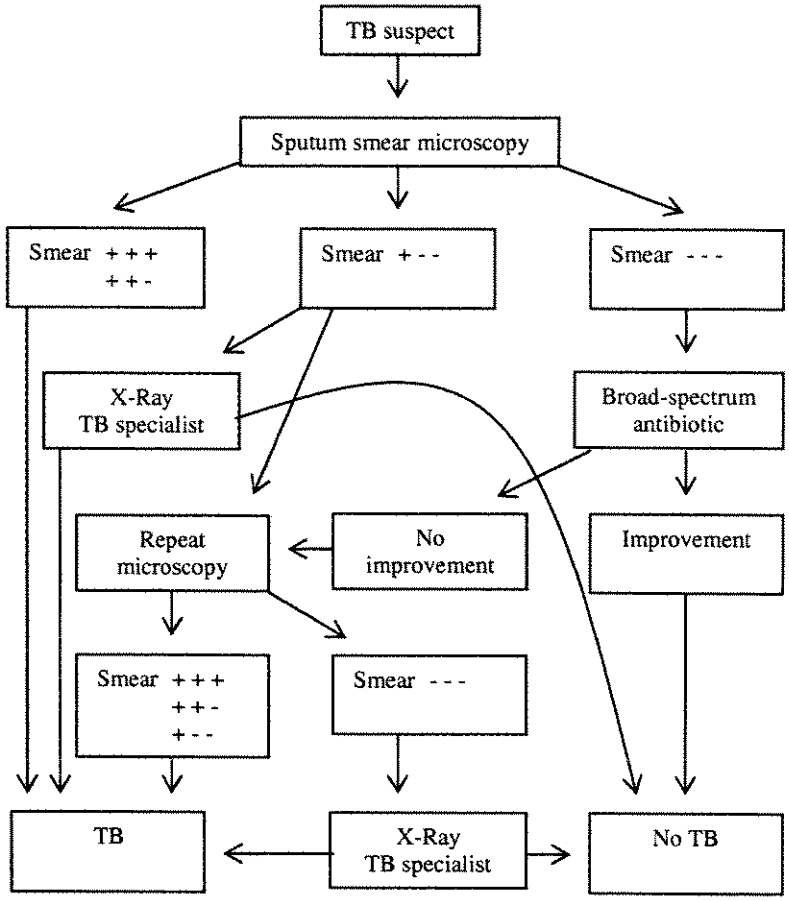
The NTP and its partners are working closely together. Project HOPE and GFATM offices are hosted by the RIT. The NTP is already represented in the Republican Coordination Council of Pulmonology for coordination with the PAL project and in high-level committees established by the MOH for coordination with the process of health reform. However, unlike many other countries, the NTP does not count on a specific interagency committee, which is justified by the priority for TB control in Kyrgyzstan, the presence of the main financial and technical partners specifically for DOTS, and the need for frequent communication and coordination for DOTS implementation. An NTP Interagency Coordinating Committee, composed of the main partners and meeting bimonthly, could be the best body for revising NTP technical policies, ensuring coordinated DOTS planning and implementation, and addressing specific problems identified during monitoring and supervision. Being at programme level, this committee should be chaired by the NTP manager. Existing coordination mechanisms relevant to TB control should be reviewed and term of reference clearly defined to avoid duplications.

Recommendations:

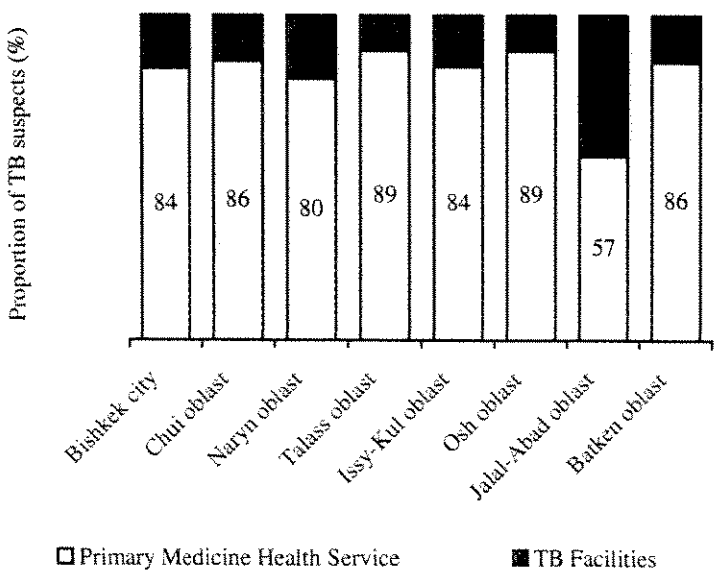
- *Ensure proper coordination and consistency of technical assistance provided by the NTP partners.*
- *Establish an NTP Interagency Coordinating Committee, composed of the main DOTS stakeholders, including the HIV/AIDS programme and Ministry of Justice, to meet monthly and ensure technical coordination for DOTS implementation.*
- *Review existing coordination mechanisms relevant to TB control to avoid duplications, with attention to their functional level and terms of reference.*

3.6 Diagnostic services

NTP case-finding is mainly dependent on the self-reporting of patients to the PHC network and, in decreasing numbers, on the TB facilities network. NTP also pursues active TB case finding in high-risk populations.

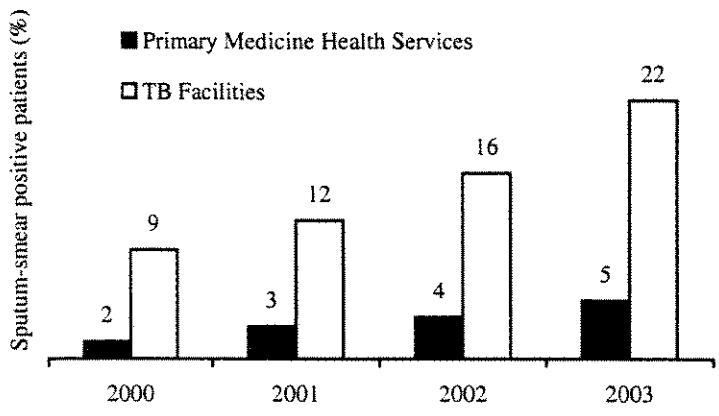


Respiratory patients usually approach their family doctor, who follows a recommended algorithm for diagnosis of TB (see figure). In rural areas, the paramedical staff of FAP and RDOP collect a sputum sample, sometimes also fixing the smear on the slide, and send the sputum container/ fixed smear to the closest laboratory. When the sputum smear is found positive or needs further investigations, the patient is referred to the TB specialist (either posted in the FMC or in a TB facility) for further investigations or intensive phase TB treatment in hospital. In hospital, patients are investigated again, disregarding the result of previous tests. Culture and drug susceptibility testing (DST) are requested at the start of patient treatment only in Bishkek, while it is not a routine in the oblast, mainly due to financial and technical constraints. Sputum smear is checked as follow-up after two (three) and five months from the start of the treatment and at its completion. Sputum smear microscopy, tuberculin test and clinical evaluation (by family doctor or TB specialist) are free of charge. Chest X-ray and blood tests, usually requested, should be paid for by the patient.



Where the HSRP is fully implemented, the PHC workers receive 100 Soms as an incentive per TB patient detected, of which half the amount originates from the local budget and half from the National Medical Association. Despite a specific MOH order (Prikaz No. 40, 15 February 2001), many patients self-report directly to TB facilities, bypassing the PHC network.

Sputum-smear TB microscopy is presently available down to rayon level through 119 Primary Medicine Health Services (PMHS) facilities (there were 442 in 2000) and 34 TB



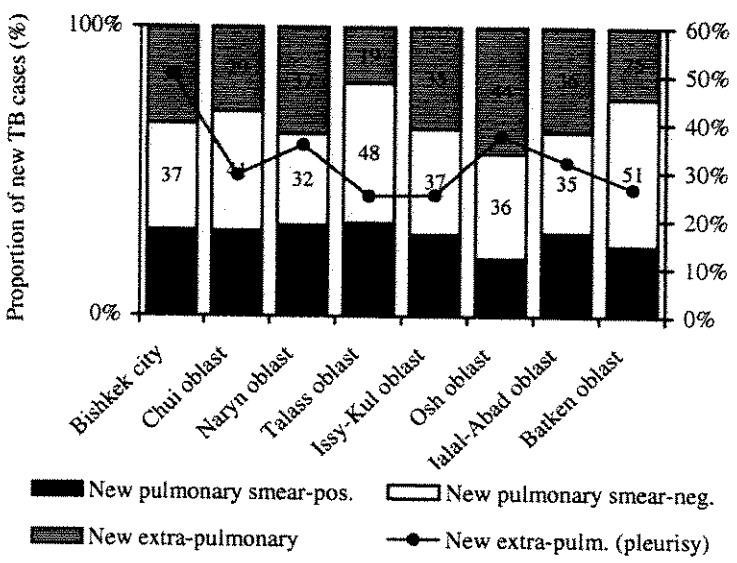
facilities. The HSRP introduced sputum-smear TB microscopy into the PMHS, consequently increasing the proportion of patients suspected of TB at this level (57–89% of the total TB suspects in 2003). However, these patients are found sputum smear-positive at a rate which is still too low in the PMHS facilities (5% in 2003) and too high in the TB facilities (22%, probably due to the late self-reporting of patients). Moreover, a survey performed in November-December 2003 in the context of the Practical Approach to Lung Health (PAL) project found that 22–44% of those respiratory patients attending PMHS facilities and suspected of TB did not undergo sputum-smear microscopy (primary defaulting).

The integration of TB into PHC has enormous potentials for enhancing NTP case detection. However, it is still an ongoing process with several limitations verified in the facilities visited by the mission: varying quality of the sputum specimen collected, use of obsolete microscopes (monocular or old Russian binocular), irregular electricity supply, discontinuous laboratory supply (with related re-use of slides), and inadequate quality assurance. The practice of sending fixing slides instead of sputum containers by FAP and RDOP to the laboratory is questionable for safety, quality and cost reasons. A number of laboratories have too low a workload to reinforce microscopy skills learned during training through sufficient practice. 60% of the PHC staff are reported to have been trained on DOTS until now. Staff turnover is very high due to low salaries. It is evident that the HSRP needs to further reduce the number of laboratories providing sputum-smear TB microscopy, to facilitate their management and supervision, and eventually to improve the quality of microscopy and the sputum smear TB positivity rate.

Provision of free-of-charge diagnostic services is important to increase NTP case detection. However, the mission noticed that the recently changed co-payment rules in some FMCs seemed to have caused a decrease in the number of self-reporting patients, most probably because they did not realize that TB services remained free-of-charge.

TB active case finding is ruled by the MOH order "Measures for further improving TB control in the Kyrgyz population" (Prikaz N° 285, 30 September 2000). TB screening is requested every 6–12 months for the following TB high-risk populations:

- people starting to work (if without recent chest X-ray) or who have changed residence
- people in close contact with a TB infectious patient
- people with residual lesions after being cured of TB
- patients with any pulmonary disease
- patients with hormonal disorders or under corticosteroid therapy
- people who are HIV-positive and patients with AIDS
- people with chronic consumption of alcohol or drugs, or with psychological disorders.



Two main problems can be identified from the analysis of NTP case finding: the low proportion of pulmonary TB cases which are sputum smear-positive and the high proportion of extrapulmonary TB cases.

The sputum smear-positive pulmonary TB cases, reported in 2003 by rayon, ranged from 20 to 32% of newly diagnosed cases. This low rate can be explained by poor laboratory performance (for the reasons described above) and/or over diagnosis of sputum smear-negative pulmonary TB (due to inadequate medical equipment and training for differential diagnosis). The PAL project, started as a pilot in November 2003, would address the latter problem by revising medical training on respiratory diseases.

The extrapulmonary TB cases, reported in 2003 by rayon, ranged from 19% to 44% of newly diagnosed cases. This high proportion could be partly explained by the excessively high rate of diagnosis of TB pleurisy in adults.

Recommendations:

- *Ensure access to TB diagnosis in the most convenient place for the TB patient, either a PMHS or a TB facility.*
- *Ensure free-of-charge access to TB diagnosis including sputum smear microscopy and X-ray. Advance payment (which would be later reimbursed) should not be a practice.*
- *Reduce the number of laboratories by assessing the real needs to maintain the quality of TB microscopy. The needs assessment should pay attention to: physical accessibility (mapping of laboratories), quality of equipment and infrastructure, staffing, actual performance, local factors.*
- *Stop fixing of slides at FAP and RDOP in favour of sending sputum specimens to the laboratory for the complete process of TB smearing, staining and reading.*
- *Ensure new and functional laboratory equipment and uninterrupted amount of consumables (e.g. reagents, slides).*
- *Provide routine internal and external laboratory quality assurance.*

3.7 Treatment services

The MOH order "Measures for further improving TB control in the Kyrgyz population" (No. 285, 30 September 2000), provides the NTP guidelines for treatment. However, several options are offered, i.e. daily or intermittent treatment and use of rifampicin or ethambutol. Even more treatment combinations are offered in the Patient TB Treatment Card (TB01), where 24

Category of Patients	Intensive phase	Maintenance phase
I	2HRZE or $2H_3R_3Z_3E_3$ 2HRZS or $2H_3R_3Z_3S_3$ 3HRZE or $3H_3R_3Z_3E_3$ 3HRZS or $3H_3R_3Z_3S_3$	4HR or $4H_3R_3$ 7HR or $7H_3R_3$ 6HE or $6H_3E_3$
II	2HRZES/1HRZE 2HRZES/2HRZE	5HRE or $5H_3R_3E_3$
III	2HRZ or $2H_3R_3Z_3$	4HR or $4H_3R_3$ 6HE or $6H_3E_3$
IV	H or 3HRZEth(Pro) twice per year	

E = ethambutol; H = isoniazid; Z = pyrazinamide; R = rifampicin; S = streptomycin; Eth = ethionamide; Pro = prothionamide

treatment regimens can be tallied for Category I, four for Category II and five for Category III patients (see table).

Following the phase-wise implementation of the HSRP, treatment of TB is provided by a decreasing number of TB facilities (TB beds decreased from 3900 to 3611 between 2000 and 2003) and a growing PHC network, which includes FMC, FAP and RDOP. Directly Observed Treatment (DOT) is provided free-of-charge in hospital during the intensive phase (usually daily) and under outpatient care during the maintenance phase (usually intermittent, three times a week).

All newly diagnosed TB patients are admitted to hospital for the intensive phase treatment, including those who are sputum smear-negative and not in a serious condition. The main justification is their poor socioeconomic status and the need for additional care, such as proper food and housing. TB patients are usually kept together in the same hospital wards, disregarding their infectiousness. Moreover, proper measures are not ensured for environmental infection control. TB patients and staff in hospitals are exposed to a high risk of contracting MDR-TB.

The maintenance phase of TB treatment is provided after hospital discharge and close as possible to the patient's residence through the TB and PHC network. However, patients may still have to travel long distances, which undermines their compliance to DOT especially in rural areas.

In some rayons, TB patients are reimbursed for their transport expenses to the hospital (only for hospital admission and discharge) and receive payment for additional firewood for heating. In Bishkek, the Red Cross provides food packages to socially-marginalized patients.

Special consideration is given to chronic TB patients that the NTP divides into two main groups:

- "DOTS chronic patients", who have received full course Category I and Category II treatment. They may be sputum smear-positive or smear-negative.
- "Non-DOTS chronic patients", who were treated with "traditional" non-DOTS treatment in the past. They may also be sputum smear-positive or smear-negative.

Both groups of chronic TB patients are periodically admitted to the TB hospital for treatment, if their clinical condition worsened or for "prophylactic" TB treatment twice a year (HRZEth(Pro)) for three months during springtime and autumn). The NTP usually does not attempt to treat non-DOTS chronic patients with Category II regimen (as recommended by WHO). Most of the chronic TB patients do not have a drug resistance pattern, since DST is largely available at the RIT in Bishkek. A number of second-line anti-TB drugs are available on the market, although they are expensive, which makes compliance to prophylactic treatment very difficult when these drugs have to be bought by the patients themselves.

Oblast / municipality	DOTS Chronic				Non-DOTS Chronic				Total	
	Smear-pos.		Smear-neg.		Smear-pos.		Smear-neg.			
	n	%	n	%	n	%	n	%	n	%
Bishkek	87	50.9	6	3.5	56	32.7	22	12.9	171	100
Chui	105	44.3	8	3.4	97	40.9	27	11.4	237	100
Naryn	17	89.5	1	5.3	1	5.3	0	0.0	19	100
Talas	27	52.9	9	17.6	10	19.6	5	9.8	51	100
Issyk-kul	11	52.4	0	0.0	10	47.6	0	0.0	21	100
Osh	82	40.0	13	6.3	58	28.3	52	25.4	205	100
Jalal-Abad	52	45.2	0	0.0	63	54.8	0	0.0	115	100
Batken										
Total	381	46.5	37	4.5	295	36.0	106	12.9	819	100

The TB departments visited by the mission had about half of their beds occupied by chronic patients. The hospitalization of chronic TB patients, when motivated by a course of TB prophylaxis, is an unnecessary and dangerous practice for other patients and hospital staff, who are being exposed to drug-resistant TB strains. Hospital infection control is not addressed properly in most places. Chronic TB patients share the same hospital wards, disregarding their infectiousness. Ventilation can be usually ensured only by opening windows, which is not done during winter. Personnel wear useless surgical masks. Ultraviolet light lamps are old and poorly maintained. Abandoning the practice of providing prophylactic TB treatment would decrease the TB hospital burden and allow a further decrease in hospital beds under the HSRS.

Recommendations:

- *Revise the present treatment guidelines by identifying the most appropriate regimen per category of patient. Use of fixed-dose-combination drugs is recommended.*
- *Continue strengthening DOT through the primary health care network.*
- *Avoid the hospital admission of those sputum smear-negative patients without medical or socioeconomic conditions requiring inpatient care.*
- *Revise the pool of chronic smear-positive patients and consider their treatment with Category II regimen, if the drug susceptibility pattern is not known and a full course of this regimen was never provided.*
- *Abandon the practice of providing "prophylactic" treatment twice a year to DOTS and non-DOTS chronic patients. Provide treatment to chronic patients only if guided by the result of a drug susceptibility test and second-line anti-TB drugs are available for the full treatment course. Otherwise, no TB treatment should be provided.*
- *Prevent TB overinfection in hospitals by separating the different categories of patients (smear-positive and smear-negative, new and chronic cases).*
- *Give priority to TB infection control in the process of rehabilitation of hospital TB departments. Hospital infection control needs assessment. Provide necessary training for all personnel.*

3.8 Logistics

Anti-TB drug supply

Procurement of anti-TB drugs in Kyrgyzstan takes place through two mechanisms: a central one supported by international donors and a regional one through the local budget. Anti-TB drugs were procured through a World Bank loan (1999–2001) and KfW (1999–2003). The drugs

procured were R150, R300, (RH)150/100, (RH)60/30, (RH)60/60, H300, H100, E100, E400, Z500, S1g and Et250.

The RIT has a small store, therefore most of the anti-TB drugs are kept at the Department of Drug Procurement of the MOH. The stock inventory is updated every week by the person responsible for the RIT store. Oblasts are requested to submit a drug indent to the NTP every quarter (with drug needs increased by 10% and doubled for 100% buffer). The oblasts come to Bishkek quarterly to collect their drugs. The same procedure should be followed by the rayons for collecting drugs from the oblast stores.

The anti-TB drugs procured through donors are used for the treatment of DOTS patients, new and re-treatment cases, and stored separately from other anti-TB drugs procured by the oblast through the local budget. These drugs should be utilized for "non-DOTS chronic patients".

Oblast / municipality	Last supply date
Bishkek	28 August 2003
Chui	16 February 2004
Naryn	25 December 2002
Talas	28 August 2003
Issyk-kul	28 August 2003
Osh	20 December 2003
Jalal-Abad	20 December 2003
Batken	20 December 2003

Shortages of some anti-TB drugs, at central and peripheral levels, were reported in 2002. The causes are several: a delay in central procurement; the oblast drug coordinators have not yet been appointed in Issyk-Kul, Jalal-Abad and Batken oblasts; a shortage of transport; insufficient training on drug management at all levels. Sometimes drugs for DOTS and non-DOTS patients are kept together in the store of the TB facility, which confuses drug monitoring and misleads the supply process. Road communication is difficult to/from some oblasts during winter, requiring crossing the international border with Kazakhstan (Bishkek-Talas) or with Uzbekistan (Bishkek-Batken). At the border, a long time is usually spent on customs procedures and high taxes are charged.

The NTP recently revised the quarterly drug indent form to facilitate the calculation of drug needs by rayon and oblast. The central level still has to validate the drug calculations made by the oblasts, often to correct mistakes. The wide variety of drug strengths and types of regimen adopted by the NTP makes drug management at the NTP central level unnecessarily complicated. It is also an area of disagreement among expatriate consultants.

Drug	Status
H 300mg	expiring in April 2004
H 100mg	expiring in April 2004
HR 60/60mg	stock out in April 2004
HR 30/60mg	stock out in April 2004
HR 100/150mg	stock out in April 2004

The NTP central store will run out of anti-TB drugs in April 2004. The GFATM grant also includes first-line drugs, which will be supplied within months in two fixed-dose-combinations (FDC) and 4FDC. The only possibility for the NTP to overcome the present drug emergency is through KfW, who promised to deliver a new stock of drugs by the end of March. KfW, as per the agreement with GFATM, is procuring non-FDC drugs.

Laboratory supply

Laboratory consumables are purchased through the local budget at oblast level and distributed to the rayon. FAP and RDOP are supplied with sputum containers and slides for sputum collection

and/or sputum smear fixing, which are eventually sent to the laboratory for microscopy. The laboratory reagents are prepared by the oblast reference laboratory and sent to the laboratories at rayon level.

The mission visited a number of laboratories where it noted that slides are often washed and reused for TB microscopy, a practice which carries a high risk of contamination and slide false positivity.

Transport

NTP supervision is provided by one old car. Another vehicle was recently provided by GFATM for the NTP Manager for management coordination. KfW is planning to provide the NTP with eight second-hand four-wheel drive vehicles for supervision, while running costs for supervision (petrol, per diem) will be covered by the GFATM grant.

Recommendations:

- *Procure immediately and distribute the anti-TB drugs that will run out soon. The NTP and donors should give top priority to an uninterrupted supply of drugs and include contingency plans (i.e. fast-track procurement) in case of an emergency.*
- *Discourage local authorities and hospitals from procuring first-line anti-TB drugs, which should be procured centrally by the NTP for all countries and all typse of TB patients. The savings from the local budget could be utilized to procure other drugs for treating adverse reactions or comorbidities.*
- *Appoint one anti-TB drug supply coordinator in each oblast.*
- *Always provide 100% buffer stock of anti-TB drugs for each quarter. Plan properly in advance a biannual supply where communication is very difficult.*
- *Revise quarterly drug indent form, making it simple for calculations. Besidse the 100% buffer, there is no need for a further increase of 10%.*
- *Provide training on drug management at all levels, such as rayon, oblast and central levels.*
- *Ensure an uninterrupted supply of all laboratory consumables.*
- *Ensure the adequate distribution of vehicles and resources for effective quarterly supervision.*

3.9 Monitoring and evaluation

Recording and reporting

TB diagnostic and treatment units maintain DOTS records as applicable for their service and according to the WHO recommended international standards, most importantly the TB laboratory register, the TB treatment register and the TB treatment card. The TB treatment card is updated at each DOT attendance. The TB treatment register is updated at each follow-up visit and kept by the facility where the treatment of the patient will be completed. Hospitals maintain their own inpatient records. Non-DOTS patients are recorded in a separate system.

For monitoring purposes, data from the TB treatment register at rayon level are consolidated into the TB quarterly reports for case finding, sputum conversion and treatment results, and submitted

to the oblast. Here, the reports from all rayon and oblast facilities are consolidated and submitted quarterly to the NTP unit responsible for monitoring and supervision. In addition to the traditional paper work, TB quarterly reporting is done electronically by filling in Excel pre-defined spreadsheets and submitting them to Bishkek by e-mail (Osh, Jalal Abad and Batken) or by normal mail in a diskette. Similarly to Kazakhstan, USAID/CDC support a TB Epidemiology Surveillance Case-based Management (ESCM) system that is fed at oblast level with data of each individual DOTS patient, entered through special application software designed in Epi-Info, and submitted to Bishkek by e-mail.

In addition to DOTS reporting, all TB cases should be reported monthly to the MOH in a separate system and the new cases immediately notified to SES on form N° 58. A SES team is expected to visit the residence of each TB patient and to provide services for contact tracing, vaccination, prophylaxis, environment disinfection and health education.

The mission team reviewed the TB records kept at the facilities visited. It was noted that missing DOT attendances are not always recorded on TB treatment cards. Otherwise, TB registers, forms and cards were found to be generally satisfactory and corresponding to the data available at the NTP central level. ESCM has great potential; however, it is still under trial. ESCM sometimes delays the traditional paper recording and reporting, and its database is still incomplete and not utilized for analysis. The training of staff on ESCM is insufficient.

Supervision and evaluation

The NTP policy is to supervise all oblast and rayon facilities every quarter. A supervision checklist is used, a copy of which should be left at the facility while the original is taken to Bishkek for analysis and cross-checking with other information reported by the oblast, such as the drugs indent.

NTP had established a central team for supervision, composed of one responsible person in the areas of drug supply, laboratory, programme monitoring and clinical issues. Responsible staff from each oblast are requested to supervise DOTS implementation in all rayons every quarter. In practice, due to manpower and transport constraints, a minimum plan for supervision is developed each quarter at central level to include only those facilities having specific problems to address. In 2003, due to the above constraints, only two supervisory visits were accomplished from central level. No supervision was conducted either by oblast or rayon. Project HOPE provided supervision with its own means. Part of the GFATM grant is given for strengthening NTP supervision.

Discussions have recently taken place on how to ensure "external monitoring" of the NTP. Quarterly monitoring and supervision of the NTP performance are part of the DOTS strategy and should be provided by the NTP with its own means and tools. Additionally, an external evaluation of the NTP could be ensured on a regular basis, such as the monitoring missions undertaken by WHO in several countries. Financial matters are usually verified annually by an external audit of the MOH.

Recommendations:

- *Maintain complete and timely reporting of NTP case finding, sputum conversion and treatment outcome on paper until the electronic surveillance is fully operational.*
- *Ensure routine monitoring of NTP case detection by age and sex and treatment success at all levels, and provide necessary training for the staff.*
- *Develop a plan for supervision that includes routine quarterly supervision of all facilities providing DOTS at oblast and rayon levels.*
- *Rationalize the available resources (manpower and transport), including those from partners, to ensure quarterly supervision.*
- *Decentralize DOTS supervision by providing training at oblast level and including TB in the routine supervision for PHC.*
- *Consider a WHO mission annually to provide additional monitoring of DOTS implementation towards the achievement of the global targets for TB control.*

3.10 Training

NTP developed three training courses by adapting the WHO training modules on "Managing TB at district level" and the material developed by WHO/KNCV for the training courses in Warsaw: 1) training of TB managers (five days for TB specialists); 2) training of paramedics (three days for nurses); and 3) training of laboratory technologists (five days).

Project HOPE, through USAID funds, has provided training on DOTS at all levels and including the PHC providers. In addition, the Centre for Continuing Medical Education provides DOTS training for PHC doctors and nurses through the PAL project (two-day refresher course).

International training on TB is also provided for two persons per year (TB manager and TB laboratory specialist) at the WHO TB Collaborating Centre in Warsaw. Selected NTP staff usually attend the most important TB conferences organized every year in Europe, such as the "Wolfheze Workshop" and the UNION global conference.

Recommendations:

- *NTP to lead the development of a feasible plan for DOTS training in the country, in cooperation with various organizations.*
- *Improve coordination for TB training among the different organizations involved.*
- *Provide more training for the PMHS to improve TB case finding, increase motivation and decrease turnover of staff.*
- *Assess the impact of training for PMHS workers and revise it accordingly.*
- *Provide further training for PMHS workers regarding frequent respiratory diseases other than TB, in cooperation with the PAL project.*

3.11 Information, education, communication

The RIT has been organizing "increasing awareness sanitary campaigns" annually since Soviet times. In 2003, the RIT conducted the following main IEC activities:

IEC activity	Description
Radio interview	30 minutes interview broadcasted by national station 19 times (monthly, weekly during March)
TV interview	30 minutes interview of patients/doctors, broadcasted by national station 17 times (monthly, weekly during March)
Lectures	TB lectures in the community, monthly
Posters	118 posters displayed at the RIT during the year
Displaying boards	Corners at the RIT with information material displayed
Patient education	16 health education sessions to RIT patients during the year
Poster competition	Drawing competition among RIT patients, 20 March
Athletic competition	Competition with award to winners, 20 March
Press conference	20 March
Scientific conference	Conference with physiatrists and academicians at the RIT, 24 March

Similar activities are reported to have been conducted in the whole country, with the involvement of health facilities and communities. Posters, leaflets for medical staff and other material were produced in collaboration with Project HOPE. Further activities are planned through the GFATM grant, i.e. health information/ promotion in public places (markets, homeless places, neglected children's homes, etc.) and production of brochures for TB patients.

The review mission found material on TB and DOTS displayed in all the sites visited, consistent with the intensified IEC activities undertaken during the "TB month" of March. However, the mission was not able to verify the impact that IEC actually has on TB patients and the general population, especially regarding the understanding of access to free-of-charge TB services. IEC mainly targets TB patients; it is conducted in health facilities and is mainly focused on the commemoration of World Tuberculosis Day (24 March). The development of new strategies for communication and social mobilization could be very important to enhance the detection of TB cases by the NTP in the future.

Recommendations:

- *Conduct a knowledge, attitude and practice (KAP) survey among the general population, TB patients and health providers to identify communication means and tools for an effective social mobilization campaign.*
- *Provide widespread information regarding the accessibility of free-of-charge TB diagnosis and treatment services.*
- *Ensure IEC countrywide and round the year. Enhance patient education by providers to promote adherence to TB treatment.*

3.12 Research

Research is conducted by the Scientific Research department of the RIT. Past and present TB operational research is summarized as follows:

- 1995–1998, evaluation of short-course chemotherapy on new pulmonary TB patients. Treatment outcomes and costs were compared between two cohort of patients treated with DOTS short-course chemotherapy or with 11 month "traditional treatment";
- 1999–2003, study of the reasons for unfavourable treatment outcomes among the pulmonary patients being treated with Category II regimen;
- 2003 (October) – 2005, surveillance on anti-TB drug adverse reactions;
- Planned, PCR diagnosis of TB (laboratory equipment provided by KfW).

Operational research is very important for guiding the NTP forwards effective and appropriate implementation of DOTS. A number of challenges for the NTP could be properly addressed by research: PHC referral of patients for TB diagnosis, efficiency of laboratory smear-microscopy, cost-effectiveness of inpatient care, management of backlog of chronic patients, surveillance on drug-resistant TB, interventions on HIV-related TB (TB/HIV), TB control in prisons, etc.

Recommendations:

- *Consider health system and services research an important support for guiding DOTS implementation through the health reform process and for addressing the main challenges, such as MDR-TB, TB/HIV, TB control in prisons, etc.*
- *Discuss an operational research agenda with technical and financial partners.*
- *Undertake a cost-effectiveness analysis of the TB active case finding programme for future review based on the evidence in Kyrgyzstan.*
- *Undertake deeper analysis on the diagnosis of extrapulmonary TB cases to identify the reasons for the excessively high reporting rate.*
- *Build research capacity of the RIT, including the utilization of postgraduate students in tuberculosis.*

3.13 National drug resistance surveillance

There is no national anti-TB drug resistance surveillance (DRS) in Kyrgyzstan. To promote it, WHO organized a mission in 2003 and assisted in developing a DRS plan that foresees countrywide, 100% consecutive sampling for 5 months, with at least 456 TB sputum smear-positive patients, previously or not previously treated for TB, investigated with sputum culture and DST performed by 8 laboratories (Bishkek and 7 oblasts). The principal laboratories visited by the mission were found not have performed culture and DST for a long time and with major constraints to reach the international standards required. Their equipment and consumables are old and insufficient; they do not apply the necessary safety measures (e.g. poor laboratory layout, absence of safety cabinets) and external quality assurance. The cabinets recently supplied by KfW (Faster Two 30) are designed for media preparation and do not provide any protection for personnel. The RIT laboratory is the only exception, being recently certified with proficiency testing by the supranational laboratory in Borstel (Germany) and nominated as the national TB reference laboratory for Kyrgyzstan.

To identify the national pattern of anti-TB drug resistance and assist DOTS-Plus interventions, it is necessary to establish national anti-TB drug resistance surveillance (DRS) in Kyrgyzstan as soon as possible. At present, the mission considers most appropriate to confine culture and DST

to the national TB reference laboratory and to have the sputum specimens collected for DRS transported from the oblast to Bishkek.

Recommendations:

- *Plan in future for TB culture performed only by one laboratory in each oblast (to be designated as the oblast TB reference laboratory) and DST only in Bishkek and Osh. Accordingly, carefully cross-check existing laboratory equipment with a list of equipment to be procured by donors and overcome the discrepancies.*
- *Do not perform TB culture without an appropriate and working safety cabinet.*
- *Have all new laboratory equipment installed by a specialist to ensure proper and safe use. Ensure servicing of safety cabinets and other equipment every year by an expert and according to the manuals.*
- *Train laboratory staff in using the new equipment.*
- *Ensure routine internal quality control (using the M. tuberculosis H37 Rv. control strain) and external quality control with supranational laboratory for culture and DST.*
- *Give priority to starting six-month national DRS for first and second-line anti-TB drugs as soon as possible, which should be conducted with countrywide sampling. As a temporary solution, all culture and DST should be performed at the NTP reference laboratory in Bishkek.*
- *Revise the present DRS plan by considering: additional costs for transportation of specimens from the oblast to Bishkek; additional 6 months/man for the NTP reference laboratory; necessary training on the DRS protocol (for at least NTP manager, epidemiologist, laboratory staff); seasonal accessibility of parts of the country and need for DRS to be conducted during summertime.*

3.14 DOTS-Plus

The third objective of the TB proposal sent by the Coordination Committee of Kyrgyzstan on Control of HIV/AIDS, TB and Malaria to GFATM (second round) is to treat patients who develop drug-resistant TB. The activities proposed are organizing sputum DST and providing second-line drugs for a limited number of MDR-TB patients (90 and 70 over two years). The GFATM temporarily suspended the related grant of US$ 1.1 million, pending endorsement by the GLC. A GLC mission was undertaken from 1 to 3 June 2003 and the formal application for the DOTS-Plus project was sent to the GLC in October. Remarks were made by the GLC on the application, which the present mission planned to properly address.

The RIT has treated 50 patients with MDR-TB in the last 3 years. The mission revised carefully together with the NTP the full DOTS-Plus application to the GLC and all relevant issues, such as national drug resistance surveillance, laboratory quality assurance, criteria for inclusion and exclusion of patients, treatment regimens and management of adverse reactions, patient follow-up, nosocomial infection control, supply management, data collection, and training of staff.

Considering that a national DRS has not started yet, that the first check for laboratory quality assurance is ongoing and that DOT practice differs in the country, the mission recommends implementing the DOTS-Plus project only to a limited extent.

An ad-hoc technical committee should be established to select no more than 100 patients for DOTS-Plus. The sputum samples would be collected and sent to the supranational TB laboratory in Borstel (Germany) for DST of first and second-line anti-TB drugs. Final treatment regimens are to be designed based on the DST result. The patients would be treated until the sputum culture converts to negative at the RIT. Continuation of treatment would then be provided by the RIT or the City TB Dispensary or the Oblast TB Dispensary in Bishkek. DOT must be ensured every day during the whole course of treatment. Adherence to treatment should be promoted through enablers and incentives for patients and providers. Strict TB infection control should be established in the RIT, with administrative, engineering and personal protection measures.

Drug management would include proper storage conditions (especially for PAS) and supply of free-of-charge ancillary drugs for treatment of adverse reactions to second-line drugs. Close monitoring of DOTS-Plus should be ensured through an individual MDR-TB patient database that could be developed from the one already used by CDC in other countries.

Personnel should be trained before the start of DOTS-Plus. Training of trainers should be provided through internationally recommended MDR-TB courses (in Latvia or by CDC). The GLC should provide continuous technical assistance. The GFATM should be approached for funding of DOTS-Plus training.

Subsequently to the successful first DOTS-Plus pilot project and the results of drug resistance surveillance, The NTP should design a mid and long-term plan for countrywide expansion of DOTS-Plus.

Recommendations:

- *Submit a revised DOTS-Plus application to the GLC that considers a cohort of about 100 MDR-TB patients with sensitivity pattern to first and second-line anti-TB drugs verified by the supranational TB laboratory in Borstel. Establish a technical committee to select the patients for DOTS-Plus, to be treated at the RIT or the City TB Dispensary or the Oblast TB Dispensary in Bishkek.*
- *Provide free-of-charge ancillary drugs for treatment of adverse reactions to second-line drugs.*
- *Ensure DOT every day and promote treatment adherence through enablers and incentives for patients and providers with assistance of NGOs.*
- *Implement strict TB infection control in inpatient facilities through administrative, engineering and personal protection measures.*
- *Ensure proper storing conditions for second-line anti-TB drugs, in particular refrigeration for PAS.*
- *Create a MDR-TB database from the one developed and distributed by CDC in other countries.*
- *Provide regular monitoring and supervision of the DOTS-Plus pilot project, according to the plan developed in the application to the GLC.*

- *Train all personnel involved in DOTS-Plus implementation in aspects of MDR-TB management. A DOTS-Plus central team should be established to include two TB specialists, two nurses, a data management specialist and a drug management specialist. This team should be trained on an internationally recommended MDR-TB course, such as the one organized in Latvia. One staff from the NTP reference laboratory should be trained in the supranational reference laboratory in Borstel. The personnel trained abroad will train the other staff involved in DOTS-Plus.*
- *Build from the DOTS-Plus pilot project a mid and long term plan for expanding MDR-TB management countrywide.*

3.15 Tuberculosis in prisons

The problem of TB in the penitentiary system in Kyrgyzstan recently came to the attention of the MOH and Ministry of Justice (MOJ), main international partners (WB, USAID/OSI, ICRC, WHO) and local NGOs active in harm reduction in prisons. The reasons are the high transmission of TB among detainees and the threat to the general population, the under-funding of TB control in the penitentiary system and the present exclusion from all international grants. Three WB missions for HSRP paid special attention to TB control in prisons (December 2001, February 2002 and November 2003). Project HOPE and ICRC are exploring the possibility of intervening in this area. The WHO Regional Office for Europe (EURO) recently signed the Biennial Collaborative Agreement (BCA) with the MOH for 2004–2005, which includes strengthening of TB and HIV/AIDS prevention and control in prisons.

The responsibility of the penitentiary system moved from the Ministry of Internal Affairs (MOIA) to the Chief Department for Punishment Performance (CDPP) of the MOJ in 2003. The penitentiary system is composed of four pretrial (SIZO) institutions and 11 correctional institutions for the detainees already sentenced. TB patients are kept in the SIZO in Bishkek if still awaiting trial or in one of the three TB colonies in Chui oblast.

Penitentiary institution	Location	Features
SIZO	Bishkek city	Pre-trial, with TB cases
SIZO	Karakol city	Pre-trial
SIZO	Naryn city	Pre-trial
SIZO	Osh city	Pre-trial
Colony	Chui oblast	Sentenced men
Colony	Chui oblast	Sentenced men
Colony	Chui oblast	Sentenced men
Colony	Chui oblast	Sentenced men
Colony	Chui oblast	Sentenced women
Colony	Chui oblast	Sentenced minors
Colony	Jalal-Abad oblast	Sentenced men
Central hospital	Bishkek city	350 beds, general hospital without TB cases
TB Colony No. 3	Chui oblast	255 beds, chronic TB cases
TB Colony No. 27	Chui oblast	175 beds, chronic TB cases
TB Colony No. 31	Chui oblast	150 beds, new TB cases

According to the latest World Prison Population List, there were 19 500 pre or post trial detainees (390 per 100 000 country population) in September 2003 in Kyrgyzstan. More than 2000 TB patients are estimated to be present at any given time in the penitentiary institutions, less than half with "chronic TB". A total of 753 new TB patients were registered in the penitentiary system in 2003, with an incidence rate that can be calculated at about 25 times more than the national average. During 2001, about 1600 detainees were amnestied because they were suffering from TB but only 600 of them are estimated to have

contacted a TB or PHC facility for continuation of treatment. Since than, no more mass amnesties were granted for TB detainees.

DOTS implementation, despite several constraints, was recently revived by the MOJ. Some training has been provided for medical staff and TB education for prisoners. The same NTP treatment regimens and registration system have been adopted. Drugs are partially supplied by the NTP. However, other key DOTS features are lacking: proper manual with guidelines for TB control in the penitentiary system, laboratory equipment and supplies for sputum smear examination, X-ray equipment, regular supply of drugs, printed recording and reporting material, referral and tracing of patients to/in the civilian system. About one third of all newly admitted "chronic" patients are believed to have MDR-TB, which needs to be addressed urgently in close collaboration with the NTP. Long-term support by international partners, both financial and technical, is urgently needed to implement DOTS in the penitentiary system of Kyrgyzstan.

Recommendations:

- *Strengthen DOTS in the penitentiary system through assistance of financial and technical partners.*
- *Strengthen collaboration between TB and HIV/AIDS services in the penitentiary system, also through NGOs providing harm reduction.*
- *Ensure proper information exchange between the TB services in the penitentiary system and the civilian system.*
- *NTP to take more active approach in assuring the continuation of treatment for released detainees with TB.*

3.16 HIV-related tuberculosis

The WHO Regional Office for Europe includes Kyrgyzstan among those countries with a high priority for interventions to control tuberculosis (TB) and medium priority for interventions to prevent and control HIV/AIDS. This can be explained by the high TB burden and rapid growth of HIV/AIDS in Central Asia, following the collapse of the Soviet Union.

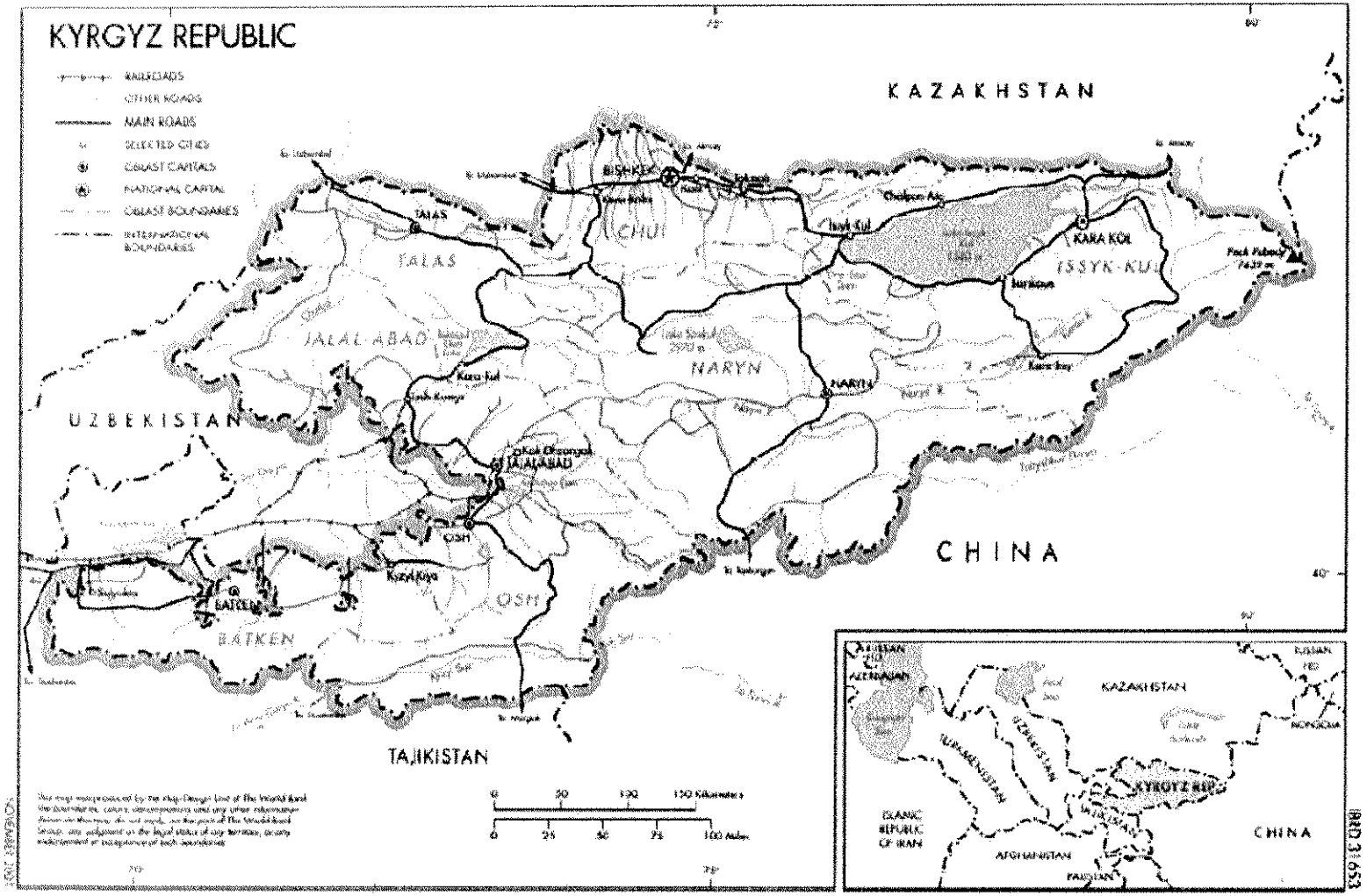
TB and HIV/AIDS epidemics are already addressed separately by the government, USAID and the GFATM. However, the NTP and the national HIV/AIDS programme still have to establish the necessary collaboration to address more effectively the future threat of HIV-related TB (TB/HIV). A WHO pilot project on TB/HIV will start soon in Chui oblast through the two-year financial support of USAID and the Open Society Institute (OSI). The pilot project would be one of the first to translate into action the policy framework that EURO recently developed to control TB/HIV in Europe.

Recommendations:

- *Establish closer collaboration between the TB and HIV/AIDS national programmes.*
- *Start implementation of the TB/HIV project in Chui oblast and monitor it closely for piloting means and tools of programme collaboration which address the future threat of TB/HIV in Kyrgyzstan.*

Annex 1

MAP OF KYRGYZSTAN



Annex 2

AGENDA OF THE REVIEW

Date	Meeting/visit	Place
1 March (Monday)	Minister of Health Meeting with NTP partners Director of Research Institute of TB WHO Liaison Officer Senior Manager World Bank	Ministry of Health Kyrgyz Research TB Institute WHO office World Bank office
2 March (Tuesday)	Issyk-Kul Oblast Family Medicine Center Issyk-Kul Oblast Merged Hospital	Karakol (Issyk-Kul oblast)
3 March (Wednesday)	Fetcher Acuscer Point Chui Oblast Merged Hospital Chui Rayon Family Medicine Center Feldsheer Accoucheur Post	Chelpon-Ata (Issyk-Kul oblast) Tokmok (Chui oblast) Chui rayon (Chui oblast)
4 March (Thursday)	Osh Oblast TB Dispensary Feldsheer Accoucheur Post TB patient under treatment	Osh (Osh oblast)
5 March (Friday)	Karasui Rayon Family Medicine Center Karasui TB Office Osh Oblast TB Hospital TB patient under treatment	Karasui (Osh oblast) Osh (Osh oblast)
6 March (Saturday)	Kyrgyz Research TB Institute	Bishkek
7 March (Sunday)	Report writing	Bishkek
8 March (Monday)	Report writing	Bishkek
9 March (Tuesday)	Chui Oblast TB Hospital Colony No. 31 (TB colony) Bishkek City TB Dispensary	Chui oblast Bishkek
10 March (Wednesday)	Director of Kyrgyz Research TB Institute Meeting with NTP partners	Bishkek
11 March (Thursday)	Meeting with Avanco (KfW)	Bishkek
12 March (Friday)	Colony No. 47 Research Institute of TB WHO Liaison Officer	Bishkek
13 March (Saturday)	Report writing	Bishkek

Annex 3

PERSONS MET DURING THE REVIEW

Mitalip Mamytov, Minister of Health (MOH)
Melis Madybaev, Chief, Ministry of Health Administration
Boris I. Dimitrov, Head, External Relations Department, MOH
Sabyrdjan T. Abdikarimov, Director General, State Sanitary Epidemiology Services (SES), MOH
Nurmatov Zurin Sharipovich, Chief Epidemiology Section, SES, MOH
Nurlan Brimkulov, Chief, Hospital Therapy Department, Kyrgyz State Medical Academy
Omor Kasymov, Director, Center of Prophylaxis Medicine
Marat Mambetov, Director, Main Administration on Coordination and Implementation, MOH
Elena Kukhranova, Main Specialist, Main Department of Health Care and Licensing, MOH
Shailobek Urkumbaev, Director, Department of Drug Supply and Medical Equipment, MOH
Nadejda Alexandra Grinenko, Physiatrist Inspector, CDPP, MOJ
Raushan Abdildaeva, Coordinator of International Programs, CDPP, MOJ

Avtandil S. Alisherov, Director, the Kyrgyz Research Institute of TB (RIT)
Abdulat Samatooich Kadyrov, Dy. Director on Diagnosis and Treatment, RIT
Myrzakhat Joldoshevich Imanaciev, Dy. Director on Organization and Methodology, RIT
Asandrova Nurgul, National Coordinator on Drug Supply, RIT
Ainura Muhtarova, Drug Store Manager, RIT
Myrzakhat Imanaliev, Dy. Dir. Monitoring/Epidemiology, RIT
Elmira Abdrakhmanova, National Coordinator on Registration of TB Cases, RIT
Lidiya Zytina, National Coordinator on Increasing TB Awareness, RIT
Kundus Toktorgazieva, Scientific Researcher, Treatment of drug-resistant TB patients, RIT
Atyricul Toktogonova, Researcher, RIT

Medical and paramedical staff working in all facilities visited by the mission

Alexander Kahn, Project Manager (TB grant), GFATM
Chris Lovelace, Senior Manager, WB
Asel Sargaldakova, Operations Officer, WB
Damira Bibosunova, Project Management Assistant/Health, USAID
Sevil Huseynova, Project HOPE
Timur Aptekar, Project HOPE
Lyne Soucy, Medical Delegate, ICRC
Joseph Rittmann, Team Leader, Kyrgyzstan-Finland Lung Health Project (KFLHP)
Svetlana Rogozhikova, Swiss Cooperation
Richard Young, UNICEF
Tulegen Chubakov, Rector, Centre for Continuing Medical Education

Oscon Moldokulov, Liaison Officer, WHO
Marat Bozgunchiev, Director of Information Centre on Health for CAR, WHO
Melitta Jakab, resident Health policy Advisor, WHO

Annex 4

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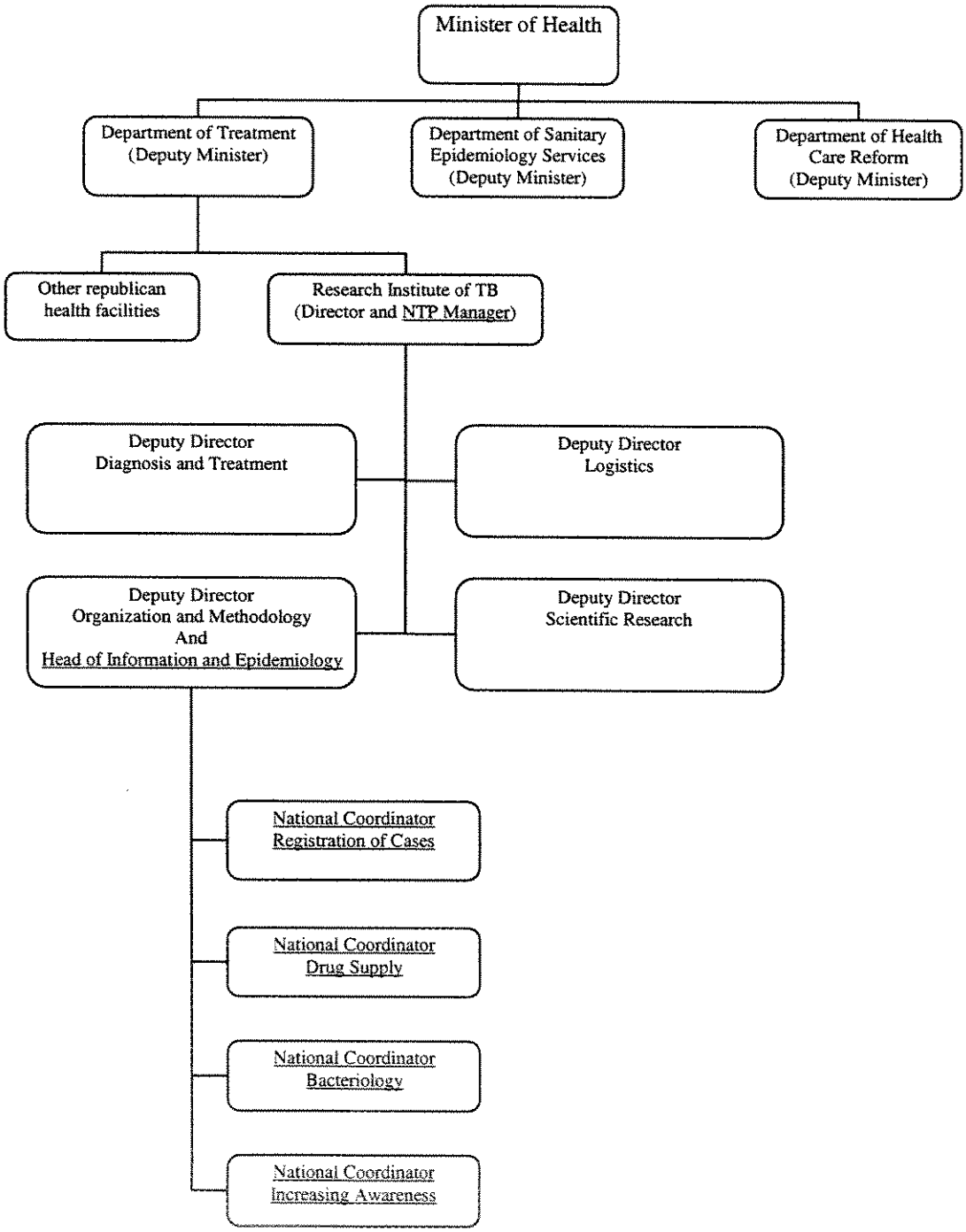
Annex 5

ORGANIZATION CHART OF THE KYRGYZ NATIONAL TUBERCULOSIS PROGRAMME



Note: NTP function is underlined.

Annex 6

CASE FINDING AND TREATMENT OUTCOME OF THE KYRGYZ NATIONAL TUBERCULOSIS PROGRAMME

Total DOTS cases reported by year and classification; 1999–2003

Year	PTB						ETB		Total TB			
	PTB pos				PTB neg							
	New		Relapse (after DOTS tr.)	Relapse (after non-DOTS tr.)	New		New		New		All	Pulmonary smear-pos.
	n	%	n	n	n	%	n	%	n	%	n	%
1999	1 278	23.9	37	127	2 917	54.6	1 148	21.5	5 343	100	5 507	33.1
2000	1 257	21.5	142	154	2 920	49.8	1 683	28.7	5 860	100	6 156	34.7
2001	1 476	23.5	179	119	2 589	41.3	2 204	35.2	6 269	100	6 567	40.7
2002	1 487	24.0	191	119	2 256	36.4	2 460	39.7	6 203	100	6 513	44.3
2003	1 642	26.7	238	178	2 363	38.4	2 147	34.9	6 152	100	6 568	46.6

Total DOTS cases reported by oblast/municipality and classification; 2003

Oblast / Municipality	PTB						ETB		Total TB			
	PTB pos				PTB neg							
	New		Relapse (after DOTS tr.)	Relapse (after non-DOTS tr.)	New		New		New		All	Pulmonary smear-pos.
	n	%	n	n	n	%	n	%	n	%	n	%
Bishkek	302	29.8	27	41	372	36.8	338	33.4	1 012	100	1 080	49.9
Chui	331	29.5	78	52	461	41.1	329	29.3	1 121	100	1 251	50.0
Naryn	75	31.5	10	4	75	31.5	88	37.0	238	100	252	54.3
Talass	75	32.3	9	7	112	48.3	45	19.4	232	100	248	44.8
Issyk Kul	93	28.4	15	7	120	36.6	115	35.1	328	100	350	48.9
Osh	328	20.1	59	51	594	36.4	711	43.5	1 633	100	1 743	42.4
Jalal Abad	323	28.9	25	9	390	34.9	405	36.2	1 118	100	1 152	47.8
Batken	115	24.5	15	7	239	50.9	116	24.7	470	100	492	36.4
Total	1 642	26.7	238	178	2 363	38.4	2 147	34.9	6 152	100	6 568	46.6

New smear-positive cases reported by oblast/municipality, age-group and sex; 2002

Oblast/ Municipality	0–14 Years		15–24		25–34		35–44		45–54		55–64		65+		Total		
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	F:M
Bishkek	1	0	26	23	44	45	44	16	24	5	5	2	2	4	146	95	0.7
Chui	0	0	39	28	47	25	63	19	39	11	11	4	3	11	202	98	0.5
Naryn	1	0	13	13	15	8	8	2	6	4	9	2	1	2	53	31	0.6
Talass	1	0	5	11	8	12	12	3	11	4	4	1	2	3	43	34	0.8
Issyk Kul	0	0	17	7	18	5	19	6	17	0	3	2	2	1	76	21	0.3
Osh	2	3	40	27	64	39	37	22	15	10	17	8	14	16	189	125	0.7
Jalal Abad	2	1	34	23	41	29	34	27	23	9	9	2	10	15	153	106	0.7
Batken	0	0	6	11	12	18	10	8	4	2	5	4	6	7	43	50	1.2
Total (n)	7	4	180	143	249	181	227	103	139	45	63	25	40	59	905	560	0.6
Total (%)	0.8		22.0		29.4		22.5		12.6		6.0		6.8		100.0		

New smear-positive cases reported by oblast/municipality and final result; 2002

Oblast / Municipality	Registr	De-registr	Not Eval.		Cured		Treat.Compl		Died		Failures		Defaulted		Transf.Out	
	n	n	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Bishkek	260		0	0.0	159	61.2	28	10.8	6	2.3	42	16.2	22	8.5	3	1.2
Chui	300	7	0	0.0	227	77.5	5	1.7	13	4.4	33	11.3	8	2.7	7	2.4
Naryn	86		0	0.0	67	77.9	3	3.5	6	7.0	4	4.7	4	4.7	2	2.3
Talass	76		0	0.0	69	90.8	0	0.0	0	0.0	3	3.9	0	0.0	4	5.3
Issyk Kul	98	1	0	0.0	71	73.2	2	2.1	8	8.2	6	6.2	7	7.2	3	3.1
Osh	314		0	0.0	256	81.5	3	1.0	18	5.7	8	2.5	22	7.0	7	2.2
Jalal Abad	260	2	0	0.0	234	90.7	7	2.7	6	2.3	5	1.9	6	2.3	0	0.0
Batken	93	1	0	0.0	74	80.4	4	4.3	8	8.7	5	5.4	0	0.0	1	1.1
Total	1 487	11	0	0.0	1 157	78.4	52	3.5	65	4.4	106	7.2	69	4.7	27	1.8

Relapsed smear-positive cases (after DOTS and non-DOTS) by oblast/municipality and final result; 2002

Oblast / Municipality	Registr	De-registr.	Not Evaluated		Cured		Treat. Compl		Died		Failures		Defaulted		Transf.Out	
	n	n	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Bishkek	37	0	0	0.0	22	59.5	5	13.5	0	0.0	3	8.1	7	18.9	0	0.0
Chui	87	1	0	0.0	47	54.7	6	7.0	10	11.6	17	19.8	4	4.7	2	2.3
Naryn	17	0	0	0.0	8	47.1	3	17.6	1	5.9	3	17.6	2	11.8	0	0.0
Talass	11	0	0	0.0	11	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Issyk Kul	26	1	0	0.0	2	8.0	15	60.0	2	8.0	2	8.0	3	12.0	1	4.0
Osh	60	0	0	0.0	48	80.0	4	6.7	5	8.3	0	0.0	3	5.0	0	0.0
Jalal Abad	47	3	0	0.0	37	84.1	2	4.5	2	4.5	2	4.5	1	2.3	0	0.0
Batken	25	1	0	0.0	17	70.8	1	4.2	3	12.5	1	4.2	2	8.3	0	0.0
Total	310	6	0	0.0	192	63.2	36	11.8	23	7.6	28	9.2	22	7.2	3	1.0