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TECHNICAL REPORT:

Integrating STI Services into Primary Health Care in the Kyrgyz Republic: Implications of Pilot Projects for a National Program

Authors:

David Burns, Regional Director for Infectious Diseases, ZdravPlus
Ainagul Isakova, Director, Family Group Practice Association
Natalya Konovalova, Coordinator, Infectious Diseases Programs, ZdravPlus

December 2003
Bishkek, Kyrgyz Republic

USAID

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I. ACKNOWLEDGEMENTS

We gratefully acknowledge the collaboration and support of the Ministry of Health of the Kyrgyz Republic, the Kyrgyz National Dermatovenereology Dispensary, the Family Group Practice Association, the Soros Foundation, the US Agency for International Development (USAID) and the World Health Organization/Europe (WHO/EURO) Sexually Transmitted Infection (STI) Task Force. Special thanks to Grace Hafner and Sheila O'Dougherty, who made major contributions to the Tokmok report, and to Asta Kenney for critical review of the manuscript.

II. ABSTRACT

This report summarizes two pilot projects in the Kyrgyz Republic that focused on the feasibility and cost effectiveness of integrating sexually transmitted infection (STI) services into the primary health care system. In Soviet times, STI services were a separate vertical system with extensive reliance on inpatient care, but the development of a solid primary health care system in the Kyrgyz Republic presented the opportunity to make STI services more accessible as well as more cost-efficient.

This report describes two pilot projects that adopted the World Health Organization's syndromic case management approach as the primary model for treatment and prevention of STIs at the primary health care level. Family Group Practice doctors were trained to use this approach for the most common STI syndromes. Results showed that patients sought care from Family Group Practices for the three target syndromes and that the provision of services in primary health care is cost effective. The report also offers recommendations for expansion of the pilots nationwide.

III. EXECUTIVE SUMMARY

The economic and political transition that followed the break-up of the former Soviet Union in 1991 created tremendous social upheaval in the Kyrgyz Republic, just as it did in other Central Asian Republics. One result was a steady rise in the rates of sexually transmitted infections (STIs). These rates appeared to stabilize during the late 1990s but they remain unacceptably high.

Many STI experts are concerned that official rates underestimate the true values. They note that a growing proportion of STI patients are no longer being seen by the dermatovenereology dispensaries, making monitoring difficult. Under the Soviet system, all STI detection, prevention and treatment services were provided by a special vertical system, encompassing dermatovenereology dispensaries and special freestanding dermatovenereological hospitals. Patients suspected of having an STI received all of their care within this special system. Informal surveys indicate that in recent years, however, many patients have begun seeking care from anonymous (private) clinics or are treating themselves based on the advice of pharmacists or friends. This phenomenon could explain the apparent stabilization in STI rates, since government STI statistics are based only on patients seen in the dermatovenereology system. If this is the case, the actual rates may be continuing to rise.

Recognizing this serious problem, the Ministry of Health (MOH) of the Kyrgyz Republic authorized two pilot projects to assess the feasibility of primary care physicians providing treatment and prevention services for the most common STI syndromes. Under the Kyrgyz health reforms, primary health care has been strengthened and expanded nationwide. Newly formed Family Group Practices (FGPs) provide a range of services in a single facility close to where people live. FGP doctors have received short retraining courses as family doctors and are integrating a number of previously vertical services, such as child health care, reproductive health and certain tuberculosis services, into their practices.

The two pilot projects authorized by the government sought to assess the potential for FGPs to integrate basic STI prevention and treatment services into their practices. This approach could both increase access to STI services and decrease costs. If successful, this should also reduce the spread of STIs and decrease the incidence of their most serious complications, decreased female and male fertility, ectopic pregnancy, and death. Moreover, because infection with another STI has been repeatedly shown to increase the spread of the Human Immunodeficiency Virus (HIV), this strategy could also reduce the spread of this life-threatening infection.

The two pilot sites were Tokmok in the northern part of the Kyrgyz Republic and Jalal-Abad in the south. The pilots provided treatment and prevention services for the most common STI syndromes, vaginal discharge, urethral discharge, and genital ulcer(s). The World Health Organization's (WHO) syndromic case management approach was used in both pilots. One major advantage to this approach is that it does not require laboratory results prior to treatment. Since a substantial proportion of STI patients fail to wait and/or do not return for laboratory results, immediate treatment according to the WHO syndromic strategy minimizes the number of patients lost to follow-up. Successful treatment stops the continued spread of infection and reduces or eliminates the risk of serious complications.

This report summarizes the results of the Tokmok and Jalal-Abad pilots. It also considers the lessons learned and outlines the options for a new Kyrgyz national treatment and prevention program.

A. Tokmok Pilot Project

More than 1,500 STI patients were treated in Tokmok during the six-month enrollment period, March to August 2002. These patients were seen by 18 doctors at six FGPs. Almost three quarters of the patients (74.2 percent) were women, of whom 85.6 percent were seen primarily for vaginal discharge. Only 2.4 percent were seen solely for genital ulcers. Approximately the same number of women (2.6 percent) were

referred because of their partner's syndrome, and the remainder were seen for a combination of these indications. The chief complaint of a majority of men (58.6 percent) was urethral discharge. The next most frequent male syndrome was genital ulcer (15.3 percent). The other men seen were referred for treatment because of their partner's syndrome (12.6 percent) or for a combination of these indications.

The public awareness campaign that preceded and accompanied the Tokmok pilot reached a broad audience, as evidenced by the large number of patients that enrolled. However, pre- and post-pilot surveys of public knowledge, attitudes and practices regarding STIs and HIV indicated that the campaign was only partially successful in increasing awareness of the risks of STIs and the benefits of treatment. In addition, a rather sharp decline in enrollment was noted after the first three months of the pilot. Both of these findings suggest that future health promotion campaigns may need to be more intensive and/or be repeated after three months. It is also possible that the decline in enrollment was due in part to the success of the program in reaching active cases and reducing the spread of STIs in the community.

A simple cost analysis of the Tokmok pilot indicated that treatment of the three most common STI syndromes by FGP doctors is cost-efficient for both the health care system and the patient. Nevertheless, it was evident that payment for STI medications will remain a barrier for many patients in the Kyrgyz Republic. Any national program will clearly need to subsidize the cost of treatment for a substantial proportion of STI patients.

B. Jalal-Abad Pilot Project

The pilot program in Jalal-Abad had very similar results. A total of 893 patients were enrolled during the initial 6-month enrollment period from November 2002 to April 2003. Due to the continued availability of medications, the pilot was kept open. As of June 30, 2003, 1,039 patients, two thirds (66.5 percent) of whom were women, had received care for one or more STI syndromes. These data do not include partners of index cases. To reduce concerns about confidentiality and thereby maximize the number of patients who received treatment, a decision was made locally after the first month of the pilot to treat these patients without full enrollment. During the first month of the pilot, approximately five partners were seen for every 100 patients enrolled with one of the three target STI syndromes. The large majority of these patients were male partners of female patients (92.3 percent).

Patient satisfaction with the STI care provided in Jalal-Abad was high. Almost all of the 629 patients who completed an optional survey before exiting the clinic described their consultation as good (36.6 percent) or very good (61.7 percent). FGP doctors were also given high marks for their knowledge regarding STIs, attention to confidentiality, tactfulness, and their provision of prevention information. A large majority of respondents stated that they would recommend FGP STI care to their friends. The most common reason that respondents cited for choosing an FGP doctor for STI care, however, was that the medications were free of charge.

Both pilots showed that dermatovenereologists and FGP doctors can work together in a coordinated and collegial manner. Although FGPs can care for a majority of STI patients, more complicated and difficult cases and patients with STI syndromes other than vaginal discharge, urethral discharge, or genital ulcer were referred directly to the dermatovenereologists. This included all pregnant women with genital ulcer, since single dose therapy for syphilis is not always adequate. Thus, a number of dermatovenereologists will always be needed for the more difficult and complicated STI cases.

A major obstacle to the successful development of a national STI program was also identified at both sites. The workload of FGP doctors is rapidly expanding but salaries have not changed. New responsibilities assigned to FGPs include child health care, reproductive health, certain components of the national tuberculosis program and other new services. These programs are essential for healthcare quality improvement but they do not come without costs in time and other resources. FGP doctors indicated in informal surveys that, although they are glad to be able to expand their expertise and offer new services to

their patients, they are unable to keep up with these increasing demands. They explained that this is largely due the fact that current salary levels make it necessary for them to take second jobs.

C. Recommendations

- To adopt the WHO syndromic case management approach as the primary model for treatment and prevention of STIs;
- To train FGP doctors as well as urologists, gynecologists and dermatovenereologists to use this approach for the most common STI syndromes;
- To develop, print and distribute an STI treatment guide to all doctors participating in the STI program;
- To adopt anonymous STI reporting forms;
- To collect and analyze these new surveillance data on a regular basis;
- To form a national STI commission to monitor and evaluate the program; and
- To introduce a transparent co-payment system and to provide free medications for those who are unable to pay.

IV. INTRODUCTION

The incidence and prevalence of sexually transmitted infections (STIs) have increased dramatically worldwide over the past 30-40 years. In western countries, such as the United States, many STIs increased several-fold during the 1960s and 1970s. Although these rates declined somewhat after the onset of the Human Immunodeficiency Virus (HIV)/Acquired Immune Deficiency Syndrome (AIDS) epidemic in the early 1980s, they remain elevated. Public health experts have found it necessary to mount constant surveillance and prevention programs to stop further increases.

The economic and political transition that followed the break-up of the former Soviet Union in 1991 created tremendous social upheaval in the Kyrgyz Republic, just as it did in other Central Asian Republics. One result was a steady rise in the rates of STIs. These rates appeared to stabilize during the late 1990s but they remain unacceptably high (see Annex 1).

Many STI experts are concerned that official rates underestimate the true values. They note that a growing proportion of STI patients are no longer being seen by the dermatovenereology dispensaries, making monitoring difficult. Under the Soviet system, all outpatient STI detection, prevention and treatment services were provided by a special vertical health system composed of outpatient dermatovenereology dispensaries, generally located at the rayon (district) level; their associated STI laboratories; and freestanding dermatovenereological hospitals, typically located at the oblast level. Patients suspected of having an STI received all related care within this special system. Hospitalization was common; a broad range of conditions, from latent syphilis to gonococcal arthritis, were treated in this way. Informal surveys indicate that in recent years, many patients have begun seeking care from anonymous (private) clinics or are treating themselves based on the advice of pharmacists or friends. This phenomenon could explain the apparent stabilization in STI rates, since government STI statistics are based only on patients seen in the dermatovenereology system. If this is case, the actual rates may be continuing to rise.

Recognizing this serious problem, the Ministry of Health (MOH) of the Kyrgyz Republic authorized two pilot projects to assess the feasibility of primary care physicians providing treatment and prevention services for the most common STI syndromes. Under the Kyrgyz health reforms, primary health care has been strengthened and expanded nationwide. The newly formed Family Group Practices (FGPs) utilize internists, gynecologists and pediatricians to provide a range of services in a single facility close to where people live. These FGP doctors have received short retraining courses as family doctors and are integrating a number of previously vertical services, such as child health care, reproductive health and certain tuberculosis services, into their practices. The FGPs also have their own budgets and considerable autonomy in how they manage their facilities and services.

If successful, the integration of STI services into primary health care could both increase access to STI services and decrease costs. It should also reduce the spread of STIs and decrease the incidence of their most serious complications, decreased female and male fertility, ectopic pregnancy, and death. Moreover, because infection with another STI has been repeatedly shown to increase the spread of HIV, this program could also reduce the spread of this life-threatening infection.

The two pilot sites were in Tokmok in the northern part of the Kyrgyz Republic, less than 60 kilometers east of the capital Bishkek, and in Jalal-Abad, the second largest city in the south. They provided treatment and prevention services for the most common STI syndromes, vaginal discharge, urethral discharge, and genital ulcer(s)[1]. The World Health Organization's (WHO) syndromic case management approach was used in both pilots. One major advantage to this approach is that it does not require laboratory results

[1] Other STI syndromes and more complicated cases, such as pregnant patients with genital ulcer, were referred to gynecologists, urologists, or dermatovenereologists.

prior to treatment. Since a substantial proportion of STI patients fail to wait and/or do not return for laboratory results, immediate treatment according to the WHO syndromic strategy minimizes the number of patients lost to follow-up. Successful treatment stops the continued spread of infection and reduces or eliminates the risk of serious complications.

It should be noted that WHO does not oppose laboratory testing. In fact, it is co-sponsoring an international public-private partnership, "STI Diagnostic Initiative", to develop less expensive, more reliable STI tests. However, this is unlikely to benefit the Kyrgyz Republic in the immediate future. At present, WHO cautions against unnecessary delays in treatment that will increase the spread of infection, raise the number of patients that develop serious complications, and divert essential funds from treatment and prevention efforts.

Nevertheless, when laboratory tests can be performed rapidly and are accurate and affordable, they may be fully justified. In particular, since all patients with one STI must be considered at increased risk of others, experts recommend that they always receive a reliable non-treponemal test for syphilis. In addition, all patients should be counseled regarding HIV/AIDS and offered testing. Laboratory testing at a few sentinel surveillance sites for the major etiologic agents of each STI syndrome is also recommended in order to confirm the accuracy of syndromic case management surveillance data and to evaluate trends that might influence treatment.

This report provides some general background information on STI treatment and prevention strategies, describes the initial results of the two pilots, and considers the implications of the pilots for a new, nationwide program.

V. BACKGROUND: TREATMENT AND PREVENTION OF STIs

A number of factors influence the spread of STIs, as outlined below. It is very important that these factors be taken into account in the design and implementation of any nationwide STI treatment and prevention program that follows the Tokmok and Jalal-Abad pilot projects.

A. General Considerations

It is difficult to exaggerate the importance of controlling STIs. The fatal outcome that typically accompanies HIV type 1 infection is well known, but the serious impact of other STIs is not always recognized. For example, both gonorrhea and *Chlamydia trachomatis* cervicitis are strongly associated with pelvic inflammatory disease (PID), an extremely painful illness that frequently requires hospitalization. Up to 30 percent of women with PID will subsequently develop a tubo-ovarian abscess and approximately 20 percent will become infertile due to severe scarring of the fallopian tubes. Women who do become pregnant after they have had PID have a 7 to 10-fold increased risk of ectopic pregnancy, which can be associated with spontaneous abortion, hemorrhage, and death. Gonorrhea and *Chlamydia trachomatis* urethritis are also associated with decreased fertility in men.

Other serious complications can also occur in STI patients. In addition to PID, maternal Chlamydia is associated with conjunctivitis and pneumonia in neonates exposed at the time of birth. This can result in blindness or even death. Gonorrhea can also be associated with acute arthritis, endocarditis, and meningitis. Syphilis has been associated with cranial nerve deficits, uveitis, iritis, meningitis, stroke, aortitis, aortic aneurysm, tabes dorsalis, paresis, psychosis, and dementia. Genital herpes can cause intrauterine infection, neonatal herpes simplex encephalitis, and disseminated infection, all of which have a high mortality rate. Human papillomavirus (HPV) infection is associated with cancer of the uterine cervix. HIV is associated with gradual destruction of the immune system, opportunistic infections, and death.

Several key principles must be recognized to devise an effective clinical response to STIs. First, although there are more than 25 pathogenic organisms and viruses that cause STIs, they produce a much smaller number of distinct clinical syndromes that can usually be treated empirically. The most common

syndromes by far are vaginal discharge, urethral discharge, and genital ulcer. Even when an etiologic diagnosis is possible, syndromic therapy is generally more effective in preventing further spread of infection (discussed below). Second, women are disproportionately affected by STIs and they require an especially careful clinical evaluation. Many STIs are transmitted more efficiently from man-to-woman than from woman-to-man, women are more likely to have asymptomatic infections, and many diagnostic tests are less sensitive in women than men. In general, women are also more likely to have serious complications, including PID, ectopic pregnancy, cervical cancer, and other conditions already mentioned. Finally, maternal infection can put the newborn at high risk for serious or even fatal disease.

Third, as for other infectious diseases, treatment is prevention. Most STIs can be eradicated with a short course of treatment. In many cases, a single dose is sufficient. Whenever possible, treatment should be directly observed. Partners should be notified, evaluated, and also treated as soon as possible.

Fourth, a comprehensive public health strategy is needed. This should include an ongoing mass media campaign; easy access to screening; counseling and treatment; partner notification; evaluation and treatment; and monitoring and evaluation.

These efforts must include a primary care component to assure access to confidential care. This is especially important for vulnerable groups such as youth and the partners of high-risk persons (e.g., wives of those most likely to frequent prostitutes, partners of injection drug users, etc.). Thus, involvement of FGP doctors in the strategy is essential.

However, a successful strategy must also focus on the high-risk persons that are most responsible for transmission ("core populations"). The core transmission hypothesis was originally developed for gonorrhea but the same model can be applied to all STIs. A core population is one in which ongoing sexual behavior is capable of sustaining the epidemic spread of the STI.

The following formula incorporates the key factors involved:

$$\mathbf{R_0 = \beta c D}$$

where:

$\mathbf{R_0}$ = reproductive rate of the infection, defined as the number of additional cases generated by each new infection introduced into the population. Thus, if $\mathbf{R_0}$ is < 1.0, the prevalence of the STI is declining; if > 1.0, it is increasing; and if = 1.0, it will remain stable.

$\boldsymbol{\beta}$ = infectivity of the microorganism or virus—the likelihood that transmission will occur during a single encounter between an infected individual and one that is susceptible. For most STIs, this value is between 20 and 50 percent for heterosexual vaginal intercourse. Fortunately, $\boldsymbol{\beta}$ for HIV infection is generally 1-2 percent or less. However, it is much higher for some sexual practices than others (for example, unprotected anal intercourse). In addition, it is increased 2-3 fold if another STI is present, presumably because the accompanying inflammation and other factors increase HIV viral shedding. (NOTE: the risk of HIV transmission with injection drug use is of course far greater—when needles or syringes are shared it may be 50 percent or more.)

c = frequency with which infected and susceptible persons have sexual encounters. This is primarily determined by partner change. Thus, if all persons were to become monogamous, **c** would drop to zero and the epidemic would stop.

D = mean duration of infection from acquisition to successful treatment, spontaneous resolution, or death.

These factors suggest ways in which various interventions can influence an epidemic. Barrier contraceptives such as condoms reduce β by decreasing the rate of infection during encounters between infected and susceptible individuals. Education and counseling can promote monogamy and reduce the number of new partners, decreasing **c**. For most STIs, aggressive case finding (e.g., by partner notification) and early treatment can reduce **D**.

This formula can be used to explain the differences seen in the spread of different STIs. For example, **D** is rather low for gonorrhea—days to weeks—due in part to the rapid onset of symptoms and, consequently, greater likelihood of early treatment. Ongoing spread of **gonorrhea**, therefore, requires rather high partner change rates (**c**). **Genital herpes**, on the other hand, usually persists for many years if not for life. With this large **D**, spread can be sustained by very low partner change rates and a comparatively low β. As a result, once it is introduced, this STI tends to become quite common across the entire population. **Chlamydia** and most other STIs are intermediate between these two extremes.

B. Prevention

This understanding of the spread of STIs suggests a number of prevention strategies, some of which have already been mentioned. Each strategy tends to be complementary to others; thus, maximum impact is achieved when they are used in combination. For example, as noted, partner notification and treatment reduces **D**. A number of studies have shown, however, that even aggressive notification programs result in no more than 40 percent treatment of male partners of women with gonorrhea or chlamydia. Public health messages and other strategies that target this group are therefore needed as well.

For a health promotion campaign to be successful, it must be based on ongoing surveillance of high-risk behaviors. These behaviors may be substantially different in different countries, regions, and target populations. As a result, prevention messages that have been highly successful in one setting may need to be modified to be effective in others. Periodic anonymous surveys of high-risk behaviors should be performed among both "vulnerable" groups and "core populations." "Bridge" groups, such as commercial sex workers (prostitutes), are particularly important, since they are the main route by which STIs cross over from the core populations to the vulnerable groups.

As these behavioral data become available, they must be thoroughly analyzed and options for new prevention strategies carefully considered. For example, if an increasing number of women with STIs report that their husbands frequently go to casinos (and no other risk factors), potential interventions might include distribution of STI prevention posters and pamphlets at casinos, development of risk-reduction programs for prostitutes working in these zones (including advice on how to increase customer acceptance of condoms, etc.), and free STI treatment at nearby sites.

Such surveys should be repeated at regular intervals in each target population to evaluate trends over time. These changes may result in substantially different risk factors between incident and prevalent cases. Some of these trends may, in fact, be due to the success of our health promotion efforts. To maintain program effectiveness, ongoing changes in prevention strategies may therefore be necessary.

These programs will only be effective if they are non-punitive. Incarceration and other penalties may interrupt the spread of infection for a short period of time for a few individuals, but the majority of core transmitters will become harder to reach. Trust will be lost, making it difficult or impossible to obtain accurate information about risk behaviors.

The strategy to treat and prevent general STIs among core transmitters is very similar to that for HIV/AIDS. For greater efficiency and effectiveness, these programs can be integrated. In general, however, programs for vulnerable groups should focus more on non-HIV STIs.

C. Major Obstacles

The following "unresolved problems" were identified in 2001 at a WHO meeting in which the Kyrgyz Republic was a full participant[2]. These problems must be overcome if a new National STI Treatment and Prevention program is to be successful:

1. "Poor surveillance particularly among risk groups;
2. Incomplete access to free services primarily amongst the most vulnerable groups;
3. Low level of medical knowledge of the population;
4. Low level of sexual education;
5. Insufficient primary prevention, especially in risk groups;
6. Increase of sex work (prostitution);
7. Low quality of laboratory support; low level of STI diagnostic capacities outside of the big cities and centers; low supply of current modern diagnostic tools;
8. Low financial support of health services; deterioration of material/financial support of STI services from the governmental budget;
9. Quality of treatment and diagnosis of non-gonococcal infections of the uro-genital tract;
10. Increase in congenital syphilis cases;
11. Increase in STI cases in rural areas, as well as among unemployed and difficult to reach groups; and
12. Absence of unified approaches in STI management among specialists of various health services."

As discussed below, another obstacle to successful integration of STI treatment and prevention into primary health care in the Kyrgyz Republic is the rapidly growing workload of FGP doctors. Given current salary levels that require that many primary health care doctors take second jobs, some type of remuneration for this extra workload appears warranted.

VI. METHODS

A. Tokmok

The Tokmok pilot project was designed and implemented by staff from the Dermatovenereology Institute of the Kyrgyz Republic, the Family Group Practice Association (FGPA), and the ZdravPlus project funded by USAID and implemented by Abt Associates. The initial plan was based on a similar pilot program undertaken in Zhezkazgan, Kazakhstan, October 1999-March 2000 by ZdravPlus, WHO, the Dermatovenereology Institute of Kazakhstan, and a local group of FGP doctors. This pilot demonstrated that involvement of family physicians in the management of patients with STI symptoms can result in (i) increased access to effective care, and (ii) reduced overall cost of STI services[3].

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[2] "Meeting on Prospects for The Public Health Approach to the Prevention and Care of STIs in Countries of Eastern Europe and Central Asia," Berlin, Germany, 11–13 October 2001, WHO Document: EUR/02/5031803_ORIGINAL: ENGLISH_E76285.

[3] Report on the project: Integration of STI prevention and care into Family Group Practice's services in Zhezkazgan, May 2000, G. Riedner. (Full report available upon request.)

The Center for Public Opinion Study and Forecasting was hired to perform an independent, unbiased pre- and post-pilot assessment of public knowledge, attitudes and practices regarding STIs and HIV in Tokmok. The survey was first performed during September 2001 and repeated in September 2002 using the same instrument.

Training of the participating FGP doctors and dermatovenereologists in the WHO syndromic case management approach to the treatment and prevention of STIs took place in Tokmok from December 10-14, 2001. A total of 26 doctors completed the training. In addition to the local FGP and dermatovnereologist doctors participating in the pilot, trainees included representatives from the National Dermatovenereology Institute, the Kyrgyz State Medical Institute for Postgraduate Training and Continuous Education, and the Institute for Reproductive Health. The course was led by two experienced trainers from the SANAM Clinic (Moscow) using WHO materials.

The Republican Health Promotion Center and ZdravPlus developed the media campaign in conjunction with the FGPA and others. Components included presentations at school assemblies and community group meetings by the participating FGP doctors; distribution of flyers and brochures at schools, universities, outdoor markets, and FGP offices; poster displays at bus stops, schools, universities, and polyclinics; and newspaper advertisements.

Information about patient risk factors (that is, factors that have been shown in previous studies to be associated with the occurrence of STIs) were collected for all those enrolled in the pilot. This was done in a completely anonymous manner – no identifying information was entered on any of the forms. Approval was obtained from all patients prior to enrollment and from the National Ethics Committee prior to the start of the study.

The Tokmok pilot was funded by the Soros Foundation through the FGPA and by USAID through ZdravPlus.

B. Jalal-Abad

The methods used for the Jalal-Abad pilot program were similar to those described above for the Tokmok pilot. Training of the participating FGP doctors and dermatovenereologists in the WHO syndromic case management approach took place in Jalal-Abad from September 2-6, 2002. A total of 29 doctors completed the training. In addition to the 14 local FGP and dermatovenereology doctors participating in the pilot, one coordinator from the FGPA who had not received the training previously, eight faculty from six Family Medicine Training Centers throughout the Kyrgyz Republic, four dermatovenereologists from Uzbekistan and two from Tajikistan were also trained. The FGPA coordinator was included in order to participate in monitoring and evaluation of the Jalal-Abad pilot and the Family Medicine Training Center faculty members were also included so that they will be prepared to train other FGP doctors if the program is expanded nationwide. The Uzbek and Tajik doctors were invited to participate after their institutes and agencies expressed interest in this initiative in the Kyrgyz Republic.

The latter 14 doctors all stayed for an additional one-day training-of-trainers workshop on September 7, 2002. The primary goal of this workshop was to introduce the participants to additional resources for training primary care providers in the Syndromic Management of STIs and to develop "best practice" approaches for training FGPs in the participants' countries and oblasts.

The two courses were led by ZdravPlus staff and national doctors who had been trained in Tokmok. A full description of both courses, including the results of pre- and post-training assessment questionnaires completed by the participants, are available upon request. An exam was also given to all participating doctors during the third month of the pilot program to identify any deficiencies or misunderstandings. The average score was quite good (90 percent correct).

Similar to the Tokmok pilot program, the Republican Health Promotion Center and ZdravPlus staff developed the media campaign in conjunction with the FGPA and others. The campaign included much

the same components as in Tokmok, but in Jalal-Abad, press releases and interviews with local television stations were also included.

For comparison with those enrolled in the Tokmok pilot, it was agreed that information about risk factors would be collected for all patients enrolled during the first month of the pilot, up to 50 patients per pilot site. This was done in a completely anonymous manner – no identifying information was collected. The forms were identical to those used in Tokmok. In addition, an anonymous patient satisfaction survey was also performed in Jalal-Abad.

All patients who participated in the pilot gave consent prior to enrollment. The forms and the overall design of the study were approved by the National Ethics Committee prior to the start of first pilot program in Tokmok.

The Jalal-Abad pilot was funded by the WHO/EURO STI Task Force through the FGPA of Kyrgyzstan and by USAID through the ZdravPlus project.

VII. RESULTS

A. Tokmok

More than 1,500 STI patients were seen during the six-month enrollment period, March 3 to August 30, 2002. These patients were seen by 18 doctors at six FGPs, including three Tokmok City FGPs (#1, #2 and #3) and three FGPs located at the Numbering Hospital (also #1, #2, and #3). The latter facility serves patients from the area immediately surrounding Tokmok City and those from more rural districts in the region. When required, patients were also seen by one of two dermatovenereologists located at the Numbering Hospital and City FGP #1, respectively.

Clinical data are available for 1,545 of the patients seen during the pilot study. A total of 1,146 (74.2 percent) of these patients were women and 399 (25.8 percent) were men. Approximately 30 percent of the men and 27 percent of the women were under 25 years of age; 41.9 percent and 39.0 percent, respectively, were 25-34 years old; and 28.5 percent and 33.3 percent, respectively, were 35 or older (Table 1).

Table 1: Patients Enrolled in the Tokmok STI Pilot Study by Age and Gender

Age	Male (25.8 percent)		Female (74.2 percent)		Total	
	Number	Percent	Number	Percent	Number	Percent
<20	33	8.3	79	6.9	112	7.2
20-24	83	20.8	234	20.4	317	20.5
25-29	77	19.3	238	20.8	315	20.4
30-34	90	22.6	208	18.2	298	19.3
35-39	52	13.0	142	12.4	194	12.6
>40	62	15.5	239	20.9	301	19.5
Age not available	2	0.5	6	0.5	8	0.5
Total	399	100.0	1,146	100.0	1,545	100.0

As shown in Table 2, a large majority of the women (85.6 percent) were seen for vaginal discharge and had no other complaints. A much smaller number had vaginal discharge and genital ulcer (3.0 percent) or genital ulcer with or without other complaints (2.6 percent). The remainder was seen because their partner had urethral discharge, genital ulcer, or other complaints. The majority of men (58.6 percent) were seen for urethral discharge. The second most frequent syndrome among men was genital ulcer (15.3 percent), followed by urethral discharge and genital ulcer (2.5 percent). The remainder was seen because their partner had vaginal discharge, genital ulcer, or other complaints.

Table 2: Presenting STI Syndromes of Patients Enrolled in the Tokmok STI Pilot Study

Syndrome	Male		Female		Total	
	#	%	#	%	#	%
Urethral discharge	234	58.6	0	0.0	234	15.1
Vaginal discharge	0	0.0	981	85.6	981	63.5
Genital ulcer	61	15.3	28	2.4	89	5.8
Sex partner of a patient with vaginal discharge	45	11.3	0	0.0	45	2.9
Sex partner of a patient with urethral discharge	0	0.0	10	0.9	10	0.6
Sex partner of a patient with genital ulcer	5	1.3	19	1.7	24	1.6
Urethral discharge + genital ulcer	10	2.5	0	0.0	10	0.6
Urethral discharge + sex partner of a patient with vaginal discharge	21	5.3	0	0.0	21	1.4
Urethral discharge + sex partner of a patient with genital ulcer	3	0.8	0	0.0	3	0.2
Urethral discharge + sex partner of a patient with vaginal discharge + Sex partner of a patient with genital ulcer	0	0.0	0	0.0	0	0.0
Vaginal discharge + genital ulcer	0	0.0	33	2.9	33	2.1
Vaginal discharge + sex partner of a patient with urethral discharge	0	0.0	43	3.8	43	2.8
Vaginal discharge + sex partner of a patient with genital ulcer	0	0.0	7	0.6	7	0.5
Vaginal discharge + sex partner of a patient with urethral discharge + sex partner of a patient with genital ulcer	0	0.0	3	0.3	3	0.2
Genital ulcer + sex partner of a patient with genital ulcer	2	0.5	1	0.1	3	0.2
Genital ulcer + sex partner of a patient with urethral discharge + Sex partner of a patient with genital ulcer	0	0.0	1	0.1	1	0.1
Vaginal discharge + genital ulcer + sex partner of a patient with genital ulcer	0	0.0	1	0.1	1	0.1
Sex partner of a patient with vaginal discharge + sex partner of a patient with genital ulcer	1	0.3	0	0.0	1	0.1
No syndrome recorded	17	4.3	19	1.7	36	2.3
Total	399	100.0	1,146	100.0	1,545	100.0

1. Public Awareness Campaign

The public awareness campaign that preceded and accompanied the pilot reached a broad audience. Participating doctors competed with one another to speak with as many individuals as possible at student assemblies and community meetings. Prizes were awarded to those who were most successful. Press conferences were held during the training and again on the day the pilot opened, resulting in good newspaper and television coverage. The distribution of flyers and brochures at schools, universities, FGP offices, and in other public areas was well received.

The large number of patients that enrolled in the pilot indicates that the media campaign was quite successful. However, the independent pre- and post-pilot assessments of public knowledge, attitudes and practices regarding STIs and HIV performed by the Center for Public Opinion Study and Forecasting (Bishkek, KR) suggest ways in which future campaigns might be improved. The survey targeted four key groups: students (both high school and university), drivers, bazaar workers, and the general adult population under age 50. A separate report summarizes the results of the post-pilot survey and makes comparisons with the pre-pilot study[4].

[4] Center for Public Opinion Study and Forecasting (Bishkek, Kyrgyz Republic). Results of Research on the Knowledge of Prophylactics of STIs Including AIDS and HIV Infection in Tokmok – 2, September 2002 in *Burns D.* et al. Integrating STI Services into Primary Health Care in the Kyrgyz Republic: Research Findings, Lab Methodologies and STI Patient Questionnaire. ZdravPlus, December 2003. (Available upon request.)

In short, the post-pilot survey results revealed a substantial increase in the knowledge of high school students about STIs in general, but little or no change among other groups. There was no increase in the number of respondents that stated they would seek STI care at Family Group Practices. However, when the interviewers probed regarding this finding, they discovered that a large proportion of respondents thought of FGPs as anonymous treatment centers, another category of STI care listed by the survey. This is not surprising, given the emphasis placed on the confidential nature of the new STI services provided at the FGP pilot sites. There was a small absolute increase in the proportion of respondents who stated they would use anonymous treatment centers. The percentage of respondents that stated they would treat themselves, follow the advice of a friend, or go to a dermatovenereology dispensary was essentially unchanged or slightly decreased.

A number of factors might explain these results, including changes in the study populations (e.g., many university students and bazaar workers surveyed during the post-pilot assessment may have been new to Tokmok and thus were not present during most or all of the media campaign), inadequate sample size, or other aspects of the study design. Nevertheless, the results of the surveys indicate some important ways in which future media campaigns can be improved. For example, most respondents reported that they were most influenced by television, a medium that was not used in the Tokmok campaign. In addition, a more extensive and compelling message and/or more frequent repetition may be needed to reach important subgroups of the population.

2. Laboratory Substudies

Two substudies were originally designed to be part of the Tokmok Pilot. As explained below, both studies met serious unforeseen problems and had to be moved to Bishkek. The first study, "The prevalence of gonorrhea and chlamydia among men and women with STI syndromes," utilizes a sophisticated new technology, PCR (polymerase chain reaction), to detect gonorrhea (GC) and chlamydia in the urine. Specimens must be kept refrigerated at 4° Celsius or less prior to shipment to the study laboratory (National Reference Laboratory in Bishkek, where PCR testing has been done for the past few years as part of the Hepatitis Surveillance Program). In addition to providing an estimate of the prevalence of GC and chlamydia among men and women with the three STI syndromes treated in the pilot, this study was designed to identify risk factors for these infections among women with vaginal discharge. It is well known that many women with vaginal discharge do not have GC or chlamydia and will be over treated if no other factors are considered. Thus, the results of this study could result in considerable cost savings and reduce the risk of adverse effects due to unnecessary antibiotic treatment.

This study was moved to Bishkek shortly after the start of the pilot because almost nightly power outages began to occur in Tokmok. This made it impossible to keep the urine specimens refrigerated prior to their shipment to Bishkek, and would have resulted in study results of uncertain validity. Analysis of the Bishkek study specimens is now in progress and will be reported in full when completed.

The second substudy was "Susceptibility of Gonorrhea Isolates." A previous study performed more than two years ago by the Kyrgyz National Dermatovenereology Institute in conjunction with the French-based organization Medicins Sans Frontieres found that 25 percent or more gonorrhea isolates from the Bishkek area were resistant to all antibiotics tested except three quite expensive ones: ceftriaxone, cefixime, and spectinomycin. For this reason, ceftriaxone was used for both the Tokmok and Jalal-Abad pilots. The purpose of this study was to determine whether gonorrhea isolates circulating in the Kyrgyz Republic are still this highly resistant. If not, it may be possible to use much less expensive medications, making treatment more affordable. No laboratories in the Kyrgyz Republic are currently performing this type of testing. An international laboratory consultant is now being selected to assist with identifying, equipping, training, and validating a new lab for this purpose. USAID has generously committed special funds for this project.

3. Cost Analysis

Costs per case treated were estimated for the FGP pilot sites, the former STI (dermatovenereology) outpatient clinic, and the dermatovenereology inpatient department, now at the Tokmok Merged Oblast Hospital. Cost per case was calculated using a simple allocation of health facility costs to STI cases (Tables 3 and 4). It was assumed that the same medication was used for all outpatient cases with the same diagnosis, regardless of site or provider. Therefore, drug costs, which can vary widely by location and over time, were not considered in this comparison.

Table 3: Cost per Case Treated as Outpatient in FGP Clinic vs. STI (dermatovenereology) Clinic (Kyrgyz Som)

	FGP Clinic, outpatient	**STI Clinic, outpatient**
Salaries (doctor, nurse, other) per patient	12	14
Utilities per patient	3	12
Medication (same therapy and cost assumed)	–	–
Total	15	26

* Average value of Kyrgyz Som during 2002 was approximately 47 per USD

Table 4: Cost per Case Treated in the Dermatovenereology Inpatient Department (Kyrgyz Som)

Total number of inpatients/year	1,074
Average length of stay (days)	12.40
Number treated for STIs	714
Number treated for other conditions	360
Total budget	656,000
Cost of medications	7,959
Total costs less medications	648,042
Cost per case (less medications)	603

* Average value of Kyrgyz Som during 2002 was approximately 47 per USD

As shown in Table 3, cost per case was greater for the dermatovenereology clinic due to greater facility (utility) costs and slightly higher dermatovenereology specialists' salaries. The cost per case for inpatient treatment is more difficult to calculate but undoubtedly far higher (Table 4). Because separate data are not available, the average cost for both STI and dermatology cases were used. This is based on an overall average length of stay of 12.4 days. Since most STI cases are admitted for 14 days of parenteral treatment, this should be a relatively accurate estimate for these cases (dermatology patients appear to have a broader range of inpatient days per case but a similar average). Medication costs have been omitted from these calculations because no reliable estimates are available; the actual costs shown do not include the value of donated medications, separate (informal) medication payments made by patients, etc. Given the multiple doses involved and including the costs of syringes and needles (or administration sets), inpatient medication costs were also likely to have been considerably higher than outpatient costs. Thus, the much higher cost per case for inpatient treatment is probably under – rather than over – estimates of the true difference.

Other possible differences between the cost of syndromic case management and traditional dermatovenereology dispensary, laboratory-based care should also be considered, including the potential costs of over-treatment due to the syndromic approach (particularly for vaginal discharge) and the costs of laboratory tests and follow-up visits required by an etiologic approach. These and other considerations, such as costs to the individual and society for work days/productivity lost, were beyond the scope of this analysis.

Despite these limitations, this analysis clearly shows that outpatient treatment is much less expensive than inpatient treatment. In addition, even when the cost of laboratory services and follow-up visits are not considered, treatment by FGPs was less expensive than treatment by specialists. It is evident that

incorporating treatment for common STI syndromes into primary health care is cost-efficient for both the health care system and the patient.

4. Physician Focus Groups

Other important information was also obtained from the Tokmok Pilot. Informal focus group discussions with participating physicians made it clear that although they were proud of their new knowledge and training and were glad to be able to offer STI treatment and prevention services to their patients, it put an almost impossible strain on their schedule. As more and more primary health care services are mandated for FGPs, it becomes increasingly difficult for them to meet the growing demand. Given current salary levels that require them to have second jobs, some FGP physicians state that they cannot take on any more new programs such as STI care.

5. Financing STI Care

The financing situation illuminates one of the major obstacles to comprehensive health reform. The Kyrgyz health reform process has produced many concrete results and successes. These include the restructuring of the primary health care sector to create FGPs; the introduction of family medicine; upgrading basic clinical skills; expanding the FGP doctors' scope of service to further improve cost-efficiency and access to care (including integrating vertical programs such as child health, reproductive health, STIs, etc.); informing and involving the population in their health care; introducing new provider payment systems and other health financing interventions under the umbrella of a single-payer system (including an outpatient drug benefit and formal co-payments); and beginning the process of shifting resources from inpatient to outpatient care. Although major cost-savings can be expected in the longer term, the transition from inpatient to primary health care services has created new financial demands for the short term.

Unfortunately, the poor economic situation in the Kyrgyz Republic makes it difficult to meet these transitional demands for increased operational funds (as compared to capital or technical assistance investments). On the primary health care side, these funds are needed for outpatient drugs and for modest salary increases to motivate primary health care workers to increase both their productivity and the number and complexity of services they provide. On the inpatient side, ongoing operational funds are needed until excess capacity can be eliminated.

While supporting the broad structural and systemic reform strategy necessary for a permanent and sustainable shift from inpatient to primary health care, it is important to address valid short-term needs, including the motivation of FGP staff. One option for addressing this situation is patient co-payments for STI care. Based on limited interviews with doctors and patients, a 25 soms co-payment might be appropriate, with perhaps 5 soms of this amount going into a fund for patients who cannot pay. The co-payment, which would be collected in a transparent manner and go to the doctor who sees the additional patient, could be adjusted by region and over time, as is appropriate. This intervention should be part of a broader strategy that preserves the important gains already realized by the Kyrgyz health reform process.

B. Jalal-Abad

A total of 893 patients were enrolled during the initial 6-month enrollment period from November 1, 2002 to April 30, 2003. Due to the continued availability of medications, the pilot has been kept open. As of June 30, 2003, 1,039 patients had received care for one or more STI syndromes, including 691 women (66.5 percent) and 348 men (33.5 percent) as outlined in Table 5.

Table 5: Presenting STI syndromes of patients enrolled in the Jalal-Abad STI pilot program, November 1, 2002 - June 30, 2003

Syndrome	Male (33.5 percent)		Female (66.5 percent)		Total	
	Number	Percent	Number	Percent	Number	Percent
Urethral discharge	272	78.2	—	0.0	272	26.2
Vaginal discharge	—	0.0	659	95.4	659	63.4
Genital ulcer	76	21.8	32	4.6	108	10.4
Total	348	100.0	691	100.0	1,039	100.0

These data do not include partners of index cases, since a decision was made locally after the first month of the pilot to treat these patients without full enrollment. This was done to reduce concerns about confidentiality and thereby maximize the number who received treatment. During the first month of the pilot, approximately five partners were seen for every 100 patients present with one of the three target STI syndromes. The large majority of these patients were male partners of female cases (92.3 percent). This is far below the up to 40 percent partner referral rates obtained in published studies that examined various methods for maximizing these rates. The Jalal-Abad referral rate may have improved as a result of the subsequent decision to treat partners without requiring enrollment in the pilot program. Unfortunately, however, no measure of this was possible.

A large proportion of the Jalal-Abad cases were reported to come from outside the city. One dermatovenereologist participating in the pilot stated that the dispensary had tried to provide treatment to these areas in the past, but the population had largely refused care, apparently because of confidentiality concerns in their small towns.

Risk factor data were collected for 245 patients enrolled during the first month of the pilot, including 175 women (71.4 percent) and 70 men (28.6 percent). Nearly one-third of the men (30.0 percent) and one-fifth of the women (20.6 percent) were under 25 years of age; 52.9 percent and 44.0 percent, respectively, were 25-34 years old; and 17.1 percent and 34.9 percent, respectively, were 35 or older (Table 6).

Table 6: Patients enrolled during the first month of the Jalal-Abad STI Pilot Study by Age and Gender

Age	Men (28.6 percent)		Women (71.4 percent)		Total	
	Number	Percent	Number	Percent	Number	Percent
<20	6	8.6	3	1.7	9	3.7
20-24	15	21.4	33	18.9	48	19.6
25-29	20	28.5	34	19.4	54	22.0
30-34	17	24.3	43	24.6	60	24.5
35-39	8	11.4	28	16.0	36	14.7
>40	4	5.7	33	18.9	37	15.1
Age not available	0	0	1	0.6	1	0.4
Total	70	100.0	175	100.0	245	100.0

The risk factor data are being analyzed further and will be compared with the same results for the Tokmok pilot.

1. Public Awareness Campaign

A wide-reaching public awareness campaign preceded and accompanied the Jalal-Abad pilot. Press conferences were held during the training and when the pilot opened, the result was good newspaper and television coverage. The distribution of flyers and brochures at FGP offices, schools, universities, and in other public areas was well received.

The large number of patients that enrolled in the pilot indicates that the media campaign was quite successful. However, as in Tokmok, a stepwise decline in enrollment was seen over time, particularly after three months and again after six months, which might indicate that ongoing repetition is needed, at least for some subgroups of the population.

2. Substudies

Two substudies were planned for this pilot. The first was a vaginal candidiasis treatment study. Many, but not all, gynecologists interviewed in both northern and southern Kyrgyzstan prior to the pilot claimed that an inexpensive, widely available treatment of boric acid and glycerin is effective in most cases of vaginal candidiasis. In consultation with local gynecologists and national gynecology faculty members, it was therefore decided to compare the clinical efficacy of four locally available (but not equally affordable) treatments: Clotrimazole 500 mg (one intravaginal tablet daily at bedtime X 1 dose); Nystatin 100,000 Units (one intravaginal tablet daily at bedtime X 14 days); Nystatin 100,000 Units (one intravaginal tablet daily at bedtime X 7 days) ***plus*** Boric Acid in Glycerin 10 ml to saturate cotton pad intravaginally (daily at bedtime X 7 days); and Boric Acid in Glycerin 10 ml to saturate pad intravaginally (daily at bedtime X 7 days) alone. Women diagnosed with vaginal candidiasis are being sequentially assigned to one of these four treatments. Patients must sign a consent form and provide information for the Questionnaire, Physical Exam, and Lab Results forms originally developed for the Tokmok pilot (see separate ZdravPlus report available upon request).

Only pilot sites capable of performing the diagnosis of vaginal candidiasis according to established criteria are participating in this substudy. The main outcome measure is the presence of symptoms and clinical and laboratory findings for vaginal candidiasis up to 14 days after the completion of treatment. As of June 30, 2003, 108 women had been enrolled. The target sample size is 250; sufficient medication is available but it may not be possible to keep enrollment open long enough to achieve this goal.

The second substudy planned for this pilot was "Antibiotic Susceptibility of Gonorrhea Isolates." An analysis performed more than two years previously by the Kyrgyz National Dermatovenereology Institute in conjunction with Medecins sans Frontieres found that 25 percent or more gonorrhea isolates from the Bishkek area were resistant to all antibiotics tested except three quite expensive ones, ceftriaxone, cefixime, and spectinomycin. For this reason, ceftriaxone was used for both the Tokmok and Jalal-Abad pilots. The purpose of this study was to determine whether any significant change in the antibiotic susceptibility of gonorrhea isolates had taken place. If the level of resistance has decreased substantially, it may be possible to use much less expensive medications in the future.

Unfortunately, the original plan to ship specimens to Almaty, Kazakhstan for testing failed when an apparently insurmountable delay arose in the validation of this laboratory. It was therefore necessary to delete this substudy from the pilot. However, it is hoped that an international laboratory consultant will be found to assist with establishing and validating an in-country antibiotic susceptibility-testing program for gonorrhea isolates. Ongoing proficiency testing will be necessary to certify that the results obtained meet international standards and there is reason to believe that this study will go forward within the coming year as a separately funded project.

3. Cost Analysis

Costs per case treated were estimated for the dermatovenereology inpatient department at the Jalal-Abad Merged Oblast Hospital, the STI (dermatovenereology) outpatient clinic, and the FGP clinics participating in the pilot. These calculations are based on component costs provided by the first two institutions and the actual costs for performing the pilot.

The average cost for treating STI cases as inpatients on the dermatovenereology ward of the Jalal-Abad Merged Oblast Hospital during 2002 was 1493 Kgz soms (Table 7). The cost per case was similar but somewhat greater for syphilis cases (1501 soms) than for patients treated for gonorrhea (1420 soms). The average length of stay was almost 19 days.

Table 7: Cost per Case Treated, Dermatovenereology Department, Jalal-Abad Merged Oblast Hospital

Total number of dermatovenereology inpatients in 2002	946
Number treated for STIs	381
Average length of stay for STI inpatients (days)	18.9
Cost per day for inpatients (includes cost of diagnostic tests and all treatment) (Kyrgyz Som*)	79
Average cost per STI case (Kyrgyz Som) All Syphilis cases Gonorrhea cases	 1493 1501 1420
Total costs for dermatovenereology inpatient care, 2002 (Kyrgyz Som)	568,871

* Average value of Kyrgyz Som during 2002 was approximately 47 per USD

The cost per case for patients treated in the STI (dermatovenereology) outpatient clinic was considerably lower (Table 8). For men with urethral discharge, it varied from 521 to 727 soms, depending on the diagnosis/diagnoses made. This amount includes the clinic visit fee, applicable laboratory costs, and treatment costs. For women with vaginal discharge, the cost per case varied from 225 to 863 soms, also depending on the diagnosis/diagnoses made. The total cost per case for men and women with genital ulcer syndrome who were treated for syphilis was 766 soms.

Also shown in Table 8, the actual costs for patients treated at the FGP clinics participating in the pilot were even lower. Cost per case for men with urethral discharge varied from 93 to 105 soms, depending on whether they were treated for chlamydia and gonorrhea alone or chlamydia and gonorrhea plus trichomonas. These amounts include treatment costs only, since no clinic fee was charged and no laboratory tests were required. For women with vaginal discharge, the cost per case varied from 15 to 160 soms, depending on the diagnosis/diagnoses made. The usual cost per case for men and women with genital ulcer syndrome was 23 soms. However, if they were allergic to penicillin and required treatment with doxycycline or erythromycin, it could be as high as 136 soms per case.

Table 8: Cost per Case Treated, Dermatovenereology Outpatient Department and FGP Clinics, Jalal-Abad

	Dermatovenereology Outpatient Department (2002)	**FGP Clinics (November 1, 2002 to June 30, 2003)**
Number of venereologic (STI) patient visits	5585**	1039
Base cost per visit (Kyrgyz Soms*)	66	No charge[^]
Usual laboratory costs (Kyrgyz Soms): Urethral discharge Vaginal discharge Genital Ulcer	 55 95 50	 Not required Not required Not required
Usual treatment costs (Kyrgyz Som): Urethral discharge Vaginal discharge Genital Ulcer	 400 to 606 [+] 98 to 704 [#] 650	 93 to 105 [++] 15 to 160 [##] 23 to 136 [@@]
Total costs: Urethral discharge Vaginal discharge Genital Ulcer	 521 to 727 [@] 225 to 863 [@] 766	 93 to 105 [^^] 15 to 160 [^^] 23 to 136 [^^]

* Average value of Kyrgyz Som during 2002 was approximately 47 per USD
** This was slightly more than half of the 10,293 total Dermatovenereology Department outpatients seen during 2002

[+] 400 if treated only for Gonorrhea; 464 if treated for Gonorrhea plus Trichomonas; 542 if treated for Gonorrhea and Chlamydia; 606 if treated for Gonorrhea and Chlamydia plus Trichomonas.

[#] 98 if treated only for Vaginal Candidiasis; 64 if treated only for Trichomonas; 542 if treated for Gonorrhea and Chlamydia; 464 if treated for Gonorrhea plus Trichomonas; 606 if treated for Gonorrhea and Chlamydia plus Trichomonas; 704 if treated for all these conditions.

[@] Varied according to treatment costs.

[^] According to the terms agreed upon for the pilot program, STI care was provided free of charge. The average cost per patient to the FGP clinics, including utilities and staff salaries, was approximately 15 soms.

[++] All urethral syndrome patients were treated for Chlamydia and Gonorrhea (93 soms); if found in-patient or partner by microscopy (optional—not required), Trichomonas was also treated (8 to 12 soms depending on whether single dose or a 7-day course of Metronidazole was given).

[##] 15 to 55 soms if treated only for vaginal candidiasis (depending on type of treatment given); 8 to 12 if treated only for Trichomonas and/or bacterial vaginosis; 23 to 67 if treated for Trichomonas and/or bacterial vaginosis and vaginal candidiasis; 93 if treated for Gonorrhea and Chlamydia; 105 if treated for Gonorrhea, Chlamydia, and Trichomonas and/or bacterial vaginosis; up to 160 if treated for all these conditions.

[@@] 24 soms if Benzathine Penicillin given; if allergic to penicillin, 23 if doxycycline was given, 136 if erythromycin was given. If pregnant, a more prolonged course of treatment was usually required and costs were greater.

[^^] Includes treatment costs only. Future programs should consider all actual costs, including utilities, other facility costs, and staff salaries.

Table 9 shows the actual cost-savings for cases treated at the FGP pilot sites using the WHO syndromic case management approach compared to patients receiving conventional care at the dermatovenereology outpatient dispensary. Savings per case varied from 570 to 622 soms for urethral discharge, 204 to 743 for vaginal discharge, and 743 soms for genital ulcer patients. This overlooks actual FGP costs not charged during the pilot, estimated to be approximately 15 soms per patient for utilities, staff salaries, and other fixed costs. In addition, because these cases were seen on top of the FGP doctors' already full schedules, a visit fee of perhaps 15-25 soms per case might be added to this amount. However, even if 40 soms per case is added for FGP patients, costs per case were still 63-92 percent lower than dermatovenereology outpatient costs (that is, the average cost per case was approximately one third to one tenth of the dermatovenereology outpatient dispensary cost).

These savings are due in part to the fact that laboratory services are not required by the syndromic approach. However, 20-60 percent of the savings were due to lower treatment costs achieved by purchasing the pilot medications wholesale through a non-profit organization based in the Netherlands. Although similar cost savings could probably be obtained for an expanded (nationwide) STI pilot program using the same approach, medication prices would likely increase three to five-fold thereafter when they are purchased through the privatized national pharmacy network. For a national STI program to remain successful in the longer term, subsidization of these treatment costs may be necessary.

Table 9: Actual Cost Savings per case by syndrome for patients treated at FGP sites versus STI (dermatovenereology) Outpatient Clinic during the pilot study (Kyrgyz Som)

Syndrome *	FGP Clinic	STI Outpatient Clinic	Actual Savings
Urethral Discharge	93 to 105	663 to727	570 to 622
Vaginal Discharge	15 to 160	225 to 863	204 to 743
Genital Ulcer	23	766	743

***** Calculated for standard syndromic case management treatment options: For **Urethral Discharge**, Chlamydia and Gonorrhea *or* Chlamydia and Gonorrhea plus Trichomonas; for **Vaginal Discharge**, vaginal candidiasis only (depending on type of treatment given); Trichomonas and/or bacterial vaginosis only; vaginal candidiasis plus Trichomonas and/or bacterial vaginosis; Gonorrhea and Chlamydia only; Gonorrhea and Chlamydia plus Trichomonas and/or bacterial vaginosis *and/or* vaginal candidiasis; and for **Genital Ulcer**, syphilis only (if treated with Benzathine Penicillin).

Other potential cost differences between syndromic case management and the traditional dermatovenereology dispensary, laboratory-based approach might also be considered, including the potential costs of over-treatment due to the syndromic approach (particularly for vaginal discharge) versus the costs of follow-up visits and laboratory tests often required by an etiologic approach. These and other

considerations, such as the costs to the individual and society for work days (productivity) lost, were beyond the scope of this analysis.

Some caution should also be taken in comparing the inpatient costs with outpatient costs. Undoubtedly, certain inpatient cases were complicated and required more prolonged treatment (for example, pregnant women with syphilis), increasing the average cost per case. In addition, some inpatient cases had syndromes that were not included in the pilot study and may have required more expensive diagnostic and treatment measures. Nevertheless, it is clear that whenever it is an option, outpatient treatment is preferable on a cost basis. It is also evident that incorporating treatment for common STI syndromes into primary (FGP) health care reduces costs for both the health care system and the patient.

4. Patient Satisfaction

Patient satisfaction with the STI care provided by FGP doctors in Jalal-Abad was high. Almost all of the 629 patients who completed an optional, anonymous survey before exiting the clinic described their consultation as good (36.6 percent) or very good (61.7 percent); 0.6 percent said "not very good" and 1.1 percent did not respond to this question. On a scale of one to five, 97 percent rated their FGP doctor's knowledge of STIs as four (30.2 percent) or five (67.1 percent). More than 99 percent stated that their doctor explained how they and their partners could avoid STIs in the future. Only 2.9 percent reported that someone other than the physician (and a nurse, if needed) entered the room during the visit. Eighty seven percent stated that the doctor was tactful, 0.5 percent said they were not, and for unclear reasons, 12 percent did not respond to this question (simply declined or possibly did not understand fully). A majority (83.5 percent) stated that the main reason they chose to see an FGP doctor for their STI care was because the medications were free of charge; for 9.5 percent "confidentiality" was the main reason and for 6.7 percent it was "convenience." Of respondents, 85.1 percent stated that they would recommend that their friends go to the FGP for their STI care; only one respondent (0.2 percent) said they would not, 1.8 percent said they might, and 13.0 percent gave no response to this question. The respondents learned about the pilot program through one or more of the following sources: an FGP physician (85 percent); flyers or booklets (77 percent); a friend (27 percent) or spouse (19 percent); and/or mass media, including radio, television, or newspaper (18 percent).

This optional, self-administered survey was initiated approximately two months after the start of the Jalal-Abad pilot and continued thereafter. The proportion of male respondents (33.8 percent) was almost identical to the proportion of men enrolled in the pilot overall (33.5 percent). Responses from men were not significantly different from those of women.

5. Physician Focus Groups

As in Tokmok, informal focus group discussions with participating physicians made it clear that the addition of STI treatment and prevention services put a significant strain on their schedules, particularly since their current salaries were so low as to make it necessary for them to take second jobs. For the full benefits of primary health care to be realized, additional remuneration for these new services should be seriously considered.

The Jalal-Abad pilot also showed that dermatovenereologists and FGP doctors can work together in a coordinated and collegial manner. Although FGPs can care for a majority of STI patients, some dermatovenereologists will always be needed to handle the more difficult and complicated STI case referrals.

VIII. FUTURE STEPS

The success of the Tokmok and Jalal-Abad pilot programs demonstrates that FGP doctors can be trained to provide services for the most common STI syndromes, with dermatovenereologists caring for more difficult cases. Although some obstacles remain, the growing capacity of the restructured primary health care sector in the Kyrgyz Republic makes it possible to expand these services nationwide. Integration of

STI care into primary health care should reduce costs, increase coverage, and decrease the spread of these extremely serious infections.

For maximum effectiveness, however, a nationwide STI program should incorporate lessons learned from the two pilots. The public awareness campaign that preceded and accompanied the Tokmok pilot reached a broad audience but it had limited long-term impact on patient knowledge, attitudes, and practices. The general population must be made more aware of the signs of STIs, of their own responsibility to immediately seek medical care when these signs appear, and of ways in which they can reduce or eliminate their risk of infection. They should clearly understand that STIs can cause many serious complications, including decreased (male and female) fertility, ectopic pregnancy, and death and that infection with another STI has been repeatedly shown to increase the transmission rate of HIV. Improvement in partner referral and treatment is also needed. FGP doctors must communicate the importance of this more strongly, both in terms of the partner's risk of serious complications and the index patient's own risk of reinfection. Barriers should be evaluated further and interventions developed to overcome them.

As noted previously, these interventions should be based on the results of periodic anonymous surveys of high-risk behaviors among both "vulnerable" groups and the "core transmitter" populations. Since these behaviors can change over time, prevention messages must be updated regularly to remain effective. Entirely new prevention strategies may also become necessary.

It is important to emphasize that these programs will only be effective if they are non-punitive. Incarceration and other penalties will make it difficult or impossible to obtain accurate information about risk behaviors. Partnership and trust are essential for prevention efforts to succeed.

For greater efficiency and effectiveness, STI and HIV/AIDS programs should be integrated. This is especially true for programs focusing on "core transmitter" populations. On the other hand, primary health care-based programs for vulnerable groups will naturally focus more on non-HIV STIs.

A. Recommendations

The following recommendations can be made for a national STI treatment and prevention program for the Kyrgyz Republic based on the results of the Tokmok and Jalal-Abad pilot studies:

1) Adopt the WHO syndromic case management approach as the primary model for treatment and prevention of STIs.

2) Train FGP doctors to provide care for the three most common STI syndromes: vaginal discharge, urethral discharge, and genital ulcer(s). Whenever possible, the expertise of FGP doctors who have prior training as obstetrician-gynecologists should be utilized.

3) At polyclinics where urologists and gynecologists are practicing alongside FGPs, they should also be trained in syndromic case management. At all STI program sites, at least one male and one female physician should be trained so that all patients have the option to see someone with whom they feel most comfortable.

4) Dermatovenereologists and reproductive health specialists should also be trained in syndromic case management. While the three most common STI syndromes can be seen by FGP doctors, patients with other syndromes and those with more complicated cases should be referred to gynecologists, urologists, or dermatovenereologists.

5) Pregnant patients with genital ulcer(s) should be referred directly to obstetrician-gynecologists or dermatovenereologists. Depending on the duration of infection and the stage of pregnancy, single dose therapy for syphilis may not be adequate. Careful follow-up of both the mother and infant is essential.

6) Laboratory testing that cannot be provided free of charge should not be made mandatory. All patients should be offered treatment at the initial point of service unless there are specific contraindications that make this impossible.

7) Free medications should be made available for all STI patients who are unable to pay.

8) A treatment guide for FGP doctors should be printed and distributed to all doctors participating in the STI program. This guide should include diagnostic criteria, treatment guidelines, referral criteria, and "key points."

9) Anonymous STI reporting forms should be developed and ongoing national surveillance implemented. FGPs, dermatovenereologists (public and private), and all other doctors seeing STI patients should use these forms. Data should be analyzed at a central site by facility, rayon, and oblast.

10) A commission should be formed to develop a monitoring and evaluation plan. It should include individual FGP doctors, gynecologists, urologists, and dermatovenereologists who are participating in the STI program, patient representatives, and representatives from the FGPA, the Dermatovenereology Department at the Infectious Diseases Institute, the Mandatory Health Insurance Fund, the MOH, and perhaps other organizations. Each treatment site should collect ongoing information essential for calculating per-patient facility, health manpower, equipment and reagent, treatment and other necessary costs. Modifications in the program over time should only be made after their impact on these costs has been considered. Thereafter, the actual impact of these modifications should be assessed as part of the ongoing monitoring and evaluation program.

11) Laboratory testing of key STIs should be performed at sentinel surveillance sites. This should be done at least once every two years to confirm the results of syndromic case management data (more often if this information indicates new trends are taking place). When definite improvement is achieved for one or more STIs (decreased incidence and prevalence), funds can be shifted to other STIs of greater need. Ideally, drug susceptibility of gonorrhea isolates would be included since this information is needed to select the most cost-effective treatment regimens for this STI.

12) Patients with one STI are at increased risk of others. Ideally, all patients should be tested for syphilis (using a reliable non-treponemal test) and offered voluntary counseling and testing for HIV.

13) Cefixime should be added to the list of essential drugs for the Kyrgyz Republic. The last survey of gonorrhea susceptibility performed in the Kyrgyz Republic found complete or almost complete susceptibility to cefixime, ceftriaxone, and spectinomycin. Of these three drugs, only cefixime can be given in a single oral dose, avoiding the risks of injection. Cefixime can also be purchased in bulk and formulated in the Kyrgyz Republic. Assuming the costs associated with quality testing are reasonable, this should be markedly less expensive than other treatment alternatives for gonorrhea.

14) This program should be accompanied by a media campaign. Public messages should be repeated every three to four months (or as indicated by ongoing surveillance data) in a manner found most cost-effective. The general population must be made aware of the signs of STIs, of their own responsibility to immediately seek medical care when these signs appear, of ways in which they can reduce or eliminate their risk of these infections, and where they should go to obtain STI treatment and prevention services.

15) A parallel treatment and prevention program should focus on the so-called "core-transmitter" populations. Since these patients are less likely to access Family Group Practice services, special treatment sites and prevention strategies should be established. For maximum cost-effectiveness, this program could be integrated with drug users' Trust Points and HIV/AIDS prevention programs.

16) Anonymous behavioral surveys should be performed on an ongoing basis within both the core-transmitter and vulnerable groups. Patterns of transmission can be used to assess the success or

failure of ongoing efforts. Changes in behavior should be used to guide the introduction of new treatment and prevention strategies.

17) Faculties from Family Medicine Training Centers in Naryn, Issyk-Kul, Bishkek-Chui, Talas, Jalal-Abad, and Osh Oblasts have been trained as trainers for the WHO Syndromic Case Management approach. The new National STI Treatment and Prevention Program should be phased in (one or more rayons per oblast per phase) based on the rate at which these training centers can train the FGP doctors, the national and regional Health Promotion Centers can institute local media campaigns, and the National STI Treatment and Prevention Commission (recommended above) can establish adequate monitoring and evaluation procedures.

18) Some type of remuneration for the extra patient load appears to be warranted for FGP doctors who provide STI care. This might take the form of a small patient co-payment that would be collected in a transparent manner and go to the doctors who see the additional patients on a per case basis. Based on limited interviews with doctors and patients, a 25 soms co-payment might be appropriate, with perhaps 5 soms of this amount going into a fund for patients who cannot pay. This could be adjusted by region and over time.

This last intervention should be part of a broader strategy that supports the overall health reform process still in progress in the Kyrgyz Republic. This strategy must recognize the increased financial demands present during the current transition period, and include both short-term and long-term measures to address these demands. The following additional steps are therefore recommended:

1) Strengthen the structure and systems that facilitate a transition from inpatient to outpatient care and from vertical to integrated programs.

2) Increase the capitated rate for primary health care paid to FGPs.

3) Increase FGPs' autonomy to allocate resources including staff bonuses.

4) Remove any human resources or labor code-related restrictions on the ability to increase the salaries of FGP staff.

5) Gradually introduce co-payments for primary health care services provided by FGPs.

6) Inform FGP staff about the nature of this transition and future opportunities that will arise in primary health care as the shift from inpatient to outpatient care occurs.

7) Inform the population about the availability of STI and other new services at the FGPs and generally promote an increased status for the FGP-based primary health care system.

8) Search for donors willing to invest in funding the transition from inpatient to outpatient care.

IX. Annex 1: Rates of Major Sexually-Transmitted Infections in the Kyrgyz Republic, 1991-2001

Year	Syphilis		Congenital Syphilis	Gonorrhea	
	Absolute number	Cases/ 100,000	Absolute number	Absolute number	Cases/ 100,000
1991	90	2.0	-	2,456	55.5
1992	123	2.7	-	3,166	70.6
1993	194	4.3	-	2,975	66.5
1994	997	22.4	-	2,607	58.6
1995	3,298	72.2	12	2,540	57.2
1996	7,483	164.7	43	2,438	53.7
1997	7,728	167.8	45	2,018	43.8
1998	6,729	144.2	67	2,435	52.2
1999	5,359	110.8	93	2,280	47.1
2000	4,278	87.5	55	2,295	46.9
2001	2,988	61.1	36	2,360	48.3

Source: National Dermatovenereology Department

X. Acronyms and Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
FGP	Family Group Practice
FGPA	Family Group Practice Association
HIV	Human Immunodeficiency Virus
HPV	Human Papillomavirus
MOH	Ministry of Health
PID	Pelvic Inflammatory Disease
STI	Sexually Transmitted Infection
USAID	United States Agency for International Development
WHO	World Health Organization