



Partners  
In Health



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**THE SPUTNIK INITIATIVE:**  
PATIENT-CENTERED ACCOMPANIMENT *for*  
TUBERCULOSIS *in* RUSSIA



## ABOUT PARTNERS IN HEALTH:

PIH is a global health organization relentlessly committed to improving the health of the poor and marginalized. We build local capacity and work closely with impoverished communities to deliver high quality health care, address the root causes of illness, train providers, advance research, and advocate for global policy change.

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PIH Reports present issues related to public health program implementation in resource-limited settings. They are intended to complement traditional academic publishing by sharing evidence and knowledge from the field that may not fit the constraints of peer-reviewed literature. The intended audience for PIH Reports includes health providers, implementers, donors, and policymakers.

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**Cover:** Nurse Marina Bogdanova delivers tuberculosis medication to Alexander P., a newly enrolled patient in the Sputnik program in Tomsk, Russia. Photo by Elena Devyashina for Partners In Health

**Right:** View of Tomsk, Russia. Photo by Elena Devyashina for Partners In Health





IN 2012, ALMOST 9 MILLION PEOPLE  
DEVELOPED TB WORLDWIDE AND  
MORE THAN 1 MILLION PEOPLE  
DIED FROM IT.





## ABSTRACT

The Russian Federation has one of the highest rates of tuberculosis (TB) and multidrug-resistant tuberculosis (MDR-TB) in the world. Partners In Health (PIH) has been working on TB and MDR-TB in Russia since 1998. In 2006, PIH and Tomsk Oblast Tuberculosis Services launched a new project, the “Sputnik” Initiative, a model of patient-centered accompaniment in Tomsk Oblast, Russia, focused on providing daily comprehensive care to patients at the greatest risk of defaulting from treatment. These patients included those who had been discharged from hospitals due to

behavioral challenges, struggled with alcoholism and substance abuse, or faced socioeconomic problems. Prior to Sputnik, successfully treating such patients had been commonly viewed as impossible. Sputnik’s task was to shift the onus of responsibility for adherence from the patient onto the program team.

The program has been a success. Since the 2006 launch of the Sputnik initiative in Tomsk, the incidence of TB, the prevalence of drug-resistant cases, and TB mortality have all significantly declined. The





# TABLE of CONTENTS

ABSTRACT .....	4
REFLECTIONS FROM DR. FARMER.....	6
INTRODUCTION .....	8
The Challenge of Adherence .....	9
PIH in Russia .....	10
Accompanying Patients in Russia:	
The Sputnik Initiative .....	10
The Setting: Tomsk .....	12
PROGRAM DESIGN .....	16
Sputnik: A Day in the Life .....	16
Relationship Building .....	16
Creating Real-Time Action Plans .....	17
Equipping Staff .....	17
Referral Process and Enrollment Criteria.....	17
Delivery of Social Services .....	17
Program Costs .....	18
OUTCOMES .....	20
LESSONS LEARNED .....	25
REFERENCES .....	26
ACKNOWLEDGMENTS .....	27

program's treatment success rate for patients with MDR-TB was 71.1%, a major accomplishment for patients who otherwise were unlikely to have finished treatment. Sputnik shows that 1) treatment of vulnerable patients with social and behavioral challenges is possible with comprehensive social and psychological support during the entire course of therapy and 2) community-based patient-centered accompaniment is a worthwhile alternative to hospitalization, which is often associated with high risk of nosocomial infection transmission and is more expensive than the accompaniment model of care.

# REFLECTIONS *from* DR. PAUL FARMER

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This issue of PIH Reports introduces the **Sputnik Program**. Most readers would associate this term with the satellite of 1950s fame. But the word has also come to mean, in Russian parlance, “life partner” or “special friend”—someone around whom one’s life revolves. This need not have romantic connotation: as I was writing this, in Tomsk, a couple of Russian friends noted that, here in Siberia, extreme weather reminds people each year of the need for collaboration, of looking out for one another. Serious illness is another reminder. And so “Sputnik” became the name of an effort designed by PIH/Russia to help patients adhere to a difficult course of treatment for drug-resistant tuberculosis.

I’d like to mention three reasons we think Sputnik merits the support of every member of the PIH community.

The first: MDR-TB is one of the most pressing health problems of our times. By some estimates, there are half a million new (“incident”) cases of MDR-TB each year. It’s an airborne disease and cannot be hidden away or ignored or declared “incurable.” Curing extensively drug-resistant TB requires what can only be described as grueling treatment. We need new and better therapies: safe, effective, tolerable, and faster-acting. But the Sputnik experience shows us that when patients are the center of all of our efforts—when our attentions and resources revolve, like satellites, around them—we succeed, even though our treatments are imperfect. Cure rates are high if patients receive, each day, the medicines and the social support required to complete therapy.

A second reason to support Sputnik is that the poor and marginalized don’t live only in poor countries. In Tomsk, over 80 percent of beneficiaries, mostly young men, are unemployed; almost as many are chronic abusers of alcohol. More than a third have histories of drug abuse, and close to half have hepatitis, much of it caused by hepatitis C virus (HCV). Rates of HCV and HIV co-infection are even higher in prisons, and 38.4 percent of Sputnik’s beneficiaries have been incarcerated (the PIH team met some of them in prisons, once the setting of runaway epidemics of MDR-TB). Most of this group, in other words, meet anyone’s definition of poor and marginalized, and a diagnosis of drug-resistant



tuberculosis has sapped their physical strength as well as their political clout. AIDS activists have taught us that too few poor or otherwise marginalized people afflicted by such infections make enough noise. Surely this air-borne disease is a reminder that we all move in the same or related orbits.

Third, the notion of accompaniment can be applied to improve clinical outcomes and to strengthen our response to new and difficult problems in medicine and public health. The thinking in public health is too short-term; clinical care, even more so. How might we link Sputnik’s lessons about patient-centered accompaniment to the challenges now before us? If HCV infection is suddenly curable, what is our “equity plan” to deliver treatment for patients like those encountered within the Tomsk penitentiary system or cared for through Sputnik? We need an integrated approach to delivering effective health care, setting aside resources to respond to new problems, and to deploying new tools for old problems. We need, most of all, long-term commitments to health equity.

In the popular imagination, “Sputnik” will always be a Soviet satellite. But this is precisely why the term was used to describe PIH/Russia’s efforts to address the needs of those deemed incurable: the very notion of revolving around someone other than oneself has been too often devalued, even in medicine and public health. The Sputnik experience in Siberia serves as a reminder that the goal of clinical care, and of health systems, is to revolve around the patients.

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*"When patients are the center of all of our efforts -  
when our attentions and resources revolve, like satellites,  
around them - we succeed, even though our treatments  
are imperfect."*

*- Dr. Paul Farmer*

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**Above:** Nurse Yulia Safronova and Driver Sergey Goryunov trek through the snow to a patient's home in Tomsk, Russia. Photo by Elena Devyashina for Partners In Health





# INTRODUCTION

Tuberculosis persists as a global epidemic that disproportionately affects poor and marginalized populations. According to World Health Organization (WHO) estimates, in 2012, almost 9 million people developed TB worldwide and more than 1 million people died from it. More than one-third of all TB patients globally are not diagnosed, many of them children.

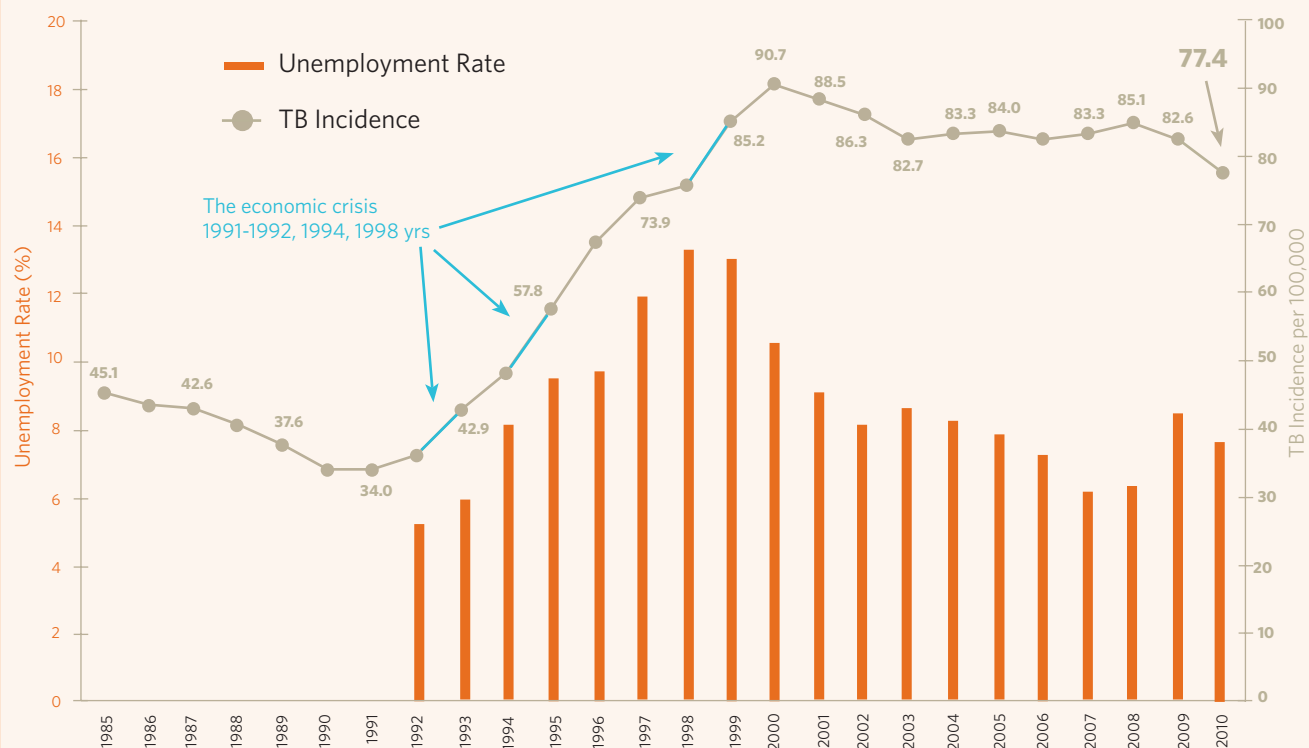
Eighty percent of the world's TB cases are confined to 22 countries, many of which are classified as low-income.<sup>1</sup> Nearly 85 percent of people with TB can be effectively cured with an affordable four-drug regimen. But not all patients can be cured by first-line drugs. In recent decades, the burden of multidrug-resistant TB (MDR-TB)—bacteria that are resistant to the two most important drugs in the standard regimen, isoniazid and rifampicin—has steadily increased, especially in Eastern Europe and Central Asia. The WHO has identified 27 high-burden MDR-TB countries, but little progress has been made toward targets for diagnosis and treatment of MDR-TB set forth in the Millennium Development Goals. More

than half of the estimated 450,000 new MDR-TB cases recorded in 2012 were in China, India, and the Russian Federation.

While the majority of TB patients globally are poor, not all patients live in countries statistically designated as poor. The Russian Federation has the third-highest burden of MDR-TB in the world; presently, MDR-TB accounts for 34.2% of all TB cases in Russia, or an estimated 45,000 cases per year.<sup>2</sup> The rise of TB in Russia is closely connected to the collapse of the former Soviet Union in 1991 and the ensuing economic and social crises, where unemployment spiked, the crime rate increased, existing social services eroded, and the health system foundered. As the number of vulnerable people dramatically increased, so did TB transmission (Figure 1). Between 1991 and 2001, the TB incidence rate in Russia jumped from 34 per 100,000 to 88 per 100,000 people. In that same period, the mortality rate more than doubled, from 8.1 to 19.9 per 100,000 people.<sup>3</sup> Several factors—crowded prisons, crowded hospital inpatient treatment facilities, medication shortages, variations in treatment practices, and a breakdown in the Russian state's capacity for contact-tracing and active-case finding—contributed to the emergence of drug-resistant TB across the entire region.



**FIGURE 1. TUBERCULOSIS AND UNEMPLOYMENT IN THE RUSSIAN FEDERATION**



Source: Russian Ministry of Health and Social Development 2012

## THE CHALLENGE OF ADHERENCE

In Russia, as in many other settings, adherence to therapy is one of the biggest challenges to treating TB and MDR-TB. Globally, 10% to 48% of MDR-TB patients do not complete their treatment.<sup>3</sup> Poor adherence to treatment leads to unfavorable outcomes and continued transmission of TB within families and communities. If medicines are taken intermittently, the result can often be the generation of additional drug resistance.

But adherence to therapy is no small task, under any circumstances. Whereas treating drug-susceptible TB usually takes six months, treatment of MDR-TB often requires a minimum of 20 months and consists of daily regimens requiring at least five drugs, one of which is given as a daily injection for at least eight months.<sup>4,5</sup> Some of the drugs carry the potential for severe adverse effects, including psychiatric disorders, kidney damage, liver toxicity, and hearing loss.<sup>6,7</sup> The challenge of adherence is intensified by myriad factors, such as chronic alcoholism, drug addiction, homelessness, and unemployment, as well as previous incarceration.<sup>3</sup>

When proper systems of delivery and care are in place, such as the management of adverse effects and the provision of food and other social supports, many of the challenges linked to drug toxicity and patient adherence can be effectively addressed. Community-based treatment platforms like Sputnik have proven successful in delivering directly observed therapy while simultaneously addressing the social, psychological, and economic factors that increase the likelihood of treatment non-adherence.<sup>8,9</sup> This mode of treatment is also less disruptive to patients and their families. Once appropriate treatment is initiated, the risk of transmission to others declines precipitously, and the patient poses little risk to his or her family, friends, and co-workers. Community-based treatment also creates opportunities for community education, which reduces stigma and encourages screening efforts among hard-to-reach individuals. It also improves patient access to social workers, psychologists, addiction specialists, and similar services.

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*Community-based treatment platforms like Sputnik have proven successful in delivering directly observed therapy while simultaneously addressing the social, psychological, and economic factors that increase the likelihood of treatment non-adherence.*

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## PIH IN RUSSIA

PIH started its collaborative work in Russia with Tomsk TB services in 1998 in both prison and civilian sectors. In 2000, using funding from George Soros' Open Society Institute and later from the late philanthropist Tom White, the first MDR-TB patient was enrolled in treatment.<sup>10</sup> Starting with the most disadvantaged cohort—prisoners suffering from MDR-TB—the program was eventually expanded with support from the Global Fund to Fight AIDS, Tuberculosis, and Malaria to all MDR-TB patients in the whole oblast, including those living in remote villages. At that time in Tomsk, the TB system was organized around the prolonged hospitalization of patients, viewed as the only way of ensuring adherence to treatment. Ironically, however, the overcrowded and underfunded hospitals became a primary source for transmission of MDR-TB.

PIH suggested an alternative approach to improve adherence and stem transmission: by strengthening ambulatory treatment and providing comprehensive accompaniment, including social support, throughout the whole course of therapy, patients would be able to receive care in the communities where they and their families lived. The home treatment program in Tomsk City was expanded and a number of small "home visit" teams were organized in rural centers. Patients were offered monthly, and then daily, food packages to support their treatment.

Soon after the MDR-TB program began, mortality from TB in the Tomsk prison system dropped to zero.<sup>11</sup> Between 2000 and 2007, cure rates for the MDR-TB program were as high as 72.7% in the civilian sector (as compared to 50.9% reported in the Russian Federation). In 2005, Tomsk TB services reported 2.3 times lower TB mortality in the oblast as compared to neighboring Siberian regions.<sup>12</sup>

However, in the same year, data from Tomsk suggested that the number of patients unable to adhere to treatment was increasing. The situation was worse in rural areas. Local physicians expressed concern that this group of patients had "social problems," were "irresponsible," and difficult to treat. Most were ex-prisoners, patients who had been discharged from hospitals because of behavioral issues, and patients with addictions to alcohol and drugs. Many patients were also unemployed, isolated, and without sufficient family and social support. The general view was that treating them successfully would be near impossible. Without a comprehensive support system to ensure the proper delivery and intake of medications, these patients remained uncured and thus not only stayed sick themselves but were a source of MDR-TB transmission that imperiled their communities. Eleven percent of the initial Sputnik cohort had previously stopped their tuberculosis treatment; the rest were on the verge of stopping.

As the problem of non-adherence worsened, PIH turned to its social justice roots and sought pragmatic solidarity with patients who could not complete treatment. The decision was made to draw from the experiences of Haiti, Peru, and Boston, and upgrade the existing home treatment program.

## ACCOMPANYING PATIENTS IN RUSSIA: THE SPUTNIK INITIATIVE

In 2006, PIH and Tomsk Oblast Tuberculosis Services launched the "Sputnik" Initiative, a model of intense patient-centered accompaniment (PCA). Sputnik aimed to provide missing social support by creating a network of care for patients that would not only increase their rates of adherence to treatment but also reduce transmission of TB infection in their communities and improve quality of life for everyone. Program nurses were trained to become "sputniks" themselves—satellites that revolved around their patients throughout their long and difficult recovery (Box 1). Care is offered to every patient, at any place and at any time, wherever it is most convenient for the patient. Patients decide where and when to take their daily medications, assisted by these specially trained nurses.

Through this approach, Sputnik shifted the onus of responsibility for adherence from the patient to the program team. This shift marked an important change in moral orientation: rather than being seen as "defaulters" or "treatment failures," patients who were unable to take their medicines became programmatic challenges for which a programmatic solution could be found.



## **BOX 1. THE SPUTNIK INITIATIVE: CARING FOR PATIENTS THROUGH ACCOMPANIMENT**

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### **Deliver directly observed TB therapy at the patient's home or any other location.**

All medications are taken under direct supervision of the Sputnik team. The team—nurses and driver—communicate with the patient to agree on a location and time to meet for medication. If a patient refuses to meet, the Sputnik team asks why and attempts to convince the patient to take his/her medicines at any point during the day. If no agreement is achieved, other project staff—social workers, psychologists, alcohol/drug addiction specialists, or supervisors—are contacted for support and help.

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### **Search for patient if he/she is absent from scheduled meeting location.**

It is up to the Sputnik team to initiate a search for patients who do not meet at the scheduled location. First, the Sputnik team calls to clarify the location and will wait for 30 minutes. If the patient still has not been located, the team visits the next patient but keeps trying to locate the missing patient by calling relatives and friends. If they are unsuccessful, the team returns to the initial meeting place and starts looking for the patient at all known locations within his/her social network.

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### **Provide nutritional support in order to motivate patients to continue treatment.**

In order to identify and address patients' social needs and increase patients' motivation and adherence to treatment, the Sputnik team conducts a survey to learn of the patients' social and nutritional needs. Using the findings, a daily menu for nutritional support is developed. Each day patients receive food and support after taking the complete dose of the treatment regimen. Some common food items include canned meat or chicken, canned vegetables, pasta, and condensed milk, among others. For majority of patients the nutritional support provided might be the only meal they have other than bread and alcohol.

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### **Establish trustworthy, open relationships with patients and their families, friends, and neighbors.**

PIH's main selection criteria for the Sputnik team are the ability to listen, the presence of compassion, and the desire to help. Patients acknowledge the importance of strong relationships with the Sputnik team and say that their attitude toward treatment and life hinges on this relationship. Project staff are trained to understand the principle that "there are no bad or dysfunctional patients—there are patients with specific psychological and social needs which we cannot always understand."

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### **Deliver additional medical, psychological, and social support by connecting patients with local resources.**

The Sputnik team is trained to identify and assist with any unique non-medical needs that might pose as a barrier to treatment. This could include providing goods such as hygienic sets, cold weather clothing, or hot plates, or helping patients renew passports or get a state disability allowance.

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### **Timely diagnosis and management of adverse reactions to minimize the risk of treatment default.**

Some drugs used in treating MDR-TB carry the potential for severe adverse effects, including psychiatric disorders, kidney failure, liver toxicity, hearing loss, and others, which might result in patient refusing treatment. The Sputnik team is trained to closely monitor and detect such effects, and they work closely with physicians to tailor treatment regimens to mitigate such risks.

## THE SETTING: TOMSK

With a population just over 1 million, Tomsk Oblast is located in western Siberia and covers an area roughly the size of Poland (Map 1). Approximately half of the population lives in Tomsk City, the regional capital, where the Sputnik Initiative operates. The remaining population lives in rural communities, and more than 80% of the landscape is covered with deep forests and one of the biggest swamps in the world. In addition to these geographical challenges, by the year 2000, Tomsk Oblast and other Siberian regions had some of the highest rates of TB and MDR-TB in the world, especially in the prison sector.

The harsh climate, landscape, and roads of Tomsk Oblast are significant barriers to delivering health care. As of 2012, the average household income in Tomsk City was about \$800 per month; for families in rural areas, household income was significantly less. More than 16% of Tomsk's population lives below the poverty line.<sup>13</sup> For patients with TB and MDR-TB, the situation is worse. Stigma associated with the disease, as well as the need for daily treatments, limit economic and social opportunities.





## MAP 1. TOMSK IN BRIEF



TOMSK OBLAST  
POPULATION:

**1,070,128**

TOMSK CITY  
POPULATION:

**547,989**

TB INCIDENCE RATES:  
THEN VS. NOW

**2001- 109.3**

individuals diagnosed with  
tuberculosis (per 100,000)

**2012 - 62.5**

individuals diagnosed with  
tuberculosis (per 100,000)

MORTALITY RATES:  
THEN VS. NOW

**2001 - 18.3**

individuals died from  
tuberculosis (per 100,000)

**2012 - 6.1**

individuals died from  
tuberculosis (per 100,000)

*Source: Federal Statistics Services, Tomsk Oblast*



**Above:** Aerial view of Tomsk City.

Photo by Elena Devyashina for Partners In Health



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*"Care is offered to every patient, at any place and at any time. We provide care wherever it is most convenient for the patient."*

*- Oksana Ponomarenko  
PIH Russia Country Director*

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# PROGRAM DESIGN

## SPUTNIK - A DAY IN THE LIFE

The essence of the Sputnik Initiative is that it is oriented around the patient rather than around caregivers. Patients, not health workers, decide where and when to take medications; it could be at home, on a street corner, or at a workplace. As such, Sputnik operates 12 hours a day, Monday through Friday, and for six hours on Saturday.<sup>14</sup> The first weekday shift begins at 8 a.m. and runs through 2 p.m. while the second shift runs from 2 p.m. through 8 p.m. Each shift consists of one nurse and one driver.

The day begins with the nurse and driver traveling to predetermined locations to meet patients. If the patients do not arrive, the nurse and driver will use a mobile phone to attempt to locate the patient. (Most patients have mobile phones, but if they do not someone in their family or social circle likely does.) It is the responsibility of the nurse and driver to locate the patient and ensure that treatment is delivered. This can be an arduous, time-consuming process in which the driver and nurse act as quasi-detectives. They may have to ask the family and friends of a patient about his or her whereabouts and drive around the city, visiting locations the patient is known to frequent. When the nurse and patient do finally link up, the nurse directly observes the intake of medicine and provides the patient with a package of food.

At the change of each shift, the nurses and drivers exchange information on patient visits and challenges for that day. For instance, if the morning nurse had a patient who was in an alcohol-induced slumber and could not wake to take his medication, it is up to the second-shift nurse and driver to find the patient and deliver the medication. A doctor monitors the course of treatment and visits the patients together with the nurse and driver every two weeks along with receiving patients at the clinic. However, the responsibility for detecting any possible medication side effects lies with the nurses.

## RELATIONSHIP BUILDING

Key to Sputnik's success is the ability of the nurses and drivers to forge genuine and compassionate relationships with the patients. Staff should be adept at handling the challenges that accompany chronic alcoholism and drug abuse and have a keen understanding of the sensitive nature of these issues. The staff must internalize the following fact: there are no antisocial patients, but rather patients with particular social and psychological needs who do not always find understanding or compassion from their doctors or other caregivers.



## BOX 2. SPUTNIK ENROLLMENT CRITERIA

- ▶ Patient missed more than 20% of the prescribed doses during the last two to three months.
- ▶ Patient has not received any TB medication for the last 1-1.5 months due to non-adherence.
- ▶ Patient has been on TB treatment for more than four months but remains smear positive.

Many patients realize that they suffer from alcohol or substance abuse, but they become withdrawn or aggressive when reminded of this issue. It takes weeks, if not months, to gain a patient's trust, and this process cannot be rushed. When hiring staff, whether a nurse or driver, special attention is paid to their interpersonal skills. Additional training is provided so that nurses and drivers can refine their communication skills and ability to interact with this particular patient population. Before the delivery of treatment begins, a detailed characterization profile is put together for each patient in order to assess his or her socio-psychological needs. The entire team, including a physician and social worker, develops a working plan for each individual patient. In this way, Sputnik nurses are not "going in blind" when new patients are admitted to the program.

### CREATING REAL-TIME ACTION PLANS

To promote information sharing and ensure everyone is abreast of emerging challenges, a mandatory weekly meeting is held for all Sputnik staff. Patient problems are discussed and further plans of action are developed to properly address them. From time to time, psychologists, substance abuse specialists, and social workers who collaborate on Sputnik are invited to attend these meetings.

### EQUIPPING STAFF

Sputnik is a relatively inexpensive operation in terms of supplies. The most costly item is preferably a four-wheel-drive vehicle, necessary to help staff to track down and locate patients throughout Tomsk year-round, including when the roads are snowy, muddy, and flooded. A mobile phone is also essential for locating patients and arranging rendezvous points. Nurses are equipped with some type of personal safety device, such as a can of pepper spray. The staff also has respirators, a flashlight, a medical bag with basic supplies, containers for sputum collection, and a cold pouch for transporting the samples.

## REFERRAL PROCESS AND ENROLLMENT CRITERIA

The Tomsk TB program offers a number of treatment access points to patients. Sputnik is a last-resort option designed for individuals at the greatest risk of defaulting from their treatment regimen, including patients who have refused to initiate treatment in the past.

Before being referred to Sputnik, all non-adherent patients are reviewed by the Tomsk Council on Defaulters, a committee of physicians, nurses, and personnel at the Tomsk TB Services. At the meeting, personnel from the hospital and TB dispensary, psychologists, and drug addiction specialists brainstorm possible solutions to improve a patient's adherence to treatment. If all efforts have failed, the patient is referred to Sputnik for close accompaniment.

In order to ensure effective use of limited resources, PIH/Russia created specific enrollment criteria for the program, listed in Box 2. If a patient meets any one of the criteria, he or she may be eligible for Sputnik.

### DELIVERY OF SOCIAL SERVICES

The purpose of any patient-centered accompaniment platform like the Sputnik Initiative is to go beyond the delivery of clinical care and provide a level of care that ameliorates social and economic factors that perpetuate poor health. For instance, program staff have learned that delivering food and social support on a daily basis is more effective than providing it on a quarterly, weekly, monthly or less frequent basis. Thus, every patient in Sputnik is given a package of food at the time his or her daily medication is completed. If a patient cannot come to the TB dispensary, the Sputnik program will arrange for a specialist to visit the patient's home.

Sputnik also provides other forms of accompaniment tailored to meet the unique needs of each patient. Many patients in Sputnik need assistance obtaining up-to-date government-issued identification, for instance, which is critical to accessing health services and similar programs. Additional assistance from social workers is arranged as needed.

With high rates of alcohol and drug abuse among patients (Table 1), Sputnik also provides direct access to addiction specialists and mental health experts. However, consultations with psychologists and substance abuse professionals may be conducted only with the patient's consent.

## PROGRAM COSTS

Significant investments to launch Sputnik included acquiring a vehicle and funding salaries for nurses and drivers. Still, treating at-risk patients via Sputnik appears to be significantly cheaper than all other options, especially hospital-based care. The cost of treating a Sputnik patient was approximately \$6.50 per day. Average prices for alternative in-patient care in Russia can range from \$9.30 to \$35 per day.<sup>3</sup> Patients who do not successfully complete treatment can infect as many as 10 other people per year.<sup>15</sup> Thus the Sputnik program is an extremely affordable and high-yield investment in patient care and public health.

**TABLE 1. SOCIAL AND DEMOGRAPHIC PROFILE OF SPUTNIK PATIENTS COMPARED WITH NON-SPUTNIK TB PATIENTS IN TOMSK (DEC 2006 - DEC 2012)**

Patient Characteristic	Sputnik Patients n/N	Sputnik Patients %	Other Patients n/N	Other Patients %	p value
Male	101/138	73.2	2179/ 3265	66.7	0.115
Younger Age, <40 years	105/138	76.1	1887/3265	57.8	<0.001
Married/living with partner	59/136	43.4	1515/3151	48.1	0.284
Unemployed	114/138	82.6	1740/3265	53.3	<0.001
Previously incarcerated	53/138	38.4	636/3265	19.5	<0.001
Homeless	14/138	10.1	269/3265	8.2	0.427
Chronic alcoholism	111/138	80.4	981/3265	30	<0.001
Drug use prior to or during treatment	49/138	35.5	257/3265	7.9	<0.001
Psychiatric disorder	7/138	5.1	134/3265	4.1	0.576
Hepatitis	63/138	45.6	584/3265	17.9	<0.001
HIV Infection	6/138	4.3	83/3265	2.5	
Newly detected (first treatment course)	42/138	30.4	2270/3265	69.5	<0.001
Previous default	9/138	6.5	32/3265	1.0	<0.001
Smear/culture positive at treatment start	133/138	96.4	2097/3265	64.2	<0.001
Diagnosed with MDR-TB through DST	104/138	75.4	890/3265	27.2	<0.001
Treatment regimen:					
Category I/II/III	16/138	11.6	2274/3265	69.6	<0.001
Category IV (MDR-TB)	104/138	75.4	619/3265	18.9	<0.001
Mono- and polyresistance to TB drugs; other regimens	18/138	13.0	372/3265	11.4	0.551

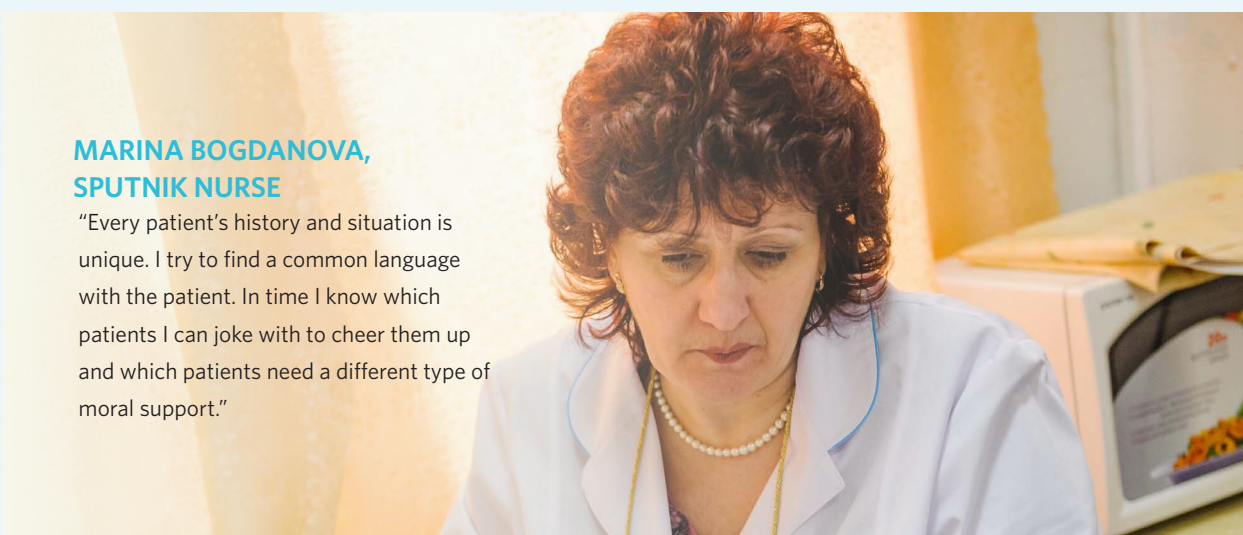


## STAFF IMPRESSIONS



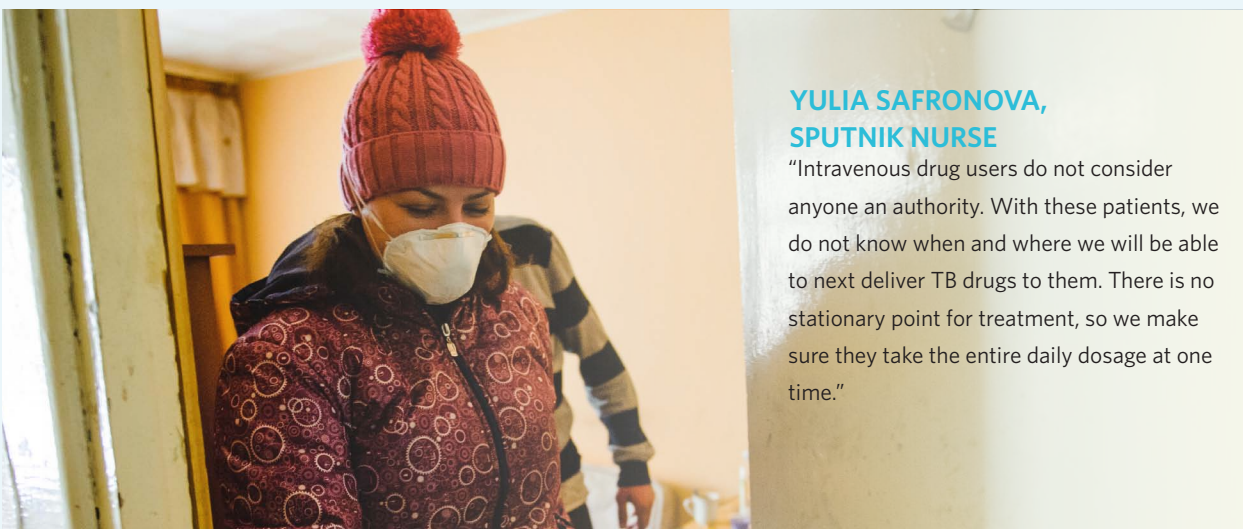
**SERGEY GORYUNOV**  
**SPUTNIK DRIVER**

"Our work is very dynamic. Today you help a patient cope with side effects; tomorrow another patient may need assistance obtaining his pension while another needs to go to the hospital because he was in a drunken fight. Our work is a continuous process of solving patient problems, which involve many actors."



**MARINA BOGDANOVA,**  
**SPUTNIK NURSE**

"Every patient's history and situation is unique. I try to find a common language with the patient. In time I know which patients I can joke with to cheer them up and which patients need a different type of moral support."



**YULIA SAFRONOVA,**  
**SPUTNIK NURSE**

"Intravenous drug users do not consider anyone an authority. With these patients, we do not know when and where we will be able to next deliver TB drugs to them. There is no stationary point for treatment, so we make sure they take the entire daily dosage at one time."

Photos by Elena Devyashina for Partners In Health



# OUTCOMES

Since PIH first partnered with Tomsk Oblast Tuberculosis Services in Tomsk in 1998 and since the introduction of Sputnik in 2006, the incidence of TB (Figure 2), the proportion of TB cases that are MDR, and the incidence of MDR-TB have all declined. By strengthening ambulatory treatment and providing comprehensive accompaniment throughout the whole course of therapy, Sputnik proved it was possible to treat TB patients suffering from severe behavioral and social challenges.

The result of the spectrum of patient-centered interventions offered in Tomsk Oblast is that today the TB incidence in the region has dropped from 116.7/100,000 in 2000 to 62.5/100,000 in 2012. (The national average for Russia is 68.1/100,000 and the average for Siberia is 120.4/100,000.) Tuberculosis mortality in Tomsk Oblast has dropped from 21.9/100,000 in 2000 to 6.1/100,000 in 2012—one-fifth of the average in Siberia and almost one-fourth the national average (Figure 3).<sup>16</sup>

Between December 2006 and December 2012, 129 patients with TB and MDR-TB were enrolled in the Sputnik Initiative (Figure 4). An additional 29 patients were enrolled the following year. The average rate of adherence to prescribed medicine regimens increased from 59.7% to 78.5% for patients who were facing challenges with adherence prior to enrollment, according to internal data from PIH/Russia. The Sputnik Initiative's treatment success rate for all patients was 70.5% (Figure 5), a major

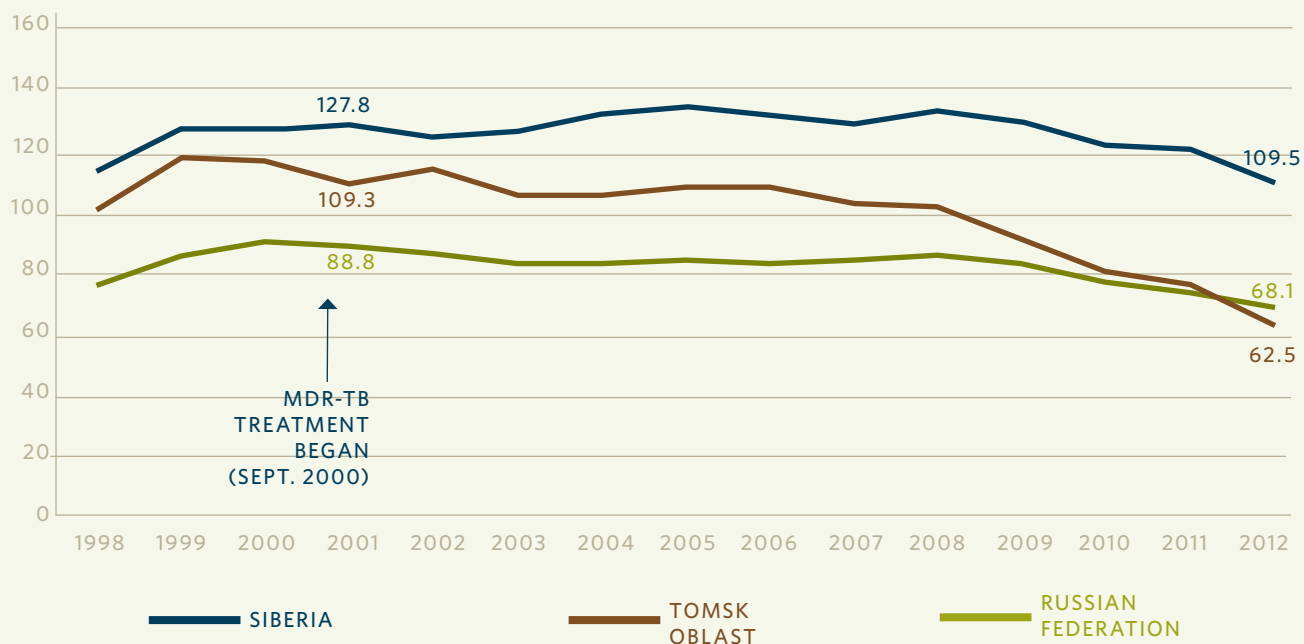
accomplishment for patients who probably would have not finished treatment.

The Sputnik Initiative has been expanded to three districts of Tomsk Oblast and now provides care to vulnerable patients with similar profiles as the patients in Tomsk City. In addition, the experience from Tomsk has been successfully replicated in several neighboring Russian territories (Map 2). In 2010, Novosibirsk Oblast, Altayski Krai, Saratov Oblast, Voronezh Oblast, and the Republic of Mari El implemented Sputnik-inspired PCA programs. PIH and local TB services cumulatively enrolled 295 patients in these five regions and screened 1,372 close contacts of the patients.<sup>17</sup> On average, adherence to treatment increased 18% after patients enrolled in PCA programs. The treatment success rate of all categories of patients enrolled was 77.6% and the default rate was 8%.

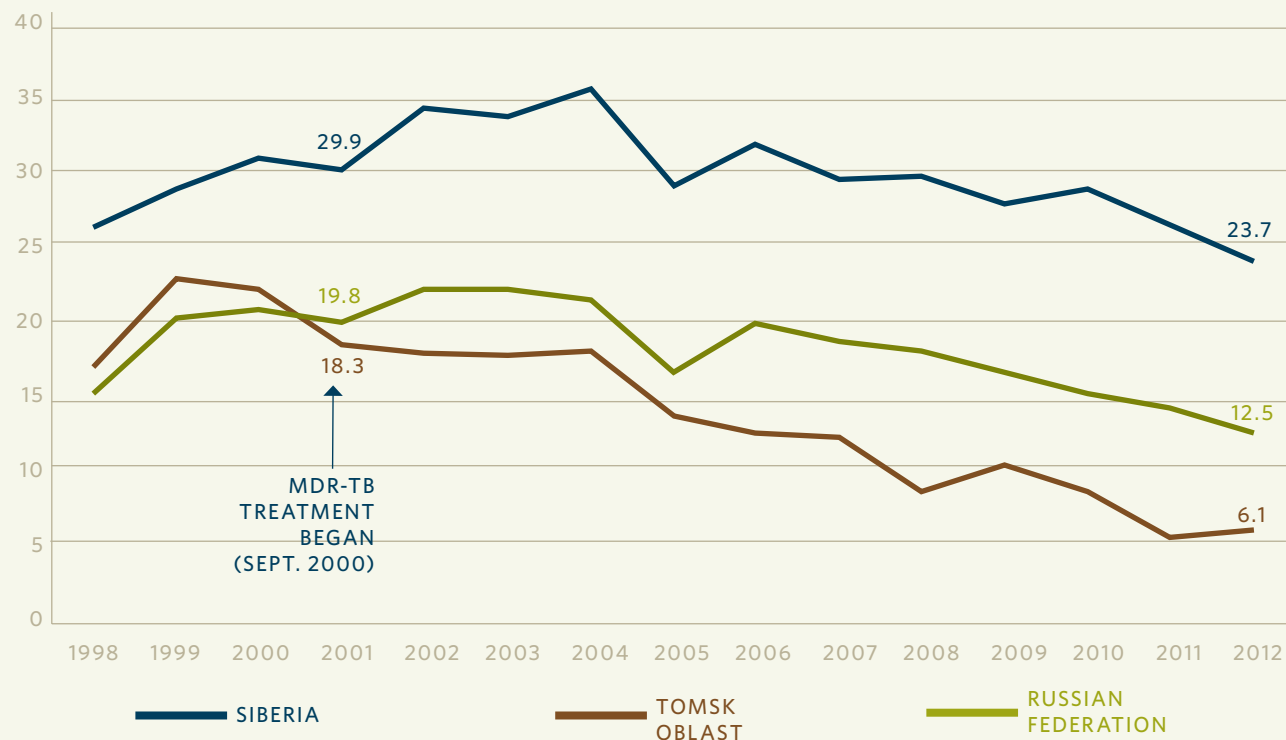
In terms of capacity building, PIH in partnership with Tomsk TB Services have helped train 174 TB managers, doctors, nurses, and drivers from the five regions that implemented PCA programs similar to Sputnik. A total of 21 PCA regional teams have visited Tomsk to learn directly from the Sputnik team for practical training. Now, after establishing the system of PCA in these regions, PIH continues implementing the program in Voronezh Oblast (central Russia) and has expanded the initiative in the Republic of Karelia in the north of Russia.



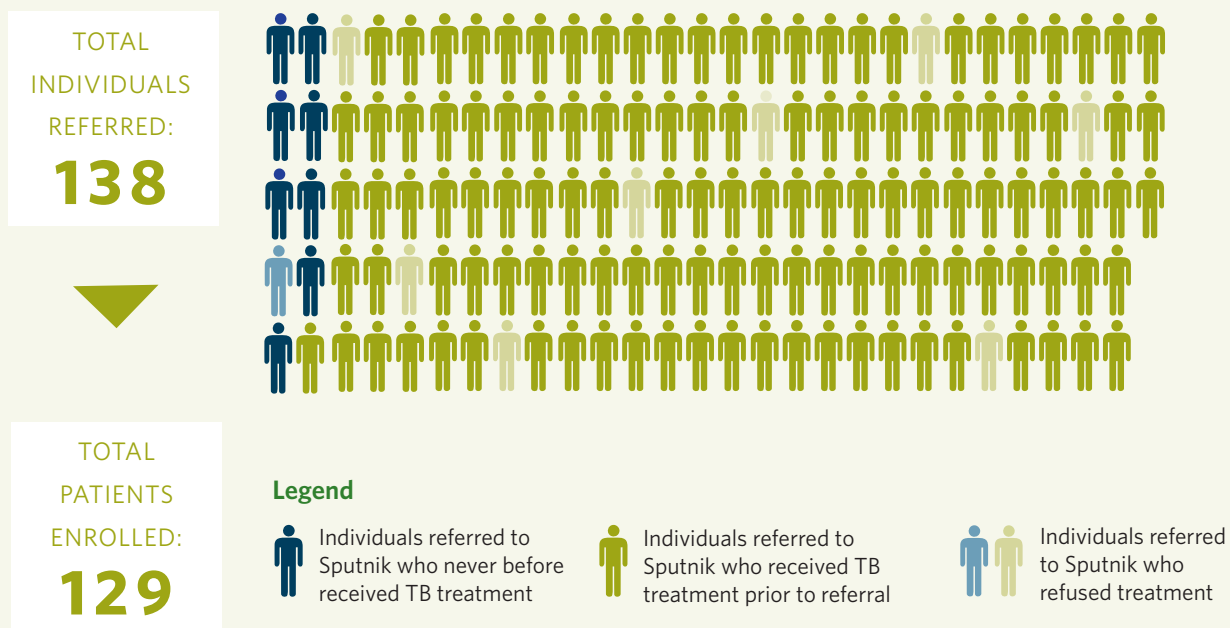
**FIGURE 2. TB INCIDENCE RATE IN SIBERIA, TOMSK OBLAST, AND RUSSIA PER 100,000 (1998-2012)**



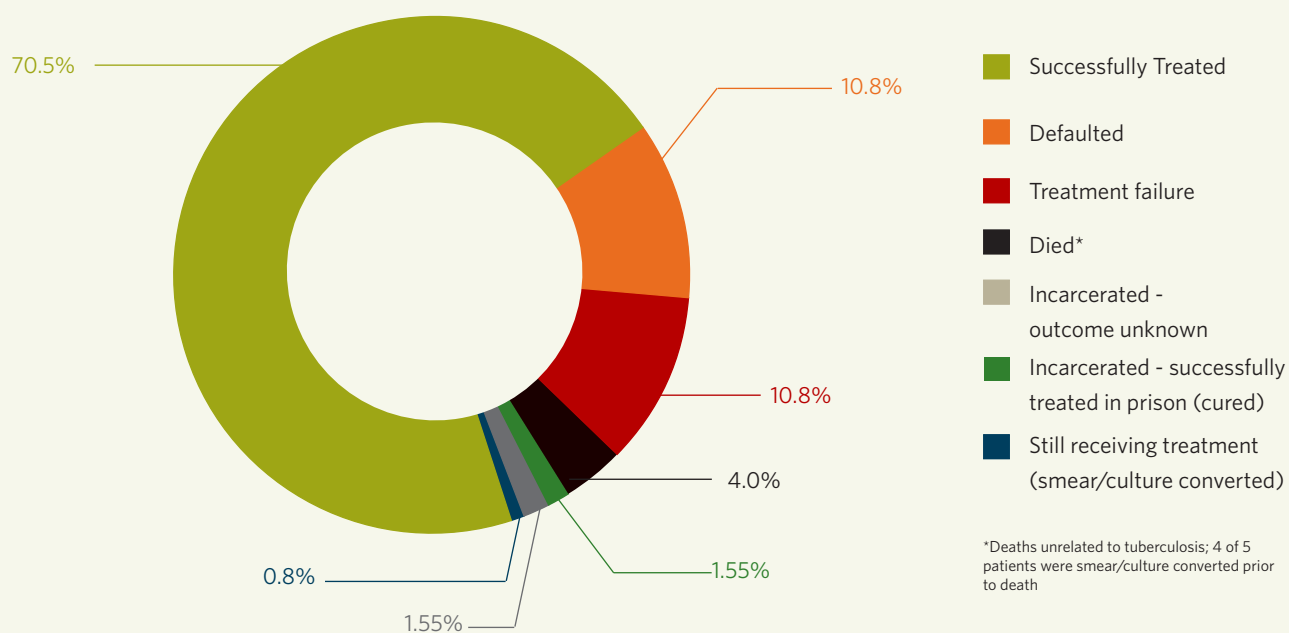
**FIGURE 3. TB MORTALITY RATE IN SIBERIA, TOMSK OBLAST, AND RUSSIA PER 100,000 (1998-2012)**



**FIGURE 4. SPUTNIK PATIENT REFERRALS (DEC 2006 - DEC 2012)**

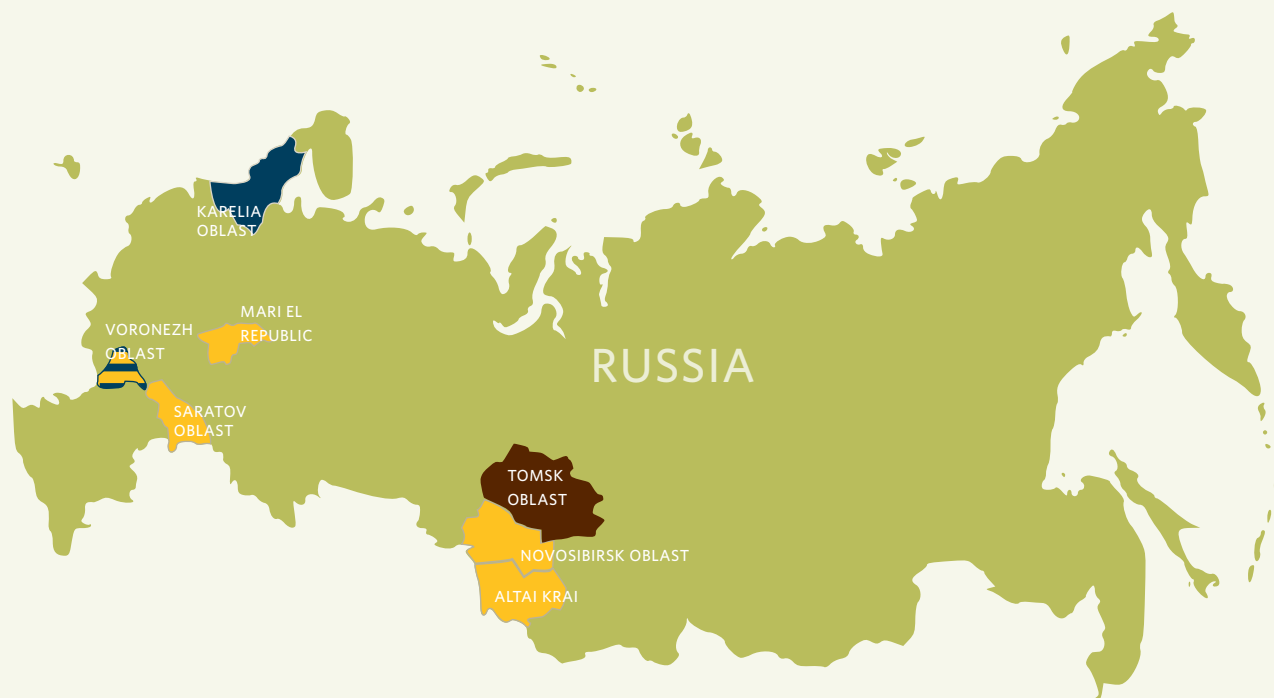


**FIGURE 5. SPUTNIK PATIENT OUTCOMES, N=129 (DEC 2006 - DEC 2012)**





## MAP 2. PCA PROGRAM AREAS



### Legend

- 2006 - present
- 2010 - 2012
- 2013 - present

## SPUTNIK PATIENT STORIES

**SAFILO** lives 2.5 miles from the nearest spot where he can access directly observed therapy (DOT) to treat his MDR-TB. At the start of treatment, he rode his bicycle to get his medication. But the short rides became impossible when winter arrived. He felt well having been on treatment for a few months, so Safilo decided to stop taking his medications rather than brave the weather. After missing a month of appointments at the DOT point, he was referred to Sputnik. The Sputnik team explained the importance of completing the full course of therapy, and Safilo was open to the idea of working together. His treatment has not since been interrupted.



## SPUTNIK PATIENT STORIES



**ALEKSANDER** was referred to Sputnik in April 2013. The team spent about 20 days searching for him as the referral form included two addresses and the patient has a tendency for vagrancy. The Sputnik team connected with Aleksander's family who explained that he'd sometimes leave early in the morning and not return for several days, sleeping in stairwells of other buildings. The Sputnik team persisted, regularly checking all known addresses of the patient and communicating regularly with his family. One day Aleksander's mother called the Sputnik team and informed them that her son had returned home. It was later learned that the daily packages of food, which are delivered to the patient after he takes his full course of medication for the day, were a motivating factor for Aleksander's family to link him with Sputnik. Aleksander has since been on treatment without interruption.

Photos by Elena Devyashina for Partners In Health





# LESSONS LEARNED

## **TREATMENT OF VULNERABLE PATIENTS WITH SOCIAL AND BEHAVIORAL CHALLENGES IS POSSIBLE THROUGH COMPREHENSIVE SOCIAL AND PSYCHOLOGICAL SUPPORT**

Successfully treating patients at high risk of default is exceptionally difficult. It requires strong programmatic commitment and innovative approaches. In many public health circles, people suffering from substance abuse, former prisoners, and the homeless are considered “impossible” to treat for TB and its drug-resistant forms. Sputnik, however, has demonstrated that treatment in this patient population is feasible so long as a well-established referral system is in place and daily, comprehensive accompaniment is provided throughout the entire duration of treatment. Sputnik further demonstrates that by treating these at-risk patients, it is possible to reduce transmission rates, improve treatment outcomes, and lessen the prevalence of drug-resistant strains in particular geographic regions.

The trusting relationship forged between the Sputnik team and patients allows for additional screening efforts among neighbors, friends, and family. Intensive accompaniment should be used in the management of other chronic diseases, such as hepatitis C and HIV. This applies to not only vulnerable patients but for every patient going through the challenging treatment of TB and MDR-TB.

## **COMMUNITY-BASED PATIENT-CENTERED ACCOMPANIMENT IS AN EFFECTIVE ALTERNATIVE TO HOSPITALIZATION, WHICH IS BOTH MORE EXPENSIVE AND ASSOCIATED WITH HIGH RISK OF NOSOCOMIAL INFECTION TRANSMISSION**

Most TB inpatient facilities around the world have substandard infection control measures, which can lead to additional transmission of infection and greater drug resistance. In most of Russia, treatment of MDR-TB patients is performed separately from drug-susceptible TB patients. However, there are those who refuse treatment, posing a risk to patients in the ward and health care personnel. When these patients are discharged, they return to their communities, still infectious. Sputnik has shown that daily, community-based accompaniment for these patients, at a location of the patients’ choosing, is essential to providing adequate treatment and support, which eventually will break the chain of infection.

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**Above:** Nurse Marina Bogdanova makes delivery rounds in Tomsk during the second shift.

Photo by Elena Devyashina for Partners In Health

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