

A Siberian Community Mobilizes to Fight TB

A Russian province bucks the national government, bringing tuberculosis treatment to the treated--and following through until they are cured. The results so far have been encouraging

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BATTLING TB IN THE LAB: Researchers hope that developing new drugs will help turn the tide against the growing tuberculosis epidemic.
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MELNIKOVO, RUSSIA— To properly treat tuberculosis (TB), you must take up to four antibiotics every day for six months under careful supervision. If you are one of the 17 stricken individuals in this small farming community, you can get that care either at the clinic-hospital in the town center or one of the newly opened satellite clinics in outlying neighborhoods.

But none of those were accessible to 85-year-old Lubov Potaskaeva, who lives in a rundown apartment complex for agricultural laborers far from town. The Kyrgyzstani native has no idea how she caught the disease. She only knows that when she was screened for TB as part of her application to enter the area's retirement home—she wanted in because she was always short of breath and could no longer climb the stairs to her second-floor apartment—her test came back positive.

Over the past 10 years, local health authorities in Siberia's Tomsk Oblast (a Poland-size province with about one million people) have built a wide-ranging network for ensuring that people like Potaskaeva get the World Health Organization-recommended treatment

for TB, known as DOTS (for directly observed therapy, short course). If they are among the 15 percent diagnosed with multidrug-resistant, or MDR-TB, they get a two-year long treatment with up to six or eight drugs known as DOTS-Plus.

The key to the program lies in reaching out to people who can't or won't go to a hospital or clinic to be "directly observed." Every day, someone comes to them. In this apartment bloc, at the end of a dirt road that had turned to mud from a summer rain on the day I visited, the task fell to one of Potaskaeva's neighbors, who gets paid to watch her take her drugs and then doles out the special food packages that bolster her strength and immune system.

Potaskaeva, appearing spry and in good health, was nearing the end of the grueling regimen. Pointing to Sergei Ilyin, the young physician overseeing her care who had just brought a carload of inquisitive foreigners to her home, she said, "When he told me I had TB, I said, 'You're a liar.'" Then she reached up and pinched his cheeks with both hands. "I can run now. I must thank you."

The jury is still out on the outreach program's effectiveness. Local officials claim last year the provincial TB rate fell to 102.7 new cases a year with 12.2 deaths for every 100,000 population, down from 114.2 cases and 18.6 deaths in 2002. But that's still at more than twice what it was in 1990, before the crumbling of the Soviet Union unleashed an epidemic of TB. Today, Russia, like the rest of the world, is off track for meeting a goal of halving TB deaths by 2015 that was adopted by the World Health Organization (WHO) in 2006. About 1.7 million people died from the disease worldwide in 2007, compared with 1.5 million in 1990.

"It's still bad," admitted Mikhail I. Perelman, the national health ministry's top TB doctor. A surgeon, he champions Russia's traditional approach toward TB treatment, which involves frequent changes in drug regimes depending on individual patient response and often a quick resort to lung surgery. He has only lately and grudgingly supported the WHO-style programs in Siberia.

"We're talking about marginalized people—alcohol and drug users, poor people," he says. "If we improve the economy, TB will largely disappear. People need good apartments, good food and good working conditions. These are the most important factors for treating TB."

But Western advisers believe the Tomsk model saves lives, and if implemented broadly, could dramatically reduce the spread of the disease, even under current economic conditions. "We have shown how it could be done," says Oksana Ponomarenko, director of the Moscow office of Partners in Health (PIH), a humanitarian nonprofit based in Boston.

The TB outreach program didn't begin in earnest until 2002 when authorities began implementing DOTS-Plus in the region. PIH, run by Paul Farmer and Jim Kim of Harvard Medical School, helped local health officials set up the financial control and

medical record-keeping systems that allowed them to buy lower cost drugs (second-line drugs for MDR-TB can cost \$3,000 to \$4,000 per patient, unlike the \$20 per patient for DOTS medicines) through a multilateral purchasing consortium known as the Green Light Committee.

The province then applied for and received a special grant from the Global Fund to Fight HIV, TB and Malaria. It became one of the few areas in the world to obtain funding without backing from the national government. "The Russian Academy of Sciences and the Ministry of Health did not support our application, but the governor and vice government supported us," says Sergey Mishustin, head TB physician for Tomsk Oblast. "The Global Fund grant gave us money for second-line drugs, for side-effect medicines, for food and hygiene packages and social support."

But interviews with patients helped by the program quickly reveal its thumb-in-the-dike qualities. In Tomsk, the provincial capital, PIH operates a satellite health care delivery program—dubbed Sputnik—in which a driver and trained nurse visit a dozen people every day to watch them take the proper drugs.

And the patients include alcoholics, ex-prisoners, drug addicts—it is a tough crowd living in a tough environment. Many dwell in Soviet-era apartment blocs, whose dank stairwells reeking of urine and airless apartments are reminiscent of the worst of America's public housing projects. They are ideal breeding grounds for airborne transmission of *M. tuberculosis*, which can live up to six hours in a droplet after being spewed into the external environment by an infected person.

That's how 23-year-old Marina Rubina believes she caught the disease. Three years ago, while a college student still living in her parents' cramped apartment, she caught MDR-TB from a neighbor. "He just got out of prison," she says.

Thin, shy, an orange teddy bear propped on her bed's pillow, she has spent the past three years at the region's civilian TB hospital, a 19th-century-style sanitarium deep in the Siberian woods. She couldn't stomach the drugs in the initial regimen, which made her continually nauseous and dizzy. So her doctors changed the regime. Her TB morphed into extremely drug resistant or XDR-TB. She eventually had part of one lung removed, and has a long scar down her back to show for it.

Perhaps if there had been better drugs, less toxic with shorter regimens, her case might have had a shorter, simpler solution. But those drugs don't exist, at least not yet. "Even in the U.S., MDR-TB has a 10 percent mortality rate," says Michael Rich, a physician with PIH advising the Tomsk programs. "There are very few MDR studies that compare regimens in blinded, well-controlled ways. There hasn't been that kind of discipline. It's all been based on expert opinion and intuitive thinking."