Summer Internship With AIHA Little Rock Partners

Learning the Structure of a TB Control Program

By Yelena Khromova

The magnitude of the global tuberculosis (TB) problem is enormous. Although essentially curable, TB kills up to 3 million people annually, more than any other infectious disease. In Eastern Europe and the NIS, TB prevalence is increasing considerably, especially in Russia, where deaths have been escalating since 1990 after almost 40 years of decline. In Siberia alone, incidence rates vary from approximately 43–108 per 100,000 people to as high as 250–300.

Two features of the growing TB epidemic in Russia make it unique in comparison to TB occurence in the US. One is that there is little immigration into the country; the other is that rates of HIV infection in the region are low. To combat the epidemic, international public health officials are working to develop strategies and programs designed to address the specific ways TB prevalence is growing in Russia. One aspect of the control program includes training more public health specialists to implement directly observed therapy.

Photo: Suzanne Grinnan.

Yelena Khromova

The epidemiology and surveillance of TB in the US has an interesting history. TB prevalence decreased in the early 1950s after effective anti-tuberculosis antibiotics were developed. The decline was significant (incidence of TB in 1980 was 10.2 per 100,000) until the mid-1980s when the HIV epidemic began. Since the 1950s, the US had transitioned from a system of sanatoriums where TB patients were isolated from the world and treated with drugs to the current system oriented toward outpatient treatment and transmission prevention.

The purpose of my AIHA-sponsored summer internship was to learn about the structure of a TB control program in the US, including modern diagnostic techniques used in the surveillance of TB transmission and various drug regimens used in its treatment. I sought this knowledge because I would like to help develop successful TB control programs in the NIS.

The site of my internship was the TB Program at the Arkansas Department of Health (ADH), which collaborates with the Mycobacteriology Research Laboratory at the Little Rock Veteran's Affairs Medical Center (LRVAMC). ADH and The University of Arkansas for Medical Sciences (UAMS) have been involved in a 5-year partnership focusing on TB with the Volgograd Medical Academy in Russia. AIHA supports this partnership and the training of physicians and laboratory technicians working in the TB field. The purpose of the collaboration between the two model schools is to improve TB surveillance, diagnosis, and treatment in areas of Russia where the TB epidemic is growing.

As a medical doctor, I wanted to learn about US pulmonary and TB clinic structures and how they work, as well as about modern diagnostic techniques. Once a week, I attended clinical conferences held at the Baptist Medical Center on chest disorders, where the cases of patients with pulmonary diseases or TB difficult to diagnose were presented. Additionally, overviews of current internal medicine issues, *i.e.*, cardiology, urology, etc., were presented during the grand medical rounds at UAMS Hospital. By attending these clinics I learned much about pulmonary disease.

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As a public health student interested in the epidemiology of TB, I wanted to become familiar with the setup of a TB program, including the surveillance techniques used for TB control and program management. I began by working with the TB registry, familiarizing myself with the forms used to register and report culture-positive TB cases to the Centers for Disease Control and Prevention (CDC). I also worked with the TB Information Management System, the database designed to report all new TB cases diagnosed in the state to CDC, as well as with separate databases for nursing homes and prisons that contain data on all the TB patients in those institutions.

LRVAMC was the first research laboratory to report the technique for DNA fingerprinting (DNA FP) of *Mycobacterium tuberculosis* (MTB), the germ that

causes TB, using IS6110. IS6110 is an insertion element in the chromosome of MTB that is usually present in multiple copies throughout the MTB genome. The variability of the insertion sites, together with the varying copy number, is the basis for the DNA fingerprinting method. The application of DNA FP, based on the insertion element IS6110, is a powerful tool for differentiating among MTB strains. Working with the research team at the DNA Fingerprinting Laboratory gave me the opportunity to learn how to use this technique in studying the epidemiology of TB in the community. My knowledge was further increased by my attending the 1999 Annual National TB Genotyping and Surveillance Meeting in San Francisco. AIHA sponsored my attendance at this conference.

IS6110 DNA FP is useful for directing and confirming the results of outbreak investigations and for identifying cases of exogenous re-infection. The combination of DNA FP and conventional epidemiologic investigation has aided our understanding of how TB is transmitted in large populations.

I am using the results of these techniques to study the molecular epidemiology of TB in a research project that compares the mean geographical driving distances between the homes of TB patients: non-clustered patients compared to clustered patients without epidemiological links. If the mean geographical distance (MGD) for clustered TB patients is less than the MGD between patients with unique DNA fingerprints, this might mean that TB patients in clusters who have no known epidemiologic links are related in some way that was not discovered during epidemiological interviews. This will serve as a project for my master's thesis.

NIS countries need to develop effective TB control and prevention programs like those found in the US, and I hope to be part of this process. I believe that as the response of WHO to multi-drug resistant TB takes hold through the implementation of the directly observed therapy short (DOTS) course, DNA FP could be used to control the transmission of TB in the NIS.

Yelena Khromova, MD, is an Edmund S. Muskie Fellow in Public Health (1998–2000) from Gomel, Belarus at the Rollins School of Public Health, Emory University, Atlanta, Georgia. Her summer internship was arranged by AIHA.

Partnership in Banska Bystrica

Bringing the Hospice Concept to Slovakia

By Elizabeth Ford Pitorak

What is more difficult than effecting change? To be successful in a culture with which one is familiar is an accomplishment in itself; to assist in the process in another culture becomes extremely challenging.

As a participant in an AIHA long-term care and hospice partnership that joins Banska Bystrica, Slovakia and Cleveland, Ohio, I have been to Slovakia three times and had multiple partners from Slovakia visit Hospice of the Western Reserve (HWR) where I work. Having my Slovakian partners visit our program gives me an opportunity to teach the hospice philosophy and have them observe and visit various models of hospice-level care

As with all positive experiences, there is always the possibility of less than positive outcomes. Certainly that is true of having participants visit HWR, the eighth largest hospice (out of 3,500) in the US. With four satellite offices and a 42-bed residential facility attached to its headquarters, HWR serves 425 patients and their families daily. Seeing all of this, it is often difficult for visitors to appreciate that 20 years ago we too started with very few resources, and that even today our program is not typical of most US hospices, where the average daily census is 25–35 patients with no residential facility.

Elizabeth Ford Pitorak

Photo courtesy of Elizabeth Pitorak.

The hospice philosophy is a concept of care based on the belief that terminally ill patients have the right to spend their last days with dignity and quality, at home or in a home-like setting, surrounded by loved ones. At the center of this philosophy is respect for the decisions of each patient and caregiver. The hospice model combines a comprehensive array of medical and social services to help patients and their families cope with the physical, emotional, psychosocial, and spiritual issues often associated with dying. Volunteers play an important role in the process.

When our Slovakian partners visit, the 42-bed facility is part of each tour. While HWR is a wonderful place to teach the hospice philosophy, it tends to create confusion about the hospice concept, particularly in terms of it being a philosophy about delivering care versus a place or institution. Keeping this in mind, and working with our Slovakian partner, Diocesan Charity Banska Bystrica, under the direction of Dr. Michael Mikula, we planned our August trip to Banska Bystrica using an entirely different approach.

Given that the purpose of the visit was to gain public awareness of the hospice movement and recruit possible volunteers, we decided to arrange several town hall meetings where the concepts of hospice and volunteerism would be explained. Posted notices and radio announcements encouraging all members of the community to attend advertised the events.

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While neither my Slovakian partners nor I knew if town hall meetings would work in their culture, they were successful beyond our imagination. Three meetings were held, the first in Martin (population 60,000) where 40 people attended. The second in Banska Bystrica (population 80–90,000) was attended by 50 people, and the third in Partizanske (population 35–40,000) drew 20. At each meeting there was good dialogue and much enthusiasm from the audience; all attendees signed in and these people will be contacted in the future to volunteer in some way.

In addition to the town meetings, we attended a national conference, "Hospice and Palliative Care in the US—Management of Hospice Centers in Slovakia," and an informal talk on hospice philosophy and pain management.

At the conference, I gave a presentation on the history of hospice and palliative care in the USA, as well as discussed my personal story of starting HWR 20 years ago. From this, the 80-member audience learned that even in the US there was no healthcare insurance reimbursement for hospice-level care until 1984. Throughout the day, attendees from the Czech and Slovak Republics shared information about different grassroots programs they are starting and discussed banding these groups together into an organization that can lobby their governments for reimbursement of hospice-level care.

The informal talk took place between ourselves and a small group of physicians and nurses from Roosevelt Hospital in Banska Bystrica. Very quickly one young physician saw how a team could be formed at the hospital to consult and participate in the care of the terminally ill, using the hospice philosophy.

As my colleague Joanne Sheldon and I left Banska Bystrica, we felt that some very good groundwork had been laid. One always wishes more could be done at one time, but it is a process, and the necessary first steps were accomplished. There is a plan in place. Much to my delight, I learned that there are organizations in Banska Bystrica that can assist in getting grant money for hospice programs and that there are more people interested in joining the hospice movement. I am very confident that some form of hospice will be in place within the year in Banska Bystrica.

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