Tuberculosis in North Korea

TENSIONS ON THE KOREAN PENINSULA ARE HIGH. HOW SOUTH KOREA, THE UNITED STATES, and other countries, including China, engage North Korea remains a sensitive issue, as policies tying aid to denuclearization are debated. This month, the United States, South Korea, Japan, and China have been discussing the situation, including a meeting between Chinese President Hu Jintao and U.S. President Obama in Washington. These conversations, focused on conventional security concerns, would benefit from the articulation of mutual humanitarian goals.

Although North Korea’s nuclear ambitions are the focus of international security concerns, the global community has also recognized that this nation of 24 million people is plagued by crippling food, medical, and energy shortages. Aid from the United Nations and nonprofit groups has largely aimed at reducing malnutrition and communicable disease in a near-starving population. Since the famines of the 1990s, rates of tuberculosis (TB), a disease that exploits malnutrition and other immunocompromising conditions, have risen dramatically. Based on World Health Organization (WHO) estimates for 2009, the country’s TB incidence rate of 345 cases per 100,000 people is among the highest in the world outside of sub-Saharan Africa, being more than three times the TB rates for South Korea and China.*

For the past 2 years, the Stanford School of Medicine, the Bay Area TB Consortium, and Christian Friends of Korea (CFK) have worked with the North Korean Ministry of Public Health to develop the country’s first modern TB laboratory. With funding from the Global Health and Security Initiative (administered by the Nuclear Threat Initiative, an international nonprofit organization), equipment was selected based on a standard WHO inventory and then approved for export by the U.S. Department of Commerce. Since the spring of 2009, Stanford-CFK teams have completed seven visits to the site to install the lab and conduct training workshops with North Korean physicians. These efforts were supported by the Ministry of Public Health and other government officials. The new facility enables public health officials to carry out drug susceptibility testing for the first time. Presently, the extent of drug resistance in North Korea is unknown but is believed by WHO experts to be substantial,† based in part on reported retreatment rates, a well-known proxy for drug resistance risk.

The successful collaboration of a major U.S. medical institution, a U.S. nongovernmental organization (CFK), WHO, and North Korean public health officials stands in sharp contrast to the downturn in North Korea’s diplomatic relations with the West, now at their lowest level in 20 years. Why should we care about controlling an infectious disease in North Korea? TB is a lethal disease: Untreated TB kills 50% of its victims, and each case produces 10 to 20 additional cases. In the pre-drug era, TB epidemics could rage for centuries. In the antibiotic era, conditions that foster economic isolation and disrupt drug supplies can ignite “hot zones” of drug-resistant disease. Thus, for example, drug-resistant strains may have emerged during the period of economic destabilization that accompanied the collapse of the Soviet bloc in the 1980s.‡ In parts of western Russia today, as many as 25% of TB patients harbor multiple drug–resistant TB (MDR-TB) strains. Since the end of the Cold War in Europe, drug-resistant strains emanating from this epicenter have been tracked into Western Europe, the Middle East, and South Africa.

The modern MDR-TB epidemic reminds us that the loss of TB control leaves costly legacies, for which the world community is ultimately responsible. As discussions continue about how to deal with North Korea, it is important to remember that decisions made in a narrow security arena can have far-reaching global health consequences. Efforts such as the TB laboratory project are evidence that engagements based on mutual health interests are not only possible, but also crucial to sustain.

— Sharon Perry, Heidi Linton, and Gary Schoolnik

‡O. S. Toutousova et al., Tuberculosis 86, 1 (2006).
Editor's Summary

This copy is for your personal, non-commercial use only.

**Article Tools**
Visit the online version of this article to access the personalization and article tools:
http://science.sciencemag.org/content/331/6015/263

**Permissions**
Obtain information about reproducing this article:
http://www.sciencemag.org/about/permissions.dtl