Beyond Borders: The Emerging Threat of Infectious Diseases

By Barbara Ruben

Diphtheria began its deadly sweep through the NIS in 1990, infecting thousands of residents of Moscow and St. Petersburg first and then moving through Belarus and Ukraine and into Central Asia. More than 90 percent of the diphtheria cases worldwide between 1990 and 1995 were reported in the NIS, and over 4,000 people have died in the region since the epidemic began.

With only a few hundred cases a year throughout the NIS in the late 1980s, the disease began its resurgence as borders opened and health systems faltered with the fall of Communism. By the time the disease peaked in 1995, with more than 50,000 new cases across the NIS that year alone, international health experts had launched a campaign to immunize residents against the bacterial disease, which can lead to breathing problems, heart failure and paralysis.

USAID, with the assistance of the US Centers for Disease Control, provided 32 million doses of diphtheria vaccine in Ukraine and helped improve surveillance and education about the disease in Russia.

Although new cases of diphtheria have dropped significantly in 1996 and 1997, the outbreak may foreshadow those of other infectious diseases that are gaining ground in both the NIS and CEE:

--According to the World Health Organization (WHO), Latvia's syphilis rate rose from 3 per 100,000 residents to nearly 70 between 1990 and 1995. Over the decade between 1986 and 1996, the Russian Federation's syphilis rate jumped from fewer than 10 to 217 per 100,000.

--During HIV's first decade, the number of cases in Western Europe and the US far surpassed those in the NIS and CEE, but the region is beginning to experience what may be a tidal wave of cases as exposure from shared needles and unprotected sexual activity rises. For example, in Ukraine there were 38 reported cases of AIDS in 1995; by the end of March this year, there were 262 cases reported. A similar rise occurred in Hungary over the same time period, from 32 to 252 patients with AIDS.

--Hepatitis A rates were 190 per 100,000 in Bosnia and 444 in Kyrgyzstan in 1995, while there were fewer than 5 cases per 100,000 in the European Union.

--The tuberculosis rate in Georgia leapt 10-fold between 1991 and 1994, giving the nation by far the highest rate in Europe.

"Few public health concerns today carry the sense of urgency and importance as that of emerging and re-emerging diseases," David Heymann, director of WHO's Division of Surveillance and Control of Emerging and Other Communicable Diseases, said in a statement in June. "Few have such massive implications on both the global and the local level. Only two decades ago, there was widespread optimism that infectious diseases would soon be eliminated. But today, it is clear that we are seeing a dramatic increase in new microbial threats."

And as new diseases, such as AIDS and Ebola, surface and older ones, like tuberculosis, can no longer be vanquished with the antibiotics that once killed them, infectious diseases have gained new prominence in many arenas. For example, WHO created Heymann's division just two years ago and focused this year's World Health Day on emerging infectious diseases. In

May, the US Congress held one of only two hearings over the last decade on global infectious diseases. And the G8 summit of industrialized countries--which was held in June and included Russia for the first time--called for increased resources to fight communicable diseases.

"Together we've begun to tackle another very dangerous threat we'll all face together in the years ahead: infectious diseases that can span the planet in the space of an airline flight," US President Bill Clinton said at the conclusion of the summit.

The key to winning the war against microbes is cooperation and coordination among nations, said James LeDuc, MD, associate director for global health in the National Center for Infectious Diseases, a division of the US Centers for Disease Control (CDC).

For example, the Gore-Chernomyrdin Commission-- the joint project between the US and Russia headed by the vice president and prime minister--has collaborated on efforts to lower the diphtheria rate, to develop ways to help cut hospital-acquired infections and to reduce hepatitis. CDC has been the primary US government link in the effort, LeDuc said.

LeDuc said that CDC, WHO and many NIS and CEE projects run by government or private, voluntary organizations have the same goals: improving surveillance, rebuilding public health infrastructure and laboratories and improving prevention and control strategies for diseases.

"The idea is that there's a global effort all on the same track," he said. "In the former Soviet Union, and also in areas of Central and Eastern Europe, we need to concentrate on making it through this transition period by ensuring vaccine delivery and basic sanitation. When you're seeing cholera, as you are in parts of Central Asia, you're seeing a reflection of the deterioration of infrastructure, and that's what also has to be addressed. The rule of thumb is that it is virtually always cheaper to prevent disease than to cure it."

Partners are also addressing the rise in communicable disease. Says Hripsime Nazarian, MD, head epidemiologist at Emergency Hospital in Yerevan, Armenia, "More should be done to protect the population against the threat of infectious diseases. We also need to increase the level of awareness among our health care personnel about the dangers of infectious diseases, how they are spread and precautions to take."

Between March 1996 and March 1997, the incidence of many communicable diseases rose alarmingly in Armenia: The country recorded 33 cases of salmonella in March 1997, compared with 18 the previous March. There were 89 cases of measles this March and 27 the year before. Hepatitis A increased more than 70 percent between 1996 and 1997.

Nazarian attributed part of this rapid increase in disease to a sometimes warranted fear of contaminated needles and vaccines.

"Many local newspapers printed stories about children acquiring negative reactions to the vaccines...and that prompted many parents--even some physicians--to resist immunizing their children," she said. And the results "presented themselves in 1996, when we saw a rise in diphtheria, tuberculosis, hepatitis B and other infectious diseases."

In response, partners focused on promoting vaccines to patients as a vital element of public health and by immunizing health care personnel against hepatitis B to curb its spread.

Elsewhere, partners in Latvia are studying ways to combat drug-resistant salmonella, and partners from Boulder, Colorado and Tajikistan worked together last summer to stem a deadly epidemic of typhoid in the capital city of Dushanbe.

AIHA's Fifth Annual NIS Partnership conference in Atlanta in October, sponsored jointly with the US Department of Health and Human Services, will examine some of the issues surrounding the growing threat of infectious disease. This special section of CommonHealth explores a number of facets of the problem, from antimicrobial drug resistance to microbiology to the dangers posed to health care workers confronted by hepatitis B, tuberculosis, HIV and a host of other hazards.