Environmental Case Study

The Cough Heard Round the World

Early in 2003, news began to trickle out of China that a very infectious “atypical pneumonia” was spreading rapidly in hospitals around Guangzhou (formerly known as Canton) in Guangdong Province. Symptoms included fever, chills, headaches, muscle pains, and a dry cough, but in many patients, especially the elderly, the disease would quickly turn into a deadly pneumonia. In February of 2003, a doctor from Guangzhou, who had contracted this disease from his patients, traveled to Hong Kong. There he passed the infection to other travelers, who carried what is now known as Severe Acute Respiratory Syndrome (SARS) to Beijing, Canada, Taiwan, Singapore, and Vietnam.

Within six months, SARS spread to 31 countries around the world, where more than 8,500 probable cases and 812 deaths were reported. Fear of SARS traveled even faster and farther than the disease itself. Rumors multiplied across the Internet as conferences and sporting events were canceled, factories closed, and tourism to China fell by as much as 85 percent after the epidemic was revealed. The economic impact of SARS is estimated to be at least $30 billion (U.S.) in 2003 alone. By July 2003, the World Health Organization (WHO) declared the outbreak contained, but suggested that the world remain vigilant for further infections.

The rapid transmission of this disease shows how interconnected we all are. A virus can travel in just a few days anywhere a plane flies. One flight attendant is thought to have been the source of infection for 160 people in seven countries. SARS also points to the need for better communication and identification of new diseases. Because the Chinese government hid the extent and severity of the disease for several months, patients with this highly infectious disease mingled with the general hospital population, spreading the illness. Medical professionals, not knowing how serious the infection was, treated patients without wearing protective clothing. Major hospitals in Beijing, Taipei, Hong Kong, and Singapore were closed because so many staff members were sick, making treatment of the contagion even more difficult.

While globalization helped spread SARS, it also helped in rapid recognition and treatment of the disease. It took centuries to discover the cause of cholera. Identifying the virus that causes AIDS took two years. But within weeks after the WHO issued its first warning about SARS, an electron microscopist at the Centers for Disease Control in Atlanta found a new coronavirus in cell cultures infected with tissue from SARS patients. Less than a month later, labs from Vancouver to Singapore were sequencing its RNA. In May 2003, Scientists at Hong Kong University announced they had found coronavirus nearly identical to those from SARS patients in civets, badgers, and raccoon dogs being sold in Guangdong meat markets.

Wild species had been suspected as a source of the SARS virus since some of the first infections occurred among chefs and animal merchants. Exotic animals are regarded as delicacies in southern China, where they are featured at banquets and dinners at expensive restaurants. In April of 2003, Chinese police raided animal markets and hotels and restaurants, seizing 838,500 animals including many rare and endangered species. The emergence of SARS may reduce animal smuggling, but the existence of a reservoir of this virus in the wild may mean that it will be impossible to completely eradicate the disease.

SARS deaths, so far, are relatively insignificant compared to the 3 million people who die from AIDS or the 1 million who die from malaria every year, but we tend to fear new risks with unknown causes, while ignoring more routine but perhaps more dangerous risks that we believe we can control. Still, the emergence of SARS reminds us how susceptible we remain to infectious diseases in an interconnected world. Dr. Jong-wook Lee, the newly elected head of the WHO said, “SARS is the first new disease of the twenty-first century, but it will not be the last.” The U.S. Institute of Medicine warns...
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that gaps in our defenses against biological assault from both terrorists and natural sources makes us vulnerable to other deadly epidemics.