New Infectious Diseases / new diseases books

In 1978 the United Nations adopted a resolution that set goals for eradicating infectious disease by the year 2000. This lofty goal proved impossible to achieve. The years since the resolution was adopted have seen the emergence of new killers and a rise in the incidence of such ancient scourges as malaria, yellow fever, and tuberculosis.

Among the diseases new to science are AIDS, Ebola hemorrhagic fever, Legionnaires'™ disease, and Lyme disease. AIDS has been the most deadly of all the new diseases, but even it has not taken as high a toll as malaria, tuberculosis, and other diseases that have been around for centuries. Some newly identified disease-causing agents for diseases that have been recognized for a long time include Human T-lymphotropic virus I (HTLV-1), which can cause some cases of non-Hodgkin's lymphoma, a type of cancer originating in the lymphatic system; and HTLV-2, which is associated with hairy-cell leukemia, a rare type of cancer of the blood.

In most cases, the reasons for the emergence of a new disease are unknown. One exception is Legionnairesâ€™ disease. It is caused by a bacterium that was not identified until after an outbreak in 1976 at an American Legion convention in Philadelphia, Pennsylvania. Once identified, however, scientists were able to retrospectively identify earlier epidemics of the disease, and realized that each year the bacterium is responsible for thousands of cases of pneumonia.

Environmental changes may be responsible for some new diseases. Scientists speculate that the viruses for some of the deadly hemorrhagic fevers that have surfaced in Africa, such as Ebola and Marburg disease, have long existed in certain wild animals. As people have encroached on wilderness areas they have come into contact with the infected animals, and the viruses have jumped from their traditional animal host to a new human host, with deadly consequences.

In addition to new diseases, well-known pathogens may change, or mutate, creating new, virulent strains. Influenza viruses are among those that mutate frequently, which explains why flu shots-vaccines that use modified or killed versions of the influenza agent to stimulate a protective immune response in the body-are given annually, and why epidemics of influenza periodically occur. The strains of flu virus that were most prevalent one year differ from those that bedevil humans the next year. Vaccines that protected against last year's flu virus may need to be altered to be effective against today's most common strains.

A similar problem occurs when mutations in infectious agents result in resistance to medicines that had been effective treatments. The bacteria that cause bronchitis,

meningitis, tuberculosis, and pneumonia are among many that have developed strains that are resistant to at least some antibiotics. As a result, doctors have fewer options for treating the diseases and preventing their spread.