

**CHAPTER 8  
EMERGING AND RE-EMERGING  
INFECTIONS**

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**EMERGING INFECTIOUS  
DISEASES**

- ◆ Emerging infectious diseases are those whose incidence in humans has increased in the past 30 years or threatens to increase in the near future
- ◆ The environment can contribute to emergence of disease when humans come into contact with previously unknown pathogens

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**EMERGING INFECTIOUS  
DISEASES**

- ◆ Emerging and re-emerging diseases will provide new and challenging problems for health care professionals
- ◆ Genetic mutation, re-assortment, and recombination can give rise to more dangerous pathogens

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### EMERGING INFECTIOUS DISEASES

- ◆ Pathogens that can affect humans must first be able to adapt to humans and then be easily transmitted from one human to another
- ◆ Most emerging infectious diseases are caused by viruses
- ◆ SARS, West Nile virus, and viral hemorrhagic fevers are examples of emerging infectious diseases

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### RE-EMERGING INFECTIOUS DISEASES

- ◆ Some infectious diseases are re-emerging. They were previously thought to be controlled but now have returned

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### TUBERCULOSIS

- ◆ Tuberculosis is one of these re-emerging infectious diseases because of several contributing factors such as HIV infection, poverty, and failure to follow recommended treatment protocols
- ◆ Tuberculosis is becoming more resistant to antibiotic therapy

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## INFLUENZA

- ◆ Influenza is another good example of a re-emerging infectious disease because of the variety of strains that continue to cause infection
- ◆ Influenza virus contains gene constellations that help to determine its virulence

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## AVIAN INFLUENZA

- ◆ Avian influenza (bird flu) has the potential to become a dangerous problem
- ◆ The virus can jump from birds to humans but has as yet not become transmissible from human to human
- ◆ If this infection becomes epidemic it could cripple the health care system

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## PRION DISEASES

- ◆ Prions are proteins that are not folded correctly and cause transmissible spongiform encephalopathy (TSE) in humans and other animals
- ◆ Kuru was one of the first human prion diseases described in detail
- ◆ TSE comes in five forms in humans, but all have the same general characteristics: long incubation periods, spongiform defects in brain tissue, and plaque deposits in the brain

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## BIOTERRORISM

- ◆ The use of bioweapons can lead to the emergence or re-emergence of an infectious disease
- ◆ Global collaboration, disease monitoring and control, and preparedness plans help us in managing the risks

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