CHAPTER 13
VIRAL INFECTION

PATTERNS OF VIRAL INFECTION

- Viral infections can be acute or persistent
- Viruses differ in their incubation periods
- Most acute viral infections result in lifelong immunity

PATTERNS OF VIRAL INFECTION

- The process by which virions change structure is called antigenic variation
- Persistent infections last for long periods and can be chronic, latent, or slow

DISSEMINATION AND TRANSMISSION OF VIRAL INFECTION

- Viruses are disseminated between tissues, organs, and organ systems within a host
- Viruses are transmitted between hosts
- Portals of entry, including the respiratory, gastrointestinal, urogenital tracts, and the eyes and skin, allow viruses access into the host's body

DISSEMINATION AND TRANSMISSION OF VIRAL INFECTION

- For an infection to be established, there must be adequate numbers of virions, permissive host cells, and an ineffective host defense response
- Dissemination occurs through the blood stream, nervous system, and internal organs
- Viral transmission occurs via respiratory tracts, epidermis, bodily fluids, fecal-oral route, and fetal infection

VIRULENCE

- Virulence refers to the capacity of a virus to cause disease
- Virulence varies from one virus to another and can be affected by the route of infection, by the age and health of the host, and in some cases by the sex of the host
- Susceptible hosts can be infected and transmit the disease, but immune hosts cannot be infected

VACCINES

- Vaccines have been very effective in limiting viral diseases
- Vaccines can be composed of live attenuated virus, inactivated virus, or subunits of the virion (parts of the virion that can elicit an immune response)

VACCINES

- There are strict requirements for vaccines, including minimal side effects coupled with maximum protection from infection
- Viral vaccine development and production relies upon embryonated chicken eggs; primary, semi-continuous, or continuous cell lines; adult or embryonic stem cells; or recombinant DNA technology

ONCOGENIC VIRUSES

- Oncogenic viruses (oncovirusues) can induce cancer in humans