Myocarditis, inflammation of the myocardium (heart muscle), is usually due to infection with a virus of the *coxsackievirus* group.
- The virus may spread to the heart from the gastrointestinal tract or respiratory tract via cardiovascular or lymphatic vessels.
- *Myocarditis of the newborn* is often fatal.

Worldwide, infection with *Epstein-Barr (EB) virus*, one of the herpesviruses, is extremely common.
- In less developed regions, 90% of children over four years of age have antibodies to EB virus, indicating prior infection; childhood EB infections are usually asymptomatic.
- If infection is delayed until young adulthood (as is often the case in the United States), *infectious mononucleosis* results:
  - General weakness, swollen lymph nodes, and an enlarged spleen are the characteristic symptoms of "mono".
  - Acquisition of the virus is usually from saliva; the virus multiplies in the parotid glands.
  - The name "mononucleosis" (and some of the symptoms) comes from the tendency of EB virus to transform B cells, leading to proliferation of unusual plasma cells, which can be detected in blood samples.
- EB virus has been proposed as a candidate for the etiologic agent of *chronic fatigue syndrome*, as persons suffering from the syndrome often exhibit higher than normal levels of antibodies specific for EB virus.
- EB virus infection has been linked to increased risk for *Burkitt's lymphoma* and *nasopharyngeal cancer*, indicating that the virus is potentially oncogenic.

*Yellow fever* is an arthropod-borne viral infection transmitted by the mosquito *Aedes aegypti*.
- Yellow fever was the first viral infection for which arthropod vector transmission was demonstrated.
- The yellow fever virus multiplies in lymphoid tissues and can advance to the liver, kidneys and heart; in severe cases, hemorrhaging from affected organs can occur.
- Control of yellow fever usually involves control of the mosquito vector, although an effective vaccine is available.
- *Dengue* is caused by a related virus, and is relatively common in human populations of the Carribean basin.
  - Concern has arisen over the presence of an effective mosquito vector in the Gulf region of the United States.
  - Dengue is usually a relatively mild (albeit painful) infection, although hemorrhage and shock can occur.
- In contrast to yellow fever and dengue, *viral hemorrhagic fevers* are viral infections transmitted by direct contact; these seem to be unusually severe infections.

*Toxoplasmosis* and *malaria* are infectious diseases caused by *sporozoan* protozoans.
- *Toxoplasma gondii*, the agent of toxoplasmosis, appears to require cats for completion of its life cycle (Tortora et al., Figure 23.21).
  - Oocysts shed in cats' feces can then be ingested by other animals, including humans.
  - *T. gondii* infection of adult humans is usually a rather mild illness, and the primary danger is congenital infection of a fetus.
    - If *T. gondii* is transmitted across the placenta, it can cause extensive tissue destruction in the fetus, including brain damage.
    - For this reason, pregnant women are cautioned to avoid unnecessary contact with cats; let the old man clean the litter box.
= Inadequately cooked meats can also be a source of *T. gondii* oocytes, as well as other parasites
= Infection of the central nervous system by *T. gondii* is one of the threats to survival of persons with HIV disease
- Malaria results from vector-transmitted infection with protozoans of the genus *Plasmodium*
  = *Plasmodium* species undergo a complex life cycle that involves sexual reproduction in mosquitoes and asexual reproduction in mammals (see Tortora et al., Figure 12.22)
  = The episodic nature of malaria, with recurrent intensifications of symptoms, results from simultaneous lysis of infected erythrocytes
  = Malaria can be treated with quinine derivatives, but resistant strains of *Plasmodium* continue to arise

*Trypanosome* protozoans cause persistent infections of varying severity
- *Trypanosoma cruzi* (Tortora Fig 23.22) is the agent of *Chagas’ Disease*, “American trypanosomiasis”
  = Chagas’ disease is widespread in Latin America
  = The protozoan is maintained in animal populations and transmitted by *reduviid bugs*
  = Chronic infection leads to damage to heart, liver and gastrointestinal tract
- *Trypanosoma brucei* and *T. Gambiense* are agents of *African Trypanosomiasis*, “sleeping sickness”
  = These trypanosomes are transmitted by *tsetse flies*
  = The name “sleeping sickness” comes from common CNS involvement
- *Leishmania* species cause a range of infections called *leishmaniasis*, transmitted by *sandflies*
  = *Visceral leishmaniasis* can lead to chronic organ damage and death
  = *Cutaneous leishmaniasis* leads to localized destruction of tissue around the site of the sandfly bite (Tortora Fig 23.26)
  = *Mucocutaneous leishmaniasis* leads to destruction of mucous membranes, leading to disfiguring destruction of the nose, mouth and throat

*Schistosomiasis* is a chronic infection with flukes (Tortora Fig 23.27)
- *Schistosoma* has a complex life cycle, involving reproduction in snails as an intermediate host
- Chronic infection can lead to damage to multiple organs
- Overall impact is extensive, involving perhaps 250 million people