Plagues in Man
AIDS - A new pandemic

AIDS

I. The virus(es)
   A. Classification - Retroviridae (lentviruses)
   B. Structure
      1. Genome is two copies of plus-strand RNA (mRNA-like)
      2. Wedge-shaped core (gag proteins and RTase/Integrase)
      3. Enveloped with two glycoproteins gp120 and gp41
      4. Replication: Infection $\rightarrow$ RT $\rightarrow$ dsDNA $\rightarrow$ integration $\rightarrow$ transcription
   C. HIV-1 and HIV-2 (and the simian immunodeficiency viruses)

II. The disease
   A. Long progression
   B. A staged, chronic disease
   C. Fatal without treatment
   D. Immunodeficiency diseases
      1. Pneumocystis pneumonia
      2. Kaposi’s sarcoma (HHV-8)
      3. Variety of systemic fungal diseases
      4. TB, herpes infections
      5. PML

III. The epidemic - 1980 $ightarrow$
   A. Out of Africa - probably cross-species transmission
   B. HIV-1 (East Africa) and HIV-2 (West Africa)
   C. Sexual transmission (ease related to sexual practices)
   D. Early entry into USA
      1. Male homosexual transmission
      2. IV drug use
      3. Heterosexual transmission
         Many tragedies
         Blood testing
      5. Discovery of the virus
      6. AZT
      7. Other drugs: RT inhibitors and protease inhibitors

IV. The aftermath (in the USA)
   A. Now treated as a chronic disease
      1. Combination of drugs (many side reactions)
      2. HAART - highly active anti-retroviral therapy
   B. Mortality has fallen since 1992 (as has number of AIDS cases)
   C. HIV positivity continues to increase
   D. Search for a vaccine
      1. Several types have been tested:
      2. Inactivated virus
      3. Virus components (gp120)