PLAGUES IN MAN
The Great 1918 Pandemic - Influenza

I. The virus(es)
A. Influenza A
   1. Classification – the Orthomyxoviridae
   2. Structure
      a. 8(segmented), minus-strand RNA genome
      b. helical nucleocapsid
      c. Enveloped with two surface proteins
         H-hemagglutinin, N-neuraminidase
      d. ten known proteins
   3. Replication
B. Influenza B and C

II. The disease
A. LRTI - can cause a severe pneumonitis
   1. systemic symptoms
   2. secondary bacterial infections
B. 3 H types infect man- H1, H2, H3(2 N TYPES, 1 & 2)
   13 H types, 9 N types- infect mammals & birds
   1. antigenic drift
   2. antigenic shift
C. prevention and treatment

III. The “Forgotten Epidemic” – 1918-1919
A. The Spanish flu (reported in Spain in spring, 1918)
B. Wide-spread pandemic in fall-winter of 1918-19
C. >20 million died; 600,000 in USA
D. H1N1 strain
   1. particularly pathogenic – young adults
   2. also swine flu (noted after pandemic)

IV. The aftermath
A. surveillance
   1. testing & surveillance centers
   2. changing vaccines
   3. Vaccines contain three strains: B, H1N1 & H3N2
      (all are circulating)
B. Spread from ducks and waterfowl (H1-H13, N1-N9)
C. drugs for treatment (outbreaks and contacts)
D. more recent episodes
   1. 1957 - H2N2 - The Asian flu
   2. 1968 - H3N2 - The Hong Kong flu
   3. 1977 - H1N1 - The Russian flu (swine flu)
E. The two “duck outbreaks”
   1. 1997 - H5N2 - Hong Kong (18 infections, 6 died)
   2. 1999 - H9N2 - Hong Kong (three children infected, all recovered)
   3. 1999-2004 - many outbreaks around the world