

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