

PLAGUES IN MAN
HPS & WEST NILE ENCEPHALITIS
TWO RECENT ZONOTIC EPIDEMICS

I. HANTAVIRUS PULMONARY SYNDROME

A. THE AGENT

1. A BUNYAVIRUS, RELATED TO HANTAAN VIRUS (ASIA)
2. ENVELOPED, SEGMENTED MINUS-STRAND RNA VIRUS
3. ONLY 4 PROTEINS: N G1 & G2 L
4. CALLED SIN NOMBRE VIRUS
 - a. MANY RELATED VIRUSES IN USA
New York, Bayou, El Moro Canyon, etc.
 - b. CARRIED BY NEW WORLD RATS AND MICE
 - c. SIN NOMBRE'S HOST IS DEER MOUSE
Peromyscus maniculatus
5. TRANSMITTED TO MAN BY FECES, URINE & SALIVA

B. THE DISEASE

1. INITIAL DISCOVERY IN 1993 - FOUR CORNERS OUTBREAK
 - a. INFLUENZA-LIKE SYMPTOMS (HEMORRHAGIC)
 - b. MORTALITY AT ABOUT 25%
2. AS OF 2001:
238 CASES IN 30 STATES (MOST IN SW, >60 IN AZ & NM)
3. NO ARTHROPOD VECTOR
4. FROM MICE THAT INVADE HOMES

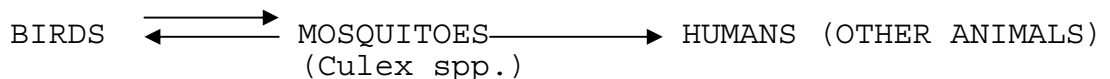
II. WEST NILE ENCEPHALITIS

A. FIRST SEEN IN USA IN 1999 (62 CASES, 9 DEATHS)

1. ENDEMIC IN EASTERN MEDITERRANEAN AREA
2. SPREADING RAPIDLY THROUGH THE USA - FIRST CASES ON THE WEST COAST TWO MONTHS AGO (090203)

B. THE AGENT

1. FLAVIVIRIDAE IN THE GENUS FLAVIVIRUS
2. AN ENVELOPED, PLUS-STRAND RNA VIRUS
3. MAKES A SINGLE POLYPROTEIN - CUT INTO ~10 PROTEINS
4. TRANSMITTED BY MOSQUITOES



5. CLOSELY RELATED TO KUNJIN VIRUS
IN YELLOW FEVER/DENGUE GROUP

C. THE DISEASE

1. ONLY ABOUT 1 IN 200 INFECTED SHOW SYMPTOMS
2. VERY YOUNG AND VERY OLD ARE SUSCEPTIBLE
3. MILD SYMPTOMS ARE OF "VIRAL SYNDROME"
SEVERE SYMPTOMS INCLUDE OFTEN FATAL ENCEPHALITIS
THOSE THAT RECOVER HAVE SEQUELAE
4. RELATED VIRUS IS ST. LOUIS ENCEPHALITIS VIRUS
 - a. ENDEMIC IN USA
 - b. CASES EACH YEAR - LARGE OUTBREAK IN FLORIDA
IN 1990 (223 cases, 11 deaths)