PLAGUES IN MAN

VACCINES

I. INTRODUCTION AND HISTORY
A. SMALLPOX (VARIOLA) - SMALLPOX VIRUS (VARIOLA VIRUS)
   1. Variolation
      a. CHINESE - FROM THE 1st CENTURY
      b. EUROPE - MARY MONTAGU (circa 1720)
      c. USA - REV. COTTON MATHER (1710-1725)
   2. Vaccination & Jenner - 1798
      a. MILKMAIDS AND RESISTANCE
      b. COWPOX VIRUS ---> NOW VACCINIA VIRUS
      c. DRIED POWDER & BIFURCATED NEEDLE
B. DIPHTHERIA
   1. Roux and Behring (Microbes Hunters)
      a. THE BACTERIUM - CORYNEBACTERIUM DIPHTHERIAE
      b. THE TOXIN
      c. ANTISERUM OR ANTITOXIN
   2. Vaccine Development - A TOXOID
      a. ISOLATION & PURIFICATION OF TOXIN
      b. INACTIVATION OF TOXIN & TESTING
C. POLIO VACCINE - POLIOVIRUS (A, B, C)
   1. THE MARCH OF DIMES - FDR AND FRIENDS
   2. DEVELOPMENT OF CELL CULTURE - ENDERS ET AL
   3. THE VACCINES - SALK AND SABIN
D. HERD IMMUNITY
E. CHARACTERISTICS OF VACCINES
   1. INACTIVATED OR ATTENUATED
   2. BACTERIAL OR VIRAL
   3. TYPES: TOXOIDS, EXTRACTS, CARBOHYDRATES, ETC.

II. BACTERIAL VACCINES
   1. EXTRACT VACCINES--OLD PERTUSSIS
   2. CARBOHYDRATE VACCINES--MENINGOCOCCUS, Hib & PNEUMOCOCCUS
   3. TOXOID VACCINES--TETANUS & DIPHTHERIA
   4. ATTENUATED VACCINES--BCG STRAIN FOR TB
   5. ACELLULAR (SUBUNIT)--NEW PERTUSSIS

III. VIRAL VACCINES
   1. INACTIVATED VIRUSES--INFLUENZA & SALK POLIO
   2. ATTENUATED VACCINES--SABIN POLIO & MMR
   3. SUBUNIT VACCINE--HEPATITIS B

IV. PEDIATRIC VACCINES
   1. BACTERIAL:
      a. TOXOIDS: DIPHTHERIA, TETANUS (DTaP)
      b. CARBOHYDRATE: Hib & PNEUMOCOCCUS
      c. ACELLULAR: PERTUSSIS (DTaP)
   2. INACTIVATED VIRAL: POLIO (SALK)
   3. ATTENUATED VIRAL: MMR, VARICELLA
   4. SUBUNIT VIRAL: HEPATITIS B, [HEPATITIS A]

V. VACCINE DEVELOPMENT