The Quest to Conquer Polio

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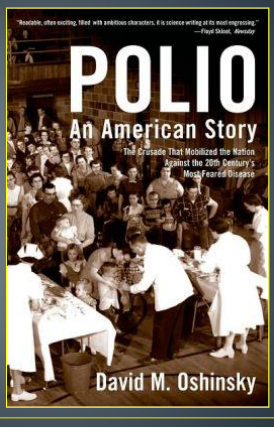


POLIOMYELITIS

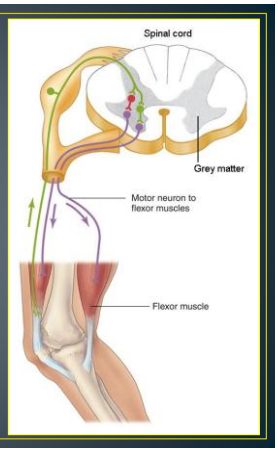
- Inflammation of the grey matter of the spinal cord.
- Acute infectious disease spread from person to person through the digestive tract.
- Main breeding ground is the small intestine.

POLIOMYELITIS

- 90% have no symptoms.
- Mainly affects children.
- Symptoms: Sore throat, nausea, fever.

POLIOMYELITIS

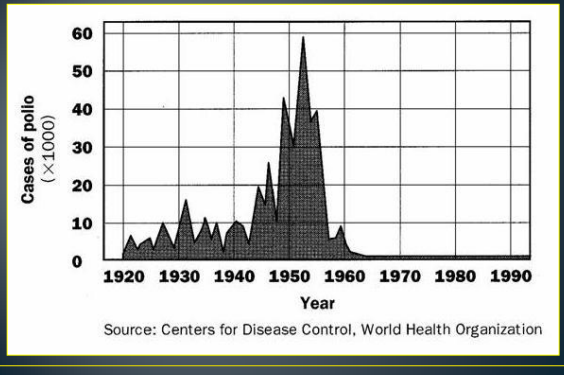
- In 1%, the virus attacks motor neurons in the spinal cord or brain.
- Paralysis of muscles.
- If brain stem is involved, muscles of breathing will be paralyzed.



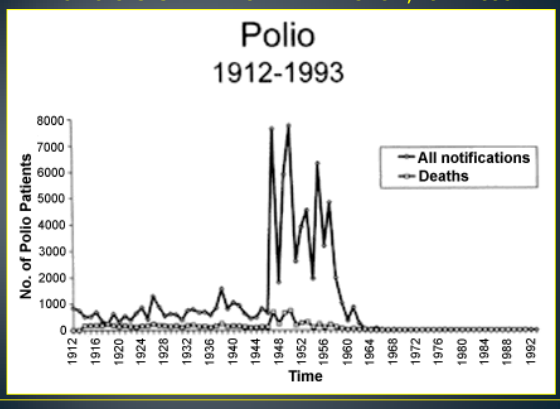
IRON LUNG

IRON LUNGS

POLIO CASES IN THE UNITED STATES, 1920-1990



POLIO CASES IN THE UNITED KINGDOM, 1912-1993



Franklin Delano Roosevelt
President of the U.S. 1932-1945

ROOSEVELT AND THE FIGHT AGAINST POLIO

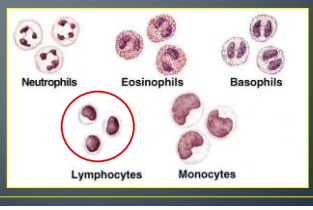
- 1924 -- Sought treatment at Warm Springs resort in Georgia.
- 1938 -- Foundation for Infantile Paralysis
  - Goals: Find a cure for polio and provide the best treatment for those already afflicted.
  - March of Dimes campaign
  - President's Birthday Balls

IMMUNE SYSTEM

- Function -- Defense against disease-causing organisms.
- First line of defense -- skin and mucous membranes.
- Second line of defense -- leukocytes.

IMMUNE SYSTEM

- Adaptive immunity.
  - Delayed, but highly specific defense against foreign organisms.
  - Involves lymphocytes.



IMMUNE SYSTEM

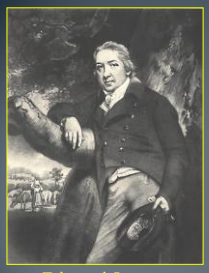
- Adaptive immunity.
  - Delayed, but highly specific defense against foreign organisms.
  - Involves lymphocytes.
  - Lymphocytes recognize invading organisms as foreign and begin to produce antibodies.

IMMUNE SYSTEM

- Antibody = Protein molecule that recognizes specific chemical structures on the surface of invading organisms.
- Antigen = Structure that stimulates an antibody response.
- Antibodies are highly specific.
- Will defend against subsequent infections by that organism.

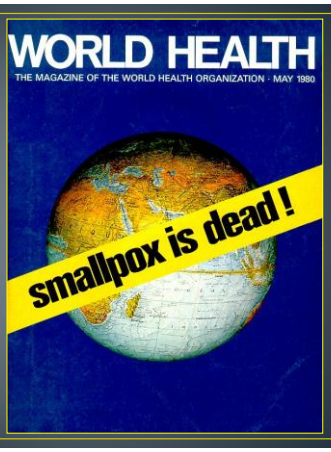
VACCINATION

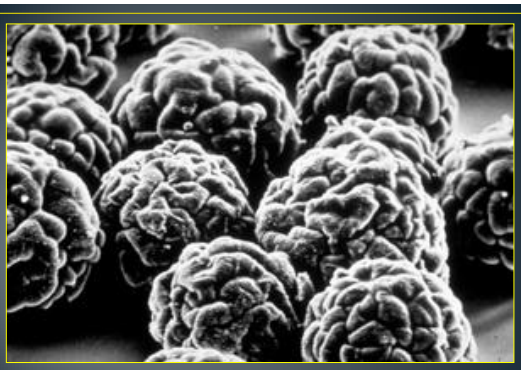
- Immune response is stimulated by deliberately introducing specific antigens into the body.
- Virus must be modified.
- Protects the individual and prevents spread of disease.



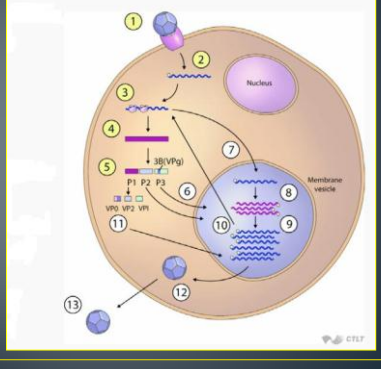
Edward Jenner
1749 - 1823

SMALLPOX VACCINE
1796

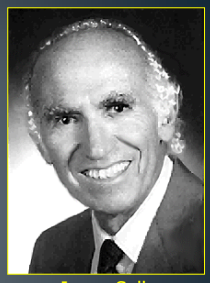




Poliovirus



POLIO VACCINE 1955

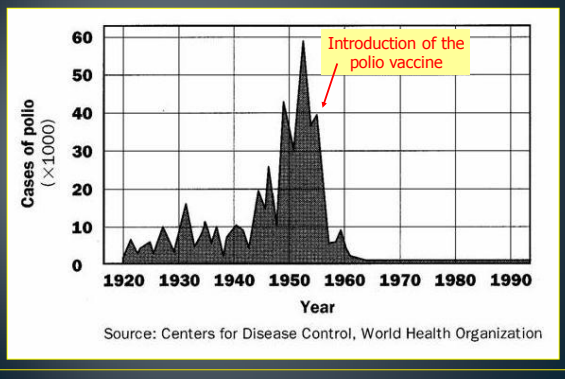


Jonas Salk
1914 - 1995

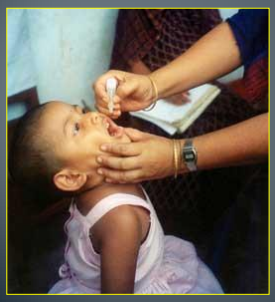
POLIO VACCINE

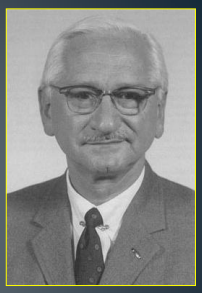
POLIO VACCINE

POLIO CASES IN THE UNITED STATES, 1920-1990



ORAL POLIO VACCINE 1962



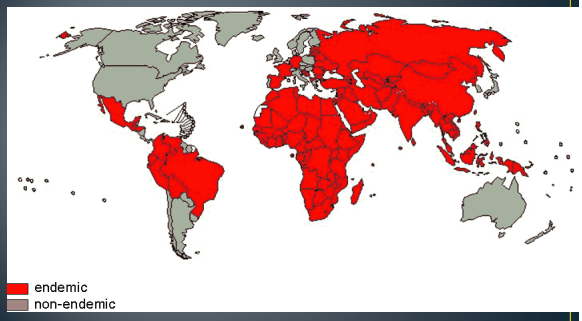


Albert Sabin
1906 - 1993

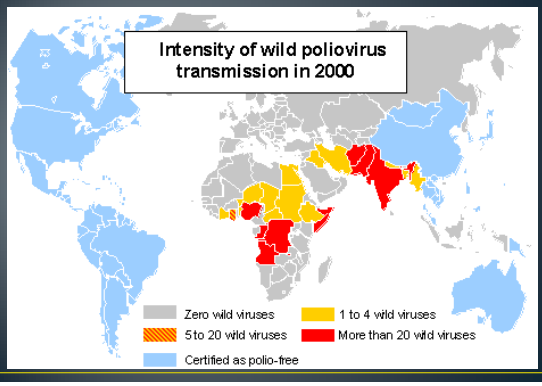
GLOBAL ERADICATION OF POLIO

- Combined effort of:
  - Rotary International
  - World Health Organization
  - UNICEF
- Initiated 1988.
- Goal was to eliminate polio by 2005.

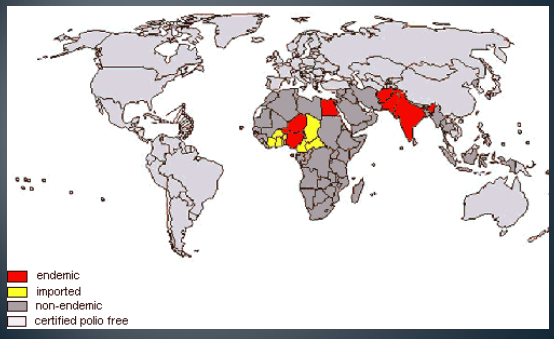
GLOBAL STATUS OF POLIO -- 1988



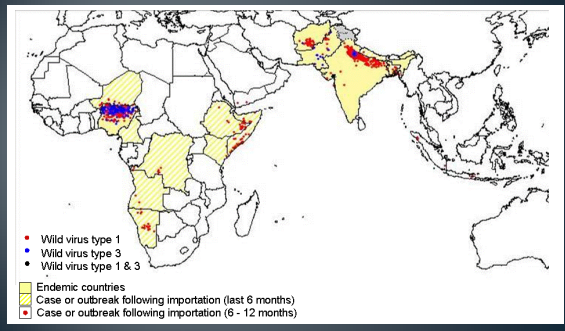
GLOBAL STATUS OF POLIO -- 2000



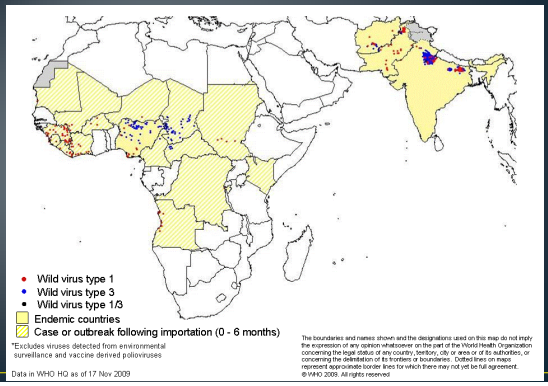
GLOBAL STATUS OF POLIO -- 2003



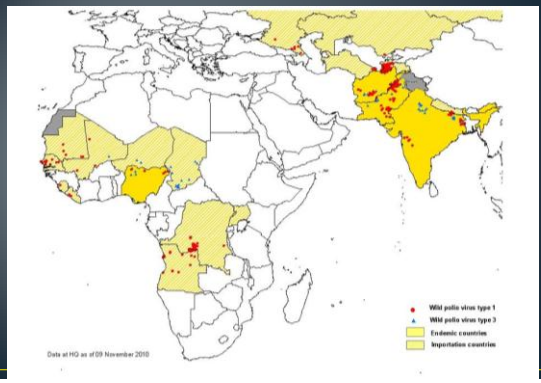
GLOBAL STATUS OF POLIO -- 2006



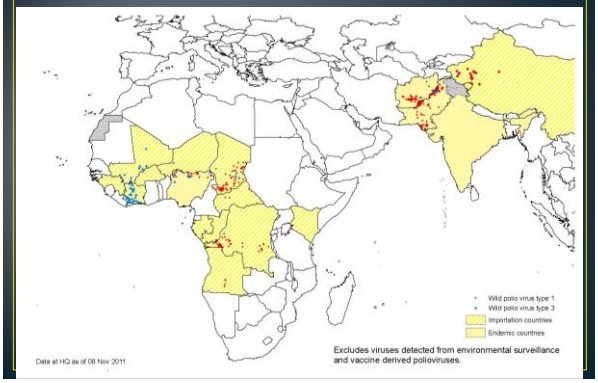
GLOBAL STATUS OF POLIO -- 2009



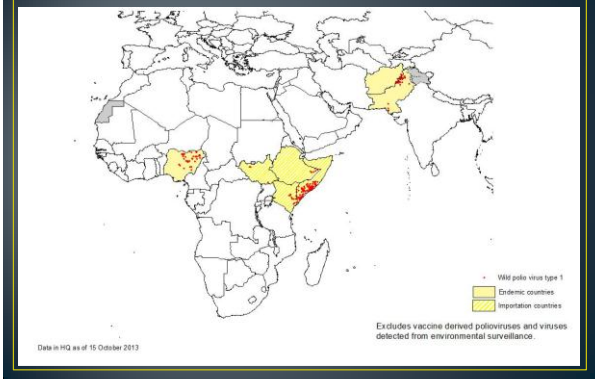
GLOBAL STATUS OF POLIO -- 2010

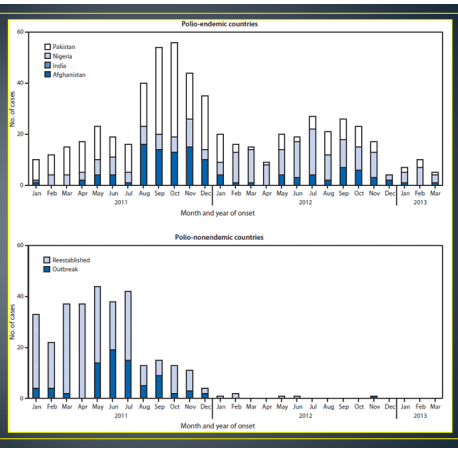


GLOBAL STATUS OF POLIO -- 2011



GLOBAL STATUS OF POLIO -- 2013





What does the future hold?