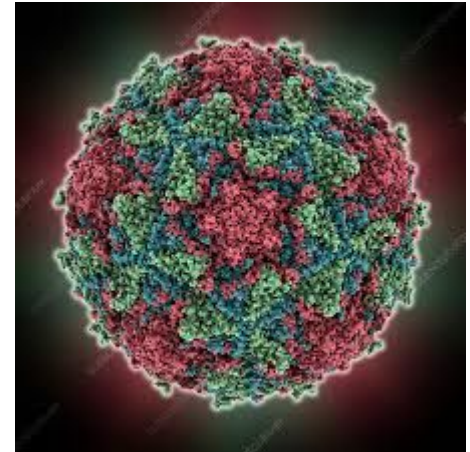
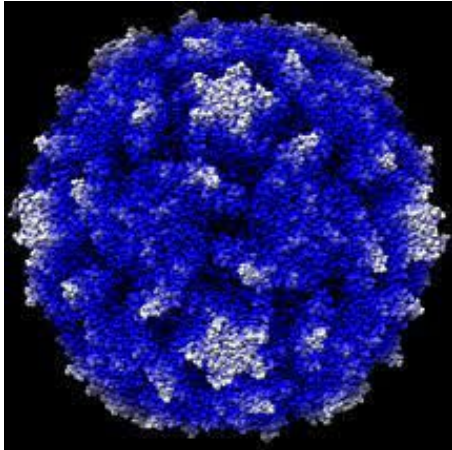


# Poliovirus

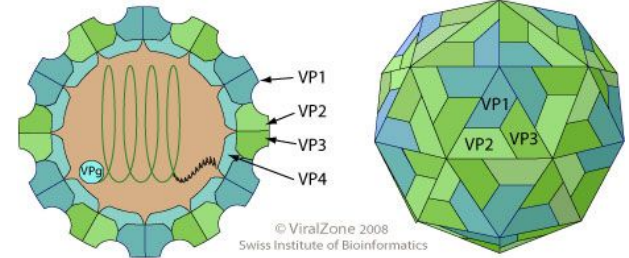
Madison Pribble & Skylar  
Walker

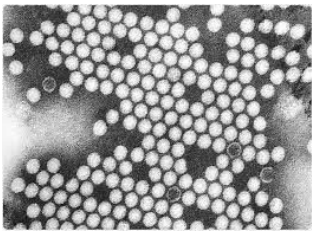
BIO 304



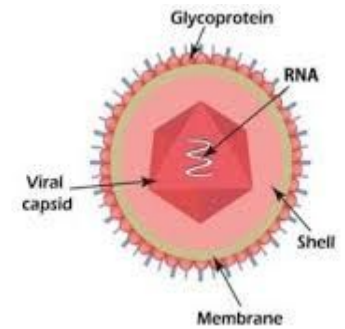
# Characteristics

- Family: Picornaviridae
- Genus: Enterovirus
- Small, isometric particles
- Single molecule of single stranded RNA
- Naked protein capsid (4 structural proteins)
- Stored at -20 degrees C.
- Inactivated by formaldehyde, chlorination, and ultraviolet light.





# Disease Poliomyelitis “Polio”

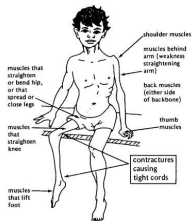


- Life-threatening disease
- Spreads person to person through the fecal oral route
- Mostly affects children under 5 years of age
- Replication: pharynx and lower intestinal tract
- Peaks in the summer (temperate climates) and no seasonal pattern (tropical climates)
- Most infectious: immediately before and after symptom onset

Centers for Disease Control and Prevention. (2019). *What is Polio?* CDC. <https://www.cdc.gov/polio/what-is-polio/index.htm>

Estivariz, C., Link-Gelles, R., & Shimabukuro, T. (2020, November). *Pinkbook: Poliomyelitis* | CDC. CDC. <https://www.cdc.gov/vaccines/pubs/pinkbook/polio.html#:~:text=Weakness%20or%20paralysis%20present%2012,for%2079%25%20of%20paralytic%20cases>

Troy, S., & Maldonado, Y. (2012, January 1). *Polioviruses*. ScienceDirect. <https://www.sciencedirect.com/science/article/pii/B9781437727029002373>



# Symptoms

Polio signs & symptoms include:[3]



- 72% of those infected with poliovirus will not show symptoms

## Initial Symptoms

- Fever
- Headache
- Fatigue
- Vomiting
- Neck stiffness
- Limb pain

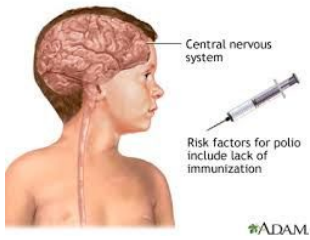
## 1 out of 4: Flu-like Symptoms

- Sore throat
- Fever
- Tiredness
- Nausea
- Headache
- Stomach pain  
(lasts 2 to 5 days)

## Other Symptoms (more severe)

- Paresthesia
- Meningitis
- Paralysis or weakness





# Transmission



- Person to person contact
- Highly contagious
- Enters through the mouth
- Spreads through contact with the infected individuals feces (more common) or sneeze/cough droplets
- After entering the mouth it multiplies in the throat and intestines. It then enters the bloodstream (affects central nervous system).
- Promoting spread: Poor sanitation and poor hygiene

# Diagnosis

- Neurologic exam
- Healthcare providers can take three samples and look under the microscope to confirm poliovirus.
  - Cerebrospinal fluid
  - Saliva from throat
  - **Stool**



Stool



Serum



NP swab



CSF



# Treatment

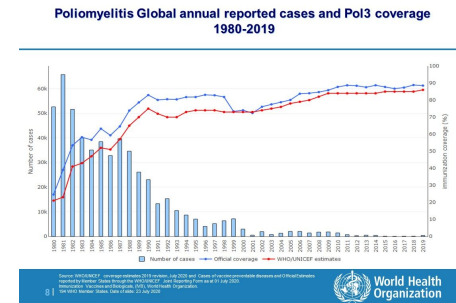


- There are two vaccines to prevent polio.
  - 99/100 children who get all the recommended doses of the IVP will be protected
- 4 doses: 2 months, 4 months, between 6 and 18 months, booster shot 4 to 6 years old
- Symptom management:
  - Fluids, heat to soothe muscles, antispasmodic drugs (muscle relaxers), pain relievers, physical therapy, rest, mechanical ventilation



# Prognosis

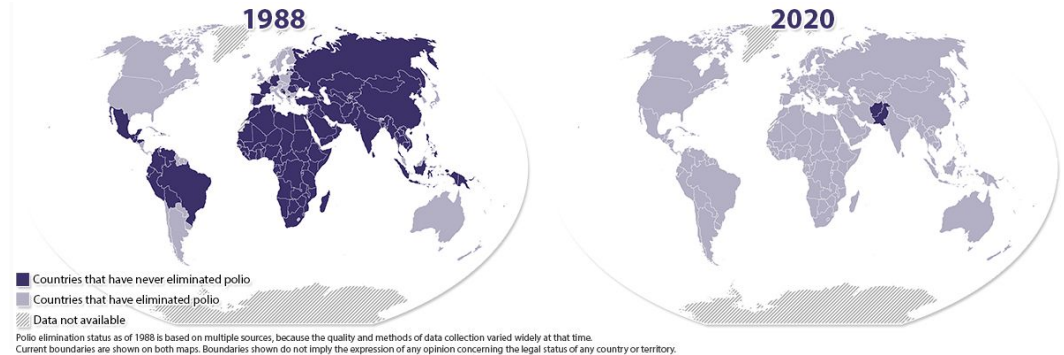
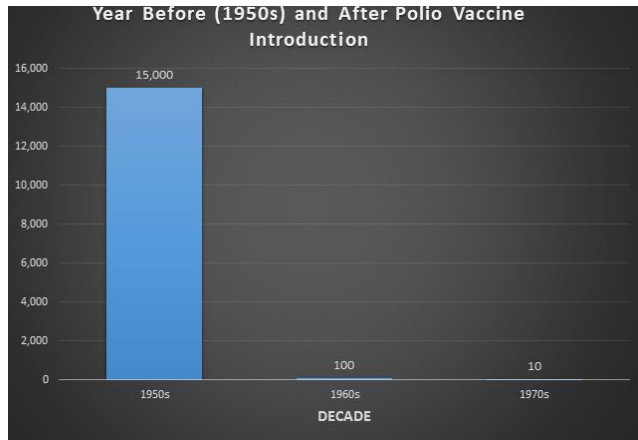
- 40% of people who had polio and recovered, can develop post-polio syndrome up to 40 years after the initial disease. It is not contagious.
- People with minor forms and nonparalytic polio can recover completely, sometimes as quickly as three days.
- Although you can completely recover, it can leave some damage. Your nervous system may not compensate as well as you age. These symptoms are referred to as post-polio syndrome.





# Current Time Importance

- In the early 1950's the polio outbreaks caused more than 15,000 cases of paralysis each year.
- As of September 2018, the only two polio-endemic countries were Pakistan and Afghanistan.



Questions?