LUGANSK STATE MEDICAL UNIVERSITY
Department of Infectious disease

POLIOMYELITIS

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Course:05

Group:18a

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What is Polio

- **Polio**, or **poliomyelitis**, is a highly contagious viral infection
- It can lead to paralysis, breathing problems, or even death
- The term poliomyelitis is from the Greek *poliós* meaning "grey", *myelós*referencing the spinal cord, and -itis meaning **inflammation**
- Polio can be classified as either symptomatic or asymptomatic
- About 95% of all cases display no symptoms (asymptomatic polio), and between 4% and 8% of cases display symptoms
- Symptomatic polio can be broken down further into a mild form called nonparalytic or abortive polio and a severe form called paralytic polio (occurring in 0.1% to 2% of cases).

Paralytic polio also may be classified as:

- **Spinal polio** - attacks motor neurons in the spinal cord and causes paralysis in arms and legs and breathing problems
- **Bulbar polio** - affects neurons responsible for sight, vision, taste, swallowing, and breathing
- **Bulbospinal polio** - both spinal and bulbar polio
- Many people with nonparalytic polio are able to make a full recovery, while those with paralytic polio generally end up with permanent paralysis.
- Polio used to be a big killer.
- Today (September 2012) **polio has been eradicated in all but three countries worldwide - Nigeria, Pakistan and Afghanistan**, according to the Bill and Melinda Gates Foundation and the United Nations

Who gets polio?

- Like many other infectious diseases, polio victims tend to be some of the most vulnerable members of the population.
- This includes the very young, pregnant women, and those with immune systems that are substantially weakened by other medical conditions.
- Anyone who has not been immunized against polio is especially susceptible to contracting the infection.
- Additional risk factors for polio include traveling to places where polio is endemic or widespread, living with someone infected with polio, working in a laboratory where live poliovirus is kept, and having your tonsils removed

The Patient who got Poliomyelitis

History

- The development of effective vaccines against polio in the 1950s and 1960s led to their widespread use in many industrialized countries, including the United States, and resulted in the elimination of polio in a number of countries; these early successes suggested that global polio eradication (through the use of mass immunization campaigns) might be achievable.
- Soon thereafter, in 1988, the World Health Assembly launched the GPEI – constituted as a public-private partnership led by national governments and spearheaded by the World Health Organization (WHO), Rotary International, and the United Nations Children's Fund (UNICEF) – to work toward this goal.
- GPEI partners have invested approximately $11.8 billion globally in eradicating the disease.If the eradication of polio were achieved by 2018, it has been estimated that the GPEI will have saved the world $40 to $50 billion from 1988 through 2035.

Graph

Figure 1

Global Polio, by Agency, FY 2009-FY 2016

NOTES: Includes polio funding provided through the CDC's global immunization program and the Global Health Programs (GHP) and Economic Support Fund (ESF) accounts at USAID. FY13 includes the effects of sequestration. FY15 is based on funding provided in the "Consolidated and Further Appropriations Act, 2015" (P.L. 113-235) and is a preliminary estimate.
SOURCE: Kaiser Family Foundation analysis of data from the Office of Management and Budget, Agency Congressional Budget Justifications, Congressional Appropriations Bills, and U.S. Foreign Assistance Dashboard website, www.foreignassistance.gov.

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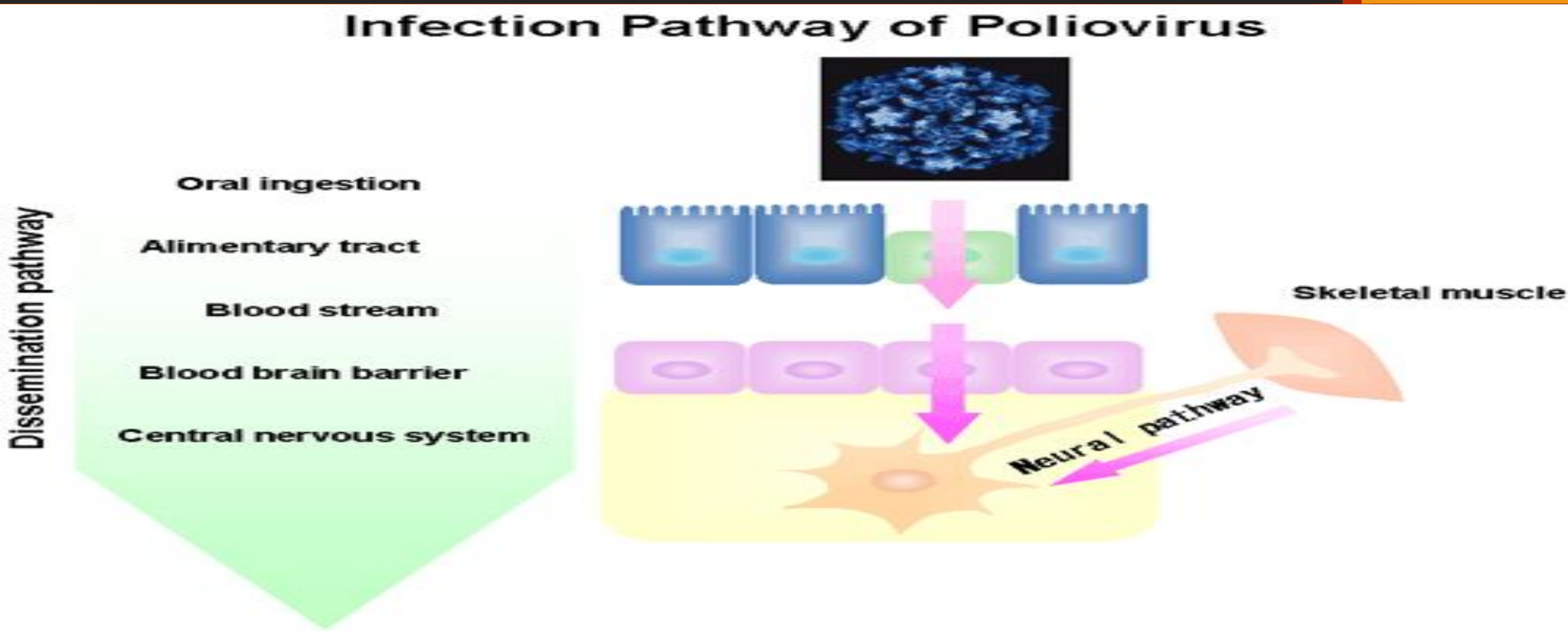
Pathogenesis



Epidermiology

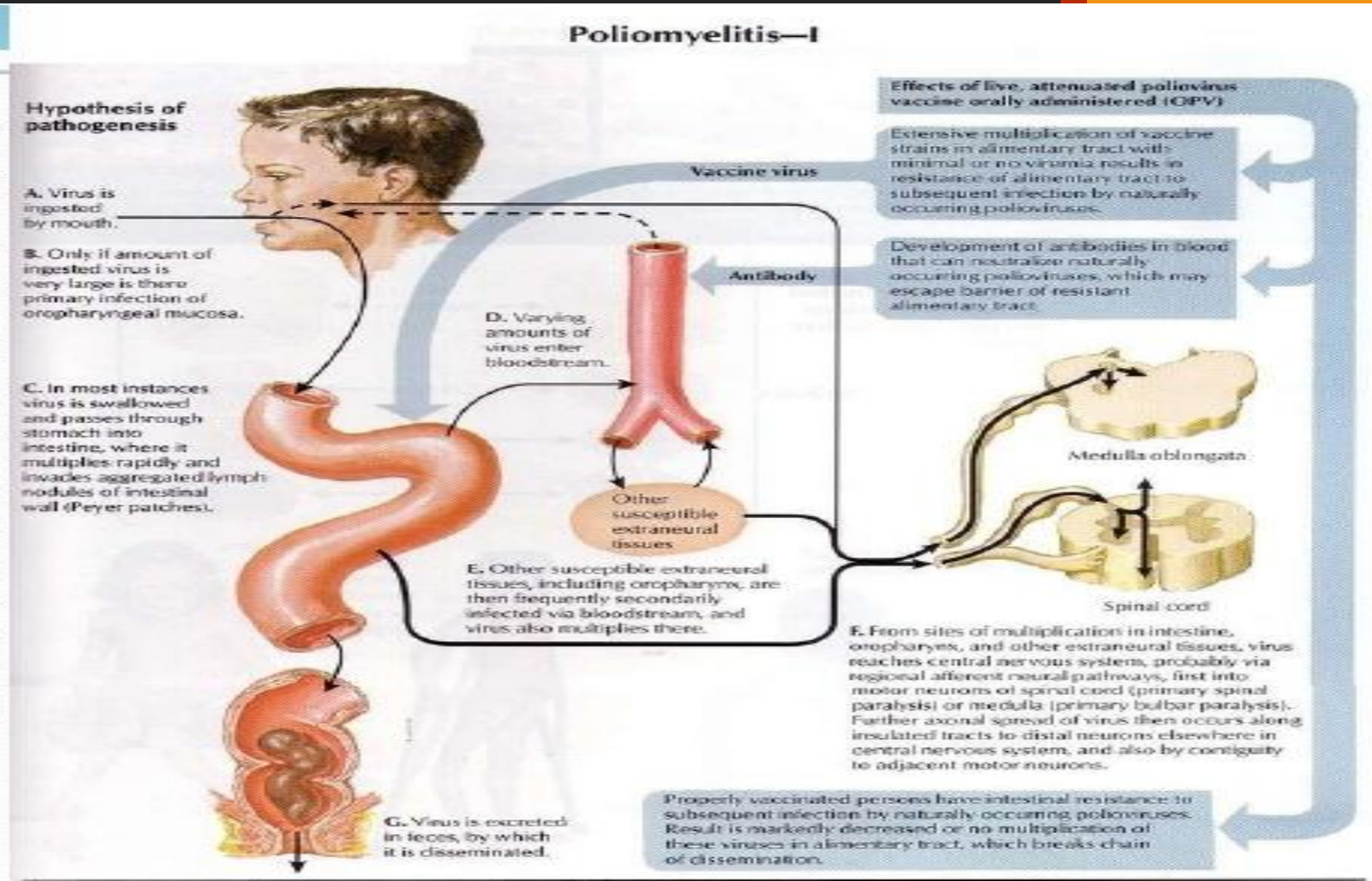
- Polio is caused by the poliovirus, a highly contagious virus specific to humans.
- The virus usually enters the environment in the feces of someone who is infected.
- In areas with poor sanitation, the virus easily spreads through the fecal-oral route, via contaminated water or food.
- In addition, direct contact with a person infected with the virus can cause polio.

Pathophysiology

Poliomyelitis

Pathophysiology

The virus enters via the oral route and multiplies in the intestinal mucosa lymphoid tissues in the pharynx, it is usually present in the throat and stool before clinical onset. Within 1 week of clinical onset little virus exists in the throat, but it continues to be excreted in the stool for several weeks. The virus invades the local lymphoid tissue, enters the blood stream and then infects the CNS. Viral replication in the anterior horn cells of the spinal cord and the brainstem motor neuron cells results in cell destruction and paralysis.



Symptoms of polio

- Polio, in its most debilitating forms, displays symptoms such as paralysis and death.
- However, most people with polio don't actually display any symptoms or become noticeably sick. When symptoms do appear, there are differences depending on the type of polio.
- Nonparalytic polio (abortive poliomyelitis) leads to **flu-like** symptoms that last for a few days or weeks, such as **fever, sore throat, headache, vomiting, fatigue, back and neck pain, arm and leg stiffness, muscle tenderness, muscle spasms, and meningitis.**
- Paralytic polio will often begin with symptoms similar to nonparalytic polio, but will progress to more serious symptoms such **as a loss of muscle reflexes, severe muscle pain and spasms, and loose or floppy limbs that is often worse on one side of the body.**

Diagnosis of polio

- Polio is often recognized because of symptoms such as neck and back stiffness, abnormal reflexes, and trouble with swallowing and breathing.
- A physician who suspects polio will perform laboratory tests that check for poliovirus using throat secretions, stool samples, or cerebrospinal fluid.

Risk factors

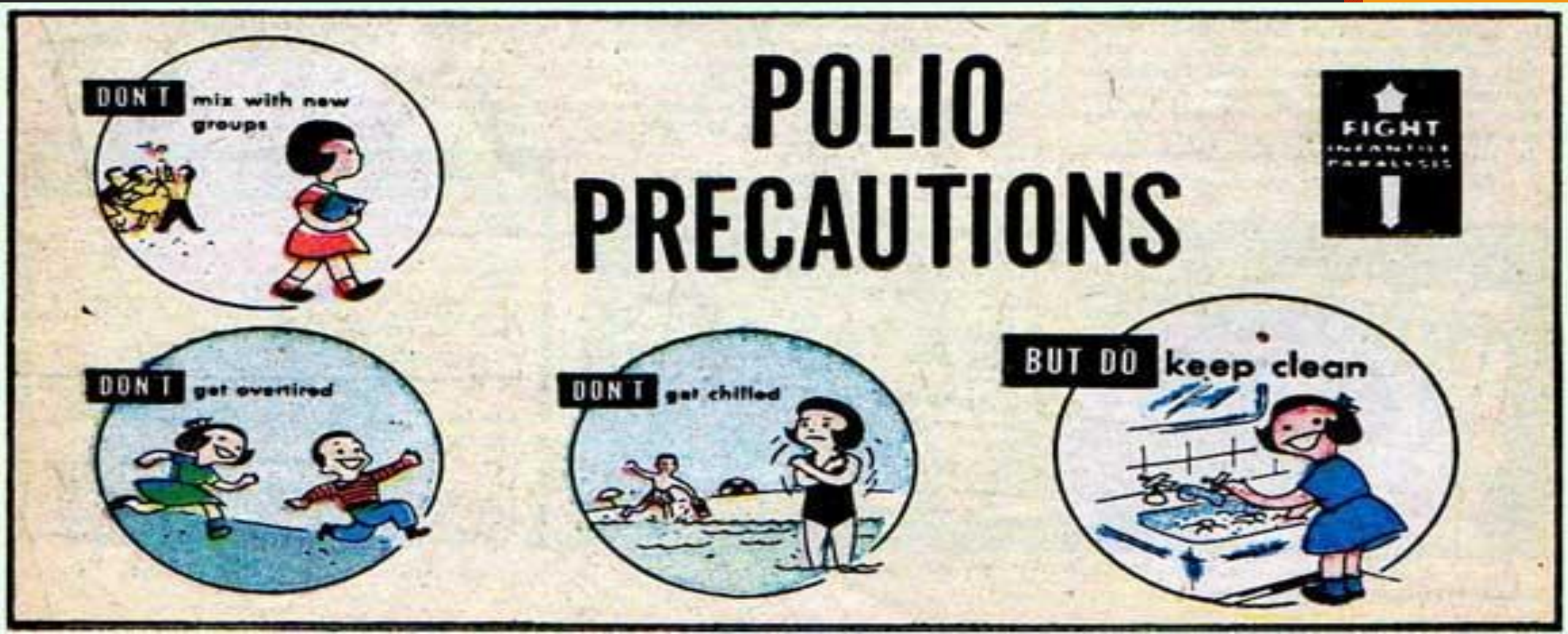
Treatments for polio

- There is no cure for polio once a person becomes infected.
- Therefore, treatments are focused on increasing comfort, managing symptoms, and preventing complications.
- This may include providing bed rest, **antibiotics** for additional infections, pain killers, ventilators to help breathing, **physiotherapy** and moderate exercise, and a proper diet.
- One treatment for lung paralysis due to polio was to place the patient into an iron lung - a device that would push and pull chest muscles to make them work.
- However, more modern portable ventilators and jacket-type ventilators are now employed.

Prevention

- Although polio essentially has been eradicated in the US since 1979 and in the Western Hemisphere since 1991, children and adults in Afghanistan, India, Nigeria, and Pakistan are still contending with the disease. There are two vaccines available to fight polio - inactivated poliovirus (IPV) and oral polio vaccine (OPV).
- IPV, which consists of a series of injections beginning two months after birth and continuing until a child is 4 to 6 years old, is provided to most children in the United States. The vaccine is created from inactive poliovirus, but it is very safe and effective and cannot cause polio.
- OPV is created from a weakened or attenuated form of poliovirus, and it is the vaccine of choice in many countries because of its low cost, ease of administration, and ability to provide excellent immunity in the intestine. OPV, however, has been known to revert to a dangerous form of poliovirus that is able to paralyze its victim.
- Polio vaccinations or boosters are highly recommended in anyone who is not vaccinated or is unsure if she is vaccinated.

Precautions



Thanks for your attention