

## POLIO

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### GENERAL INFORMATION

#### Introduction

Polio is a highly infectious disease caused by viruses that invade the nervous system, causing irreversible paralysis and even death in some persons. Humans are the only known reservoir of the polio virus.

There are no drugs or treatments that will cure polio. Most people who are paralyzed by polio will have some weakness in an arm or leg for the rest of their lives; many will be seriously disabled.

#### Transmission

The virus that causes polio is excreted in the feces of infected persons and can infect food or water through poor sanitary habits; the virus is then transmitted to others through consumption of the contaminated food or water. When the virus enters through the mouth, it multiplies in the cells of the throat and intestinal tract.

Transmission can also occur through pharyngeal secretions early in the course of infection, permitting mouth-to-mouth transmission.

Transmission occurs year-round in infected countries in the tropics; transmission peaks in the summer in temperate climates. In endemic countries, children are most commonly affected. Transmission is greatest in countries with poor standards of hygiene.

#### Epidemiology

Polio has been eradicated from most of the world but remains endemic in Afghanistan, Nigeria, and Pakistan and has been re-established in some developing countries, particularly from west Africa to central Africa to the Horn of Africa. Polio cases related to wild poliovirus importation or to circulating vaccine-derived poliovirus have been registered during the past 12 months (as of April 2014) in Afghanistan, Cameroon, Equatorial Guinea, Ethiopia, Iraq, Kenya, Nigeria, Pakistan, Somalia, and Syria.

#### Risk

Risk to travelers is low. Travelers who have completed a primary series of polio are at almost no risk. However, vaccination prevents the polio virus from entering into countries by travelers who have asymptomatic new infections or low-grade infections.

#### Symptoms

The incubation period is normally 6-20 days. Most infections do not result in symptoms but the virus can be shed in stool for several weeks.

Mild cases can cause fever, sore throat, stomachache, and influenza-like symptoms that may last only a few days. More serious cases result in headache and stiffness of neck, back, and legs, or can result in paralysis, which occurs most commonly in the legs; however, 1 in 5 cases involves throat and chest muscles, affecting swallowing and breathing. Fatality rates range from 2% to 75%. Complete recovery seldom occurs.

#### Need for Medical Assistance

An unimmunized traveler to countries where polio still occurs should seek urgent medical assistance if he or she develops headache and stiffness of neck, back, and legs, or paralysis. Polio that affects breathing can be rapidly

fatal.

## PREVENTION

**Non-Vaccine:** Observe standard food and beverage hygiene practices.

- See *Food and Beverage Precautions*.

**Vaccine:** Polio vaccine prevents travelers from becoming infected when traveling in a risk area and prevents travelers from bringing the virus into areas that are currently free of polio.

An inactivated (killed) polio vaccine (IPV) is available in the United States and is given routinely in childhood vaccination and to certain at-risk travelers. Live oral polio vaccine (OPV) is no longer available in the U.S. (although is still used in some countries).

- The complete 4-dose schedule of IPV offers the best protection. Nearly 99-100% of those who receive 3 or more vaccine doses will be protected.

Combination polio vaccines are also available in the U.S. for use in children:

- A combination vaccine that protects against polio, hepatitis B, and diphtheria, tetanus, and pertussis
- A combination vaccine that protects against polio, Hib, and diphtheria, tetanus, and pertussis
- A combination vaccine that protects against polio and diphtheria, tetanus, and pertussis

## Who Should Receive IPV

### ***Vaccination is Recommended for:***

- All children younger than age 18 years
- Unvaccinated or incompletely vaccinated travelers to areas where naturally occurring polio virus is still circulating (especially aid, refugee, and health care workers)
- Travelers from endemic areas traveling to other countries
- Lab workers who handle polio virus
- Health care workers caring for persons who might be excreting poliovirus

### ***Vaccination is Required for:***

- Some travelers to Saudi Arabia
  - See "Special Considerations, Entry Requirements."
- Some travelers to India
  - See "Special Considerations, Entry Requirements."

## Who Should Not Use IPV

Persons who are moderately or severely ill usually should wait until they recover before getting this vaccine.

IPV should not be given to:

- Any person who has had a serious allergic reaction after getting polio vaccine
- Any person who has had an allergy problem with or severe reaction to neomycin, streptomycin, or polymyxin B
- Pregnant women, unless immediate protection is needed
  - Although there is no convincing evidence that polio vaccine causes any problems to the unborn babies of pregnant women, doctors usually do not recommend giving any drugs or vaccines during pregnancy unless there is a special need.

The combination vaccine containing polio/hepatitis B/DTaP should not be given to:

- Any person who has an allergy to yeast, neomycin, or polymyxin B

The combination vaccines containing polio/Hib/DTaP and polio/DTaP should not be given to:

- Any person who has an allergy to neomycin or polymyxin B

Persons with a bleeding disorder should discuss with their health care provider options for receiving IPV, which can be given either IM or subcutaneously.

## Risks and Side Effects

Minor local reactions (pain or redness) may occur at the injections site.

There is a rare chance that serious problems or even death could occur after receiving any medicine or vaccine. If a significant or unusual problem occurs after receiving the vaccine, the patient should call or visit the health care provider.

## Timing

### IPV

The routine childhood schedule consists of 3 primary doses given at ages 2 months, 4 months, and 6-18 months followed by a fourth dose (booster dose) at age 4-6 years.

- If an accelerated schedule is needed (e.g., for travel), the 3 primary doses may be given as early as age 6 weeks with 4 weeks between doses. Dose 4 should be given at least 6 months after dose 3.
- The early start and accelerated schedules should be used in children less than 6 months of age *only when necessary*, as they do not induce as good a response as the 2, 4, and 6 month regimen.

### Travelers to risk areas:

Primary series: Travelers who have not completed the primary series should begin or complete the series.

- Adults: 2 doses given 4-8 weeks apart and a third dose given 6-12 months after the second dose.
- Children: see above for accelerated schedule.

Booster (for travelers who have completed the primary series):

- Children ages 4-18 years who completed the primary series but did not receive the 4-6 year booster need 1 pre-travel dose.
- Adolescents who completed the childhood series need a one-time booster dose if more than 10 years have elapsed since the last dose of the childhood series.
- Adults who completed the primary series during childhood need a one-time pre-travel dose.
- Adults who completed a primary series after childhood need a one-time booster dose if more than 10 years have elapsed since completion of the primary series.

### Travelers from endemic areas:

- These travelers should have a complete primary series plus 1 adult dose.

## Combination Vaccines

- The combination vaccine that protects against polio, hepatitis B, and diphtheria, tetanus, and pertussis can

be given at ages 2, 4, and 6 months. (It cannot be used for the booster dose at age 4-6 years.)

- The combination vaccine that protects against polio, Hib, and diphtheria, tetanus, and pertussis can be given at ages 2, 4, 6, and 15-18 months.
- The combination vaccine that protects against polio and diphtheria, tetanus, and pertussis can be used for the fifth dose in the DTaP series and the fourth dose of the polio series.

## **SPECIAL CONSIDERATIONS**

### **Entry Requirements**

Saudi Arabia requires proof of polio immunization for some travelers:

- All travelers (regardless of age and vaccination status) coming from polio-endemic countries or countries in which polio has been re-established must show proof that polio vaccine was given at least 6 weeks prior to departure. These travelers will also receive a dose of OPV upon arrival.
- All travelers aged less than 15 years traveling to Saudi Arabia from countries with imported cases of polio or circulating vaccine-derived polioviruses in the previous 12 months should be vaccinated with OPV or IPV 6 weeks prior to visa application. These travelers will also receive a dose of OPV at border points.

India requires proof of polio immunization for some travelers:

- Effective March 14, 2014, a single dose of oral polio vaccine (OPV), regardless of age or vaccination status, is required for individuals traveling into India who are both nationals and residents of countries with ongoing polio transmission. These countries currently include Afghanistan, Ethiopia, Kenya, Nigeria, Pakistan, Somalia, and Syria. Proof of vaccination (at least 4 weeks but no more than 1 year prior to each arrival) is required for the visa application process in these 7 countries, and should be carried during travel. This requirement does not apply to foreign nationals residing in or travelers transiting the above listed countries. Inactivated polio vaccine (IPV) is not acceptable for this requirement, which is precautionary to prevent reintroduction of polio to India.