Polio

Polio Pioneers

More than 50 years ago, polio held U.S. families in a grip of terror. Especially during the summertime, when polio seemed most likely to circulate, parents feared they would hear in the news or from neighbors that someone in the community had polio. "People tried to keep their children safe from the potentially paralyzing disease by keeping them out of public places such as pools, parks, and theaters," explained Dr. Anne Schuchat, director of the National Center for Immunization and Respiratory Diseases at the Centers for Disease Control and Prevention (CDC).

The nation came together like never before in an effort to create a vaccine to protect children from polio. Millions of Americans raised funds in their communities for research. Much of the funding came through the National Foundation for Infantile Paralysis (presently the March of Dimes Foundation), founded in 1938 by President Franklin D. Roosevelt, himself paralyzed by polio in the prime of his life. Before the March of Dimes drew national attention to the search for a polio vaccine, two attempts to develop a polio vaccine had failed—neither produced immunity and some deaths were blamed on one of the vaccines.

In 1952, Jonas Salk and his team at the University of Pittsburgh created the first effective polio vaccine. By 1954, it was time to test the Salk vaccine widely. Thomas Francis Jr. at the University of Michigan led the nationwide test, the scale of which had never been seen before. More than 1.8 million school children across the United States participated. Thousands of health care professionals and other volunteers administered the vaccine and collected results.

Everyone had the same goal: victory over polio. In 1955 the results were proclaimed: the Salk vaccine was "safe, effective, and potent!"

The Salk vaccine was made by killing the poliovirus, and it was given as a shot. The second polio vaccine licensed for use in the United States, created by Albert Sabin, was an oral polio vaccine, which was made by using a live weakened version of the poliovirus. By 1963, a formulation of this vaccine that prevented three strains or types of polio—like the Salk vaccine before it—was available.

"Polio was eliminated in the United States in 1979," said CDC's Dr. Greg Wallace. "But, because polio still circulates in other parts of the world, we need to continue vaccination in the United States."

"Scenarios for polio being introduced into the United States are easy to imagine, and the disease could get a foothold if we don't maintain high vaccination rates," explains Dr. Wallace. "For example, an unvaccinated U.S. resident could travel abroad and become infected before returning home. Or, a visitor to the United States could travel here while infected. The point is, one person infected with polio is all it takes to start the spread of polio to others if they are not protected by vaccination."

It's important to remember that in the 1950s, protecting the public from polio was, in the truest sense, a national project. Every effort was made to see that the vaccine would be widely available to all children and polio would be wiped out.

Vaccinating each child in the United States today remains a priority. As some countries have seen in the last decade, without widespread vaccination, the disease rapidly returns and people must once again work to eliminate it.

Symptoms of Poliovirus Infection

Poliovirus infection, while greatly feared and sometimes dangerous, is usually not obvious. Most people infected with poliovirus have no apparent symptoms. But unfortunately, anyone infected with poliovirus can spread it.

About 4% to 8% of people infected with poliovirus have minor symptoms that don't last long. They may have a sore throat, fever, tiredness, nausea, headache, or stomach pain. About 1% to 5% of people infected with poliovirus may feel stiffness in their back and neck with a severe headache or pain in their arms and legs. These symptoms usually go away within 2 to 10 days.

In Rare Cases, Poliovirus Infection Can be Very Serious

Unfortunately, even children and adults who have been healthy all their lives can get seriously ill from poliovirus infection. About 1 out of 100 people infected with poliovirus develops polio disease and becomes paralyzed for life.

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Poliovirus infects the brain and spinal cord and causes permanent weakness or paralysis in the arms and legs. The likelihood of paralysis can depend on which of the three strains of poliovirus causes the infection. Among people who become paralyzed, 2% to 5% of children and 15% to 35% of adults may die because they become unable to breathe. Some polio survivors develop post-polio syndrome (PPS) many years after getting paralytic polio. PPS is still a significant problem in the United States, mostly among older adults. Symptoms include worsening of muscle weakness that already exists, or development of new muscle weakness, and muscle pain. PPS can greatly limit mobility and have a negative impact on a person's quality of life.

Poliovirus Spreads Easily

Poliovirus is very contagious. The virus lives in an infected person's throat and intestines. It spreads through contact with the feces (stool) of an infected person and through droplets from a sneeze or cough. An infected person may spread the virus to others immediately before and usually 1 to 2 weeks after symptoms appear. The virus may remain in an infected person's feces for many weeks. It can contaminate food and water in unsanitary conditions.

The Goal of a Polio-Free World

Preventing polio using vaccination is the only way to defeat the disease. There is no cure, and no other effective way besides vaccination to prevent the disease from spreading.

Polio was eliminated in the United States within 25 years after vaccine introduction, and continued use of polio vaccine has kept this country polio-free. Making sure that infants and children are vaccinated is the best defense against polio returning. It's also the best offense in someday making the entire world free from polio.

Benefits of Inactivated Polio Vaccine

Getting the polio vaccine as recommended—

- Saves lives.
- Prevents illness.
- Prevents weakened or paralyzed legs and arms that are a result of severe infection.
- Helps to ensure that the United States remains polio-free.
- Supports the goal of eliminating polio from the world.

Risks of Inactivated Polio Vaccine

- Some people who get the polio shot report redness or soreness where the shot was given.
- People who have had a life-threatening allergic reaction to the antibiotics neomycin, streptomycin, or polymyxin B should not get the polio shot. Tell your doctor if your child has an allergy to one of these antibiotics.
- The vaccine used in the United States today has never been known to cause other serious problems.

In 1988, national governments and private organizations established the Global Polio Eradication Initiative. That year, there were 350,000 reported cases of polio across 125 countries. In 2011, there were only 650 reported cases of polio in 16 countries, most of these with only a handful of cases.

"Since we started trying to wipe out polio around the world, more than three billion children have received polio vaccine. The 20th century alone saw millions of people paralyzed, and this is now a thing of the past thanks to vaccination," said pediatrician Dr. Stephen Cochi of the CDC. "But even so, today, polio still sickens and paralyzes children because some do not get enough, or even any, doses of polio vaccine. Vaccinating every child in the world against polio is the best way to ensure that future generations will never experience the tragedy of this disease."

When to Get the Vaccine

Children in the United States should receive a total of four doses of polio vaccine. A child gets one dose of vaccine at ages 2 months, 4 months, 6 through 18 months, and 4 through 6 years. If your child is not up to date with this recommended schedule, talk with your doctor about catching up on missed doses. If your child's health care professional uses certain combination vaccines that contain the polio vaccine, your child may actually receive five doses of polio vaccine, and the extra dose poses no harm.

Vaccine Safety

According to Dr. Doug Campos-Outcalt of the American Academy of Family Physicians, "The vaccine used in the United States today is the inactivated polio vaccine, or IPV, and is very safe." It is given as a shot in the leg or arm. "A child may have soreness or redness where the shot is given. A severe allergic reaction is extremely rare. IPV cannot cause polio," said Dr. Campos-Outcalt.

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The Centers for Disease Control and Prevention, the American Academy of Family Physicians, and the American Academy of Pediatrics strongly recommend vaccines.

800-CDC-INFO *(800-232-4636)*
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