

Polio almost eradicated by vaccines anti-vaxxers: make polio great again!

Reducing polio disease is one of the great medical accomplishments. Vaccination campaigns in the 1950s ended terrifying outbreaks and made the disease mostly a bad memory (except for survivors forced to live the rest of their days in iron lungs).

Polio is not completely eradicated but in most of the world vaccination rates are high enough that outbreaks are rare. Afghanistan and Pakistan have the largest remaining areas with polio outbreaks. It's possible anti-vaccine fears will lead to polio resurgence in countries that were declared polio free.

Until the start of the Covid-19 pandemic, I didn't realize that most polio infections were asymptomatic or mild (just like SARS-CoV-2 infections). Only a small percent of polio cases are paralyzing, but they are shocking enough that ending polio became an important social priority. Most symptomatic polio cases involve mild to moderate impairment - needing crutches or worse, wheelchairs (like President Roosevelt). But being confined to an iron lung is only slightly better than death — so development of successful vaccines was a modern miracle of medicine.

This Week in Virology www.microbe.tv/twiv is a podcast hosted by Vincent Racaniello, a leading expert on polio. Most of the world's best virologists and others with expertise in infectious diseases have been guests on the show. Some of the content is very specialized but the show has tried to appeal to an interested, but non-professional audience, especially as people sought accurate information about Covid.

history of polio eradication efforts:

vaxopedia.org/2018/11/14/milestones-towards-the-eradication-of-polio/

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1383764/> The Cutter Incident: How America's First Polio Vaccine Led to a Growing Vaccine Crisis



PROPOSED STATEMENT BY PRESIDENT JOHN F. KENNEDY ON
POLIO VACCINES

Because of the importance of protection against poliomyelitis during the critical months immediately ahead, I have asked the Surgeon General of the Public Health Service, Dr. Luther L. Terry, to comment concerning the recent public discussion among health and medical authorities over the relative merits and uses of two kinds of polio vaccine, and the possible confusion that may have resulted among some of the public. Dr. Terry has provided the following information.

First, he advises that most authorities, including the Public Health Service, believe the two types of vaccines -- one developed by Dr. Jonas Salk, the other by Dr. Albert Sabin -- are effective.

Second, the Salk vaccine is the only one now available, and every unvaccinated and partially vaccinated person should obtain it immediately.

Third, the Sabin vaccine has not yet been licensed for sale in this country. When it is licensed, the Surgeon General states that it can be used with confidence that it, too, is safe and effective.

Fourth, Dr. Terry tells me that some Sabin vaccine will be released this fall or possibly earlier. As I announced some weeks ago, the Public Health Service will purchase the first lots of this vaccine for the study of epidemic polio control with the oral vaccine. So far this year, no community has experienced an epidemic and the cases, I am glad to say, are running substantially behind last year.

I join with the Surgeon General in urging that every person who has not been vaccinated immediately to do so with the vaccine now available.

Polio denialism threatens resurgences

<https://sciencebasedmedicine.org/wrong-about-polio-a-review-of-suzanne-humphries-md-and-roman-bystrianyks-dissolving-illusions-part-1-the-long-version/>

Wrong About Polio: A Review of Suzanne Humphries, MD and Roman Bystranyk's "Dissolving Illusions" Part 1 (the long version)

This is a longer version of my post on Friday, November 9th, 2018. It is a lengthy discussion of why Suzanne Humphries, MD and Roman Bystranyk's book *Dissolving Illusions* misrepresents the dangers of polio, one in a series of posts that should comprehensively show the problems with their claims. It covers far more than just polio, but is worthwhile for those interested in the details. — Joel A. Harrison on November 10, 2018

more about Humphries and her promotion of hoaxes:

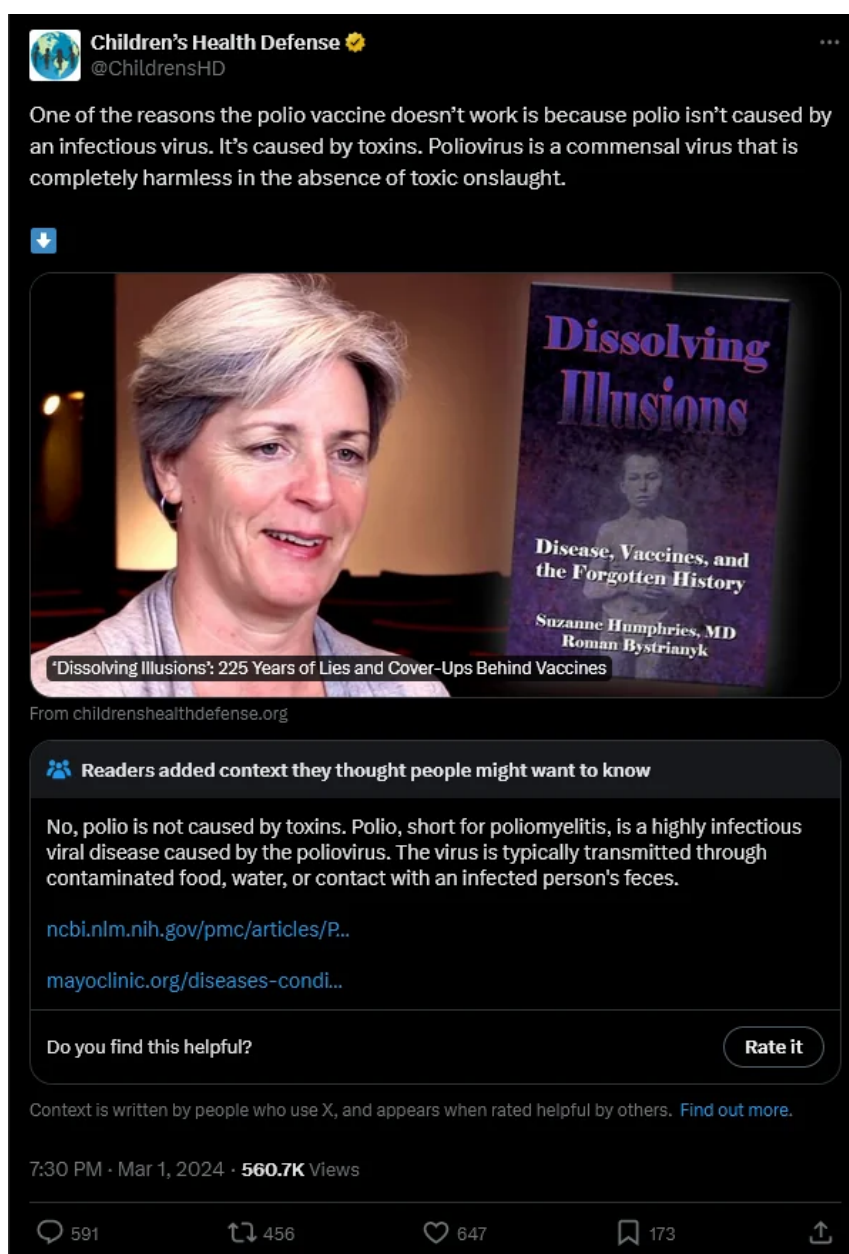
<http://americanloons.blogspot.com/2013/11/783-suzanne-humphries.html>

note: **"Dissolving Illusions" is mostly based on 19th century claims** before the development of electron microscopes and understanding of genetics (among other things).

Children's Health Defense (so-called) is run by Robert Kennedy Junior, the best funded and most influential anti-vaccine group in the world. CHD's leaders are lawyers and activists, not scientists, clinical physicians, biologists or any other specialties that study disease. **CHD and RFK Junior promote germ theory denial — they claim that HIV supposedly does not cause AIDS — so it's not surprising they promote this fictitious book.** The book is published and sold by Amazon, which means it's just a product to sell, not something that has been fact checked. It is unfortunate Dr. Humphries still has a medical license.

CHD / RFK Junior's tweet promoting polio denial is dated March 1, 2024.

www.peakchoice.org/polio.html



Robert F. Kennedy Jr. Should Stop Talking About Vaccines

The presidential candidate now claims that the polio vaccine killed more people than it saved.

PAUL OFFIT JUL 25, 2023

<https://pauloffit.substack.com/p/robert-f-kennedy-jr-should-stop-talking>

Robert F. Kennedy Jr. was born on January 17, 1954. At the time of his birth, polio paralyzed as many as 50,000 children every year and killed 1,500. The year of RFK Jr.'s birth also marked the start of the trial of Jonas Salk's polio vaccine, which was available in 1955. In the early 1960s, Salk's inactivated polio vaccine was replaced by Albert Sabin's live

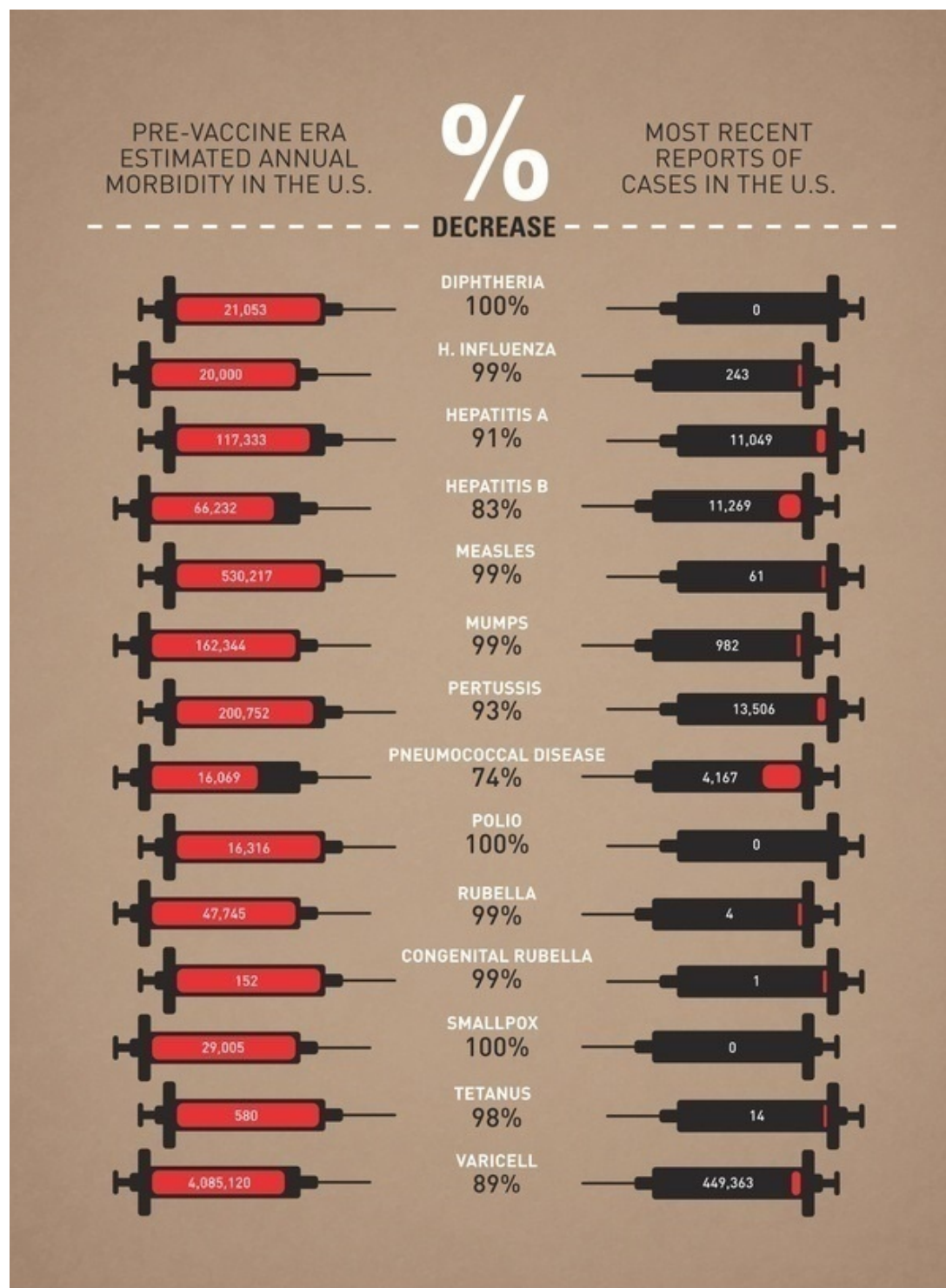
On July 6, 2023, RFK Jr. appeared on Lex Fridman's podcast, which boasts more than 3 million listeners. RFK Jr. declared, "There is no vaccine that is safe and effective." Fridman, trying to select a vaccine that everyone in RFK Jr.'s generation would have appreciated, countered, "Can we talk about polio?" "Well, here's the problem," said Kennedy, "The polio vaccine contained a virus called SV40. It's one of the most carcinogenic viruses known to man...98 million people who got that vaccine in my generation now have this explosion in soft tissue cancers [that] kill many, many, many, many, many, many more people than polio ever did." RFK Jr. was referring to a scare surrounding polio vaccines in the early 1960s that didn't pan out.

Here's what happened. Both Jonas Salk and Albert Sabin used monkey kidney cells to grow polio viruses for their vaccines. At the time, 39 monkey viruses had been identified. Salk and Sabin's vaccines led to the discovery of the 40th. It was called SV40 (Simian Virus 40). Dr. William Mann, then director of the National Zoo in Washington, D.C., explained how the monkeys came to be infected. "The monkeys were trapped in Africa and off-loaded at airports where they would share their viruses," he said. "They would all be forced together in small spaces, sharing their urine and feces...It was a real mess."

Maurice Hilleman, a researcher at Merck, was the first to discover that both Salk's and Sabin's polio vaccines contained SV40. Hilleman then performed an experiment that terrified public health officials and, within several years, made SV40 one of the most studied viruses in the world. Hilleman injected SV40 into newborn hamsters, finding that ninety percent developed tumors under their skin as well as in their lungs, kidneys, and brains. At the time of Hilleman's discovery, Salk's vaccine had been injected into tens of millions of Americans. Sabin's vaccine hadn't yet been licensed in the United States, but it had been given to more than 90 million people in Russia.

During the next few years, studies of SV40 were reassuring. To make his vaccine, Salk had inactivated polio virus with formaldehyde, which also inactivated SV40. Further, researchers found that although SV40 caused cancer when it was injected into hamsters, it didn't cause cancer when it was fed to hamsters. Sabin's vaccine was swallowed, not injected. And none of the children inoculated with Sabin's vaccine developed antibodies to SV40. Apparently, the virus just passed through the intestines without causing an infection. Researchers then compared cancer rates in children who had received SV40-containing polio vaccines with unvaccinated children. Eight years after receiving the tainted vaccines, the cancer incidence was the same in both groups. The same was true fifteen and thirty-five years later. And it was true for children who received SV40-contaminated vaccines in the United States, the United Kingdom, Germany, and Sweden. By the mid-1990s public-health officials were confident that the inadvertent contamination of polio vaccines with SV40 in the early 1960s hadn't caused cancer.

The false claim that polio vaccines caused cancers has now been put to rest. Toward the end of the Lex Fridman podcast, RFK Jr. said, "There are many times that I found that I've made mistakes, and we correct those mistakes." More than a dozen studies have shown that the SV40-contaminated polio vaccines in the late 1950s and early 1960s never caused cancer in people. Now is your chance, Mr. Kennedy, to correct yet another of your false claims about vaccines.



**Evidence for the information is available at JAMA:
*Historical Comparisons of Morbidity and Mortality
 for Vaccine-Preventable Diseases in the United
 States***

<https://jamanetwork.com/journals/jama/fullarticle/209448>

An anti-vaccine trope claims improved sanitation supposedly eradicated polio in the USA, not vaccines. Here is a good summary of why this is dangerous nonsense.

www.sciencemuseum.org.uk/objects-and-stories/medicine/polio-20th-century-epidemic

Polio: a 20th century epidemic

Published: **15 October 2018**

You are reading in Polio: a 20th century epidemic – Part of [Epidemics](#)

While many infectious diseases began to decline by the end of the 1800s, incidents of polio increased to epidemic proportions. What was going on?

Poliomyelitis (polio) is an infectious disease that can cause spinal and respiratory paralysis. Children are particularly vulnerable to the disease, which used to be called infantile paralysis. There is no cure and if the infection affects the lung muscles or brain it can be fatal.

Polio has been around for a long time, but it was never considered a major problem until the end of the 1800s, when something unusual began to happen.

Polio epidemics on the rise

Like many other infectious diseases, polio spreads from person-to-person through the ingestion of faecal matter, often in food and water. **But while improvements in sanitation such as clean water and sewage systems led to the decline of diseases such as typhoid and cholera at the end of the 1800s, outbreaks of polio began to increase.**

The size and number of epidemics continued to increase in Europe and America throughout the first half of the 1900s.

A polio epidemic in New York City

On Saturday 17 June 1916, a polio epidemic was officially declared in the Brooklyn area of New York. The authorities responded aggressively to control the spread of the disease.

Every day the newspapers published the names and addresses of people identified with the disease. Placards were nailed to their doors and their families were quarantined.

Cinemas were closed, public gatherings were cancelled, and parents were told to keep children away from public places such as amusement parks, swimming pools, and beaches. Thousands fled the city to escape the epidemic.

That year, there were over 27,000 cases and more than 6,000 deaths due to polio in the United States, with over 2,000 deaths in New York City alone.

A polio epidemic appeared each summer in at least one part of the country, and major outbreaks became more frequent reaching their peak in 1952 in the USA, with 57,628 cases. Each summer was spent in fear of the disease. And there were similar situations across the rest of North America and Europe.

What caused the epidemics?

For centuries, protection from polio was passed down through the generations. Mothers who had survived polio infection themselves passed on immunity to their babies in the womb and through breast milk.

There are two stages to the polio infection. In the first mild stage the infection stays in the digestive system and throat and doesn't reach the central nervous system. Most babies with maternal immunity are able to fight off the disease at this stage with only mild flu-like symptoms. At the same time, exposure to the first stage gives them their own long-term immunity.

But the unforeseen consequence of better hygiene and sanitation at the end of the 1800s was that babies in clean surroundings stopped encountering the infection while they still had maternal immunity.

So they failed to develop their own long-term immunity and were not protected when they encountered the disease later in life. And exposure to polio in late childhood or as an adult, was more likely to develop to the second, more aggressive stage of the disease.

An Anti-Vaxxers History Lesson

1802	Clean water and a healthy diet starts to eradicate 'Smallpox'
1914	Clean water and a healthy diet starts to eradicate 'Typhoid'
1925	Clean water and a healthy diet starts to eradicate 'Diphtheria'
1937	Clean water and a healthy diet starts to eradicate 'Yellow Fever'
1954	Clean water and a healthy diet starts to eradicate 'Polio'
1964	Clean water and a healthy diet starts to eradicate 'Measles'
1969	Clean water and a healthy diet starts to eradicate 'Rubella'
2006	Clean water and a healthy diet starts to eradicate 'Rotavirus'

...or was it the vaccines that were introduced those very same years?

<http://www.historyofvaccines.org/content/timelines/diseases-and-vaccines>

The symptoms of polio

Second stage symptoms are more severe and include fever, muscle stiffness and headache, and maybe some temporary weakness or paralysis. The weakness or paralysis usually confirms that the disease is polio.

The author Philip Roth describes the frightening symptoms in his novel *Nemesis*, set in Newark in 1944:

Finally the cataclysm began – the monstrous headache, the enfeebling exhaustion, the severe nausea, the raging fever, the unbearable muscle ache, followed in another forty-eight hours by the paralysis.
Philip Roth

In Roth's story, everyone knows what polio is but no one knows where it comes from or how it is transmitted, and everything from flies to fast food are blamed for its spread.

In the second or acute stage, the infection reaches the central nervous system, where it begins to damage the cells that control the muscles (motor neurons). If 50% or more of the motor neurons are destroyed, then paralysis is permanent. This happened to about 1 person in 200. If the infection reaches motor neurons high in the spinal cord or in the brain, death could result.

The epidemic rise of polio led to renewed research into the disease and in 1908, Karl Landsteiner and Erwin Popper determined that polio was a viral infection. It was not until 1953 that the poliovirus that caused the disease was actually seen through an electron microscope.

Treatment and rehabilitation

Early treatments for paralyzed muscles advocated the use of splints to prevent muscle tightening and rest for the affected muscles. Many paralyzed polio patients lay in plaster body casts for months at a time. But long periods in a cast often resulted in atrophy of both affected and healthy muscles.

Treatment of polio was revolutionised in the 1930s by Elizabeth Kenny, a self-trained nurse from Queensland, Australia. Kenny developed a form of physical therapy that used hot, moist packs and massage and exercise and early activity to maximize the strength of unaffected muscles and stimulate the remaining nerve cells that had not been killed by the virus.

Kenny later established the Sister Kenny Rehabilitation Institute in America and by the mid-1900s her therapy was the accepted treatment for paralytic polio. And it is still used today.

Polio is a very painful disease and the recovery could take years of agonising rehabilitation to regain the use of arms and legs. Philip Roth described his character's experience in 1944:

He underwent four torturous sessions of the hot packs a day, together lasting as long as four to six hours. Fortunately his respiratory muscles hadn't been affected, so he never had to be moved inside an iron lung to assist with his breathing, a prospect that he dreaded more than any other.

The iron lung was developed in 1928 for patients whose lung muscles were paralysed so they could no longer breathe unaided. Most patients only had to spend a short period in the iron lung before they regained the use of their lungs. But some patients with permanent paralysis of the lungs had to stay encased up to their necks in the large cumbersome contraptions for the rest of their lives.

The impact of polio epidemics

Polio vaccines

With no cure for polio, research efforts were focussed on developing a vaccine to prevent the disease. The first polio vaccine was developed by Jonas Salk, with the help of funds from the March of Dimes.

In 1954, Salk launched what was then the largest human medical trial in history, injecting nearly 2 million American children with a potential vaccine. The Salk vaccine, or inactivated poliovirus vaccine (IPV), contained a deactivated form of the poliovirus and was administered by injection.

Immediately following licensing in 1955, a mass vaccination campaign was launched. The effects of vaccination were dramatic. More than 38,000 polio cases were reported in 1954 in the United

States. After just five years of vaccination, the number of paralytic polio cases had dropped to 2,525 in 1960.

Eight years after Salk trialled his vaccine, [Albert Sabin](#) developed an oral polio vaccine (OPV) using live but weakened (attenuated) virus. Sabin couldn't gain political support in the U.S. for what he viewed as his superior vaccine. So, at the height of the Cold War, he tested it in the Soviet Union, which had also suffered a major polio epidemics.

In 1958, the Soviet Union organized industrial production of the OPV vaccine and polio began to decline in Eastern Europe and Japan. This success led the United States to license Sabin's vaccine in 1961.

Both the Salk and Sabin vaccines are still used today. But Sabin's OPV, which requires just two drops in a child's mouth, proved much easier to use in mass immunization campaigns and gave life-long immunity.

By 1961, only 161 cases of polio were recorded in the United States. By 1988, polio had disappeared from the US, Australia and much of Europe but remained prevalent in more than 125 countries. The same year, the World Health Assembly adopted a resolution to eradicate the disease completely by the year 2000.



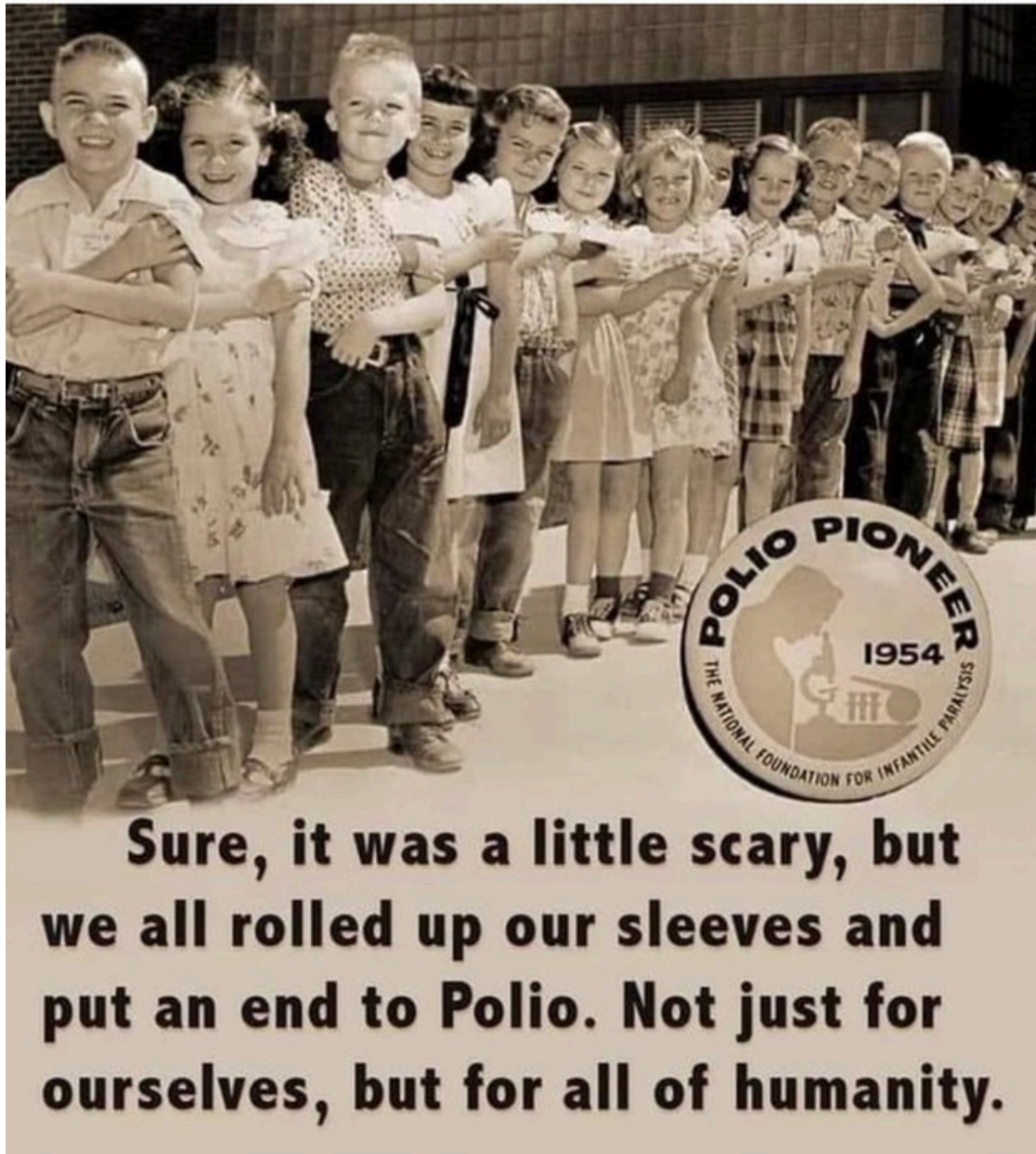
Eradicating polio

The World Health Assembly did not meet its millennium target, but by 2012, endemic polio remained in just four countries—Afghanistan, Nigeria, Pakistan and India.

But epidemics don't respect national borders. In 2011 the infection crossed the border from Pakistan - a decade after China was officially declared polio-free. China regained its polio-free status once the outbreak was brought under control.

Polio eradication in India

India's National Immunisation Days, dedicated to the fight against polio, began in 1995. Within two decades annual cases of the disease were down from over 3,000 to none. India was officially declared polio-free in 2014.



The world is even closer to being polio free, with endemic polio remaining in just two countries —Pakistan and Afghanistan. But until the infection is eradicated from every population in the world, the threat of epidemics remains, thanks to global transport networks, and immunisation has to continue.

they all got vaccine except dad...



This actually happened to the man in the iron lung... James Wood, 36, of Charlotte, Mich. He was the only member of his family not vaccinated against polio and the only one to come down with the disease. Wood and his wife both planned to be vaccinated. One night last April they were about to go out for their Salk shots when friends dropped in and the trip was postponed. Later, an extra-money night job kept Wood from going to a vaccine clinic with his wife. The children, of course, had been vaccinated. Robert, 13, Norman, 11, Nancy, 10, James, 6, and Sarah Jane, 3, had all three shots; Edgar, 2, had two. Baby John was born after dad was stricken. "Jim just didn't get to it," Mrs. Wood says of the ill fortune that befell her husband. "Now, the only good will be if what happened to us helps somebody else."

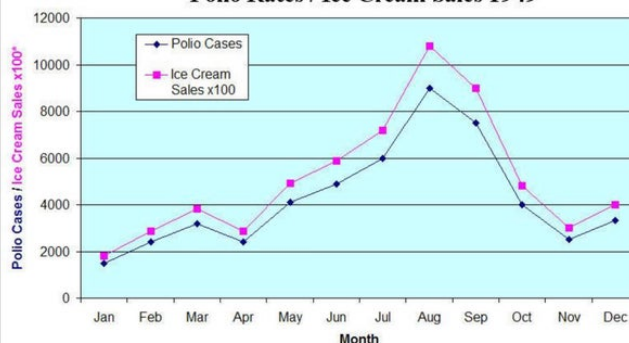
don't take a chance...take your polio shots!

THE NATIONAL FOUNDATION FOR INFANTILE PARALYSIS

301 EAST 42nd STREET, NEW YORK 17, N. Y.

The Real Cause of Polio!

Polio Rates / Ice Cream Sales 1949



In the late 1940s, before there was a polio vaccine, public health experts in America noted that polio cases increased in step with the consumption of ice cream and soft drinks. Eliminating such treats was even recommended as part of an anti-polio diet. It turned out that polio outbreaks were most common in the hot months of summer, when people naturally ate more ice cream, showing only an association.

<http://www.nytimes.com/2009/08/06/technology/06stats.html>

* Ice cream sales for illustration purposes only