

Jonas Salk, Medical Sleuth and Scientist

STANLEY M. ARONSON, MD

WHEN THEIR FIRST SON WAS BORN ON October 28, 1914, the Salks named him Jonas, a curious and rarely used spelling for the name of the minor prophet Jonah. The family, who lived in the Bronx, was poor. Jonas' parents, both immigrants from czarist Russia, worked in the garment industry in New York City, and the choice of Jonas' college was therefore narrowed to City College of New York, a tuition-free municipal institution in upper Manhattan. His original intention had been to prepare himself for a career in the law but exposure to the mysteries of biology led him to think, rather, of medicine.

Salk applied for and was accepted to the School of Medicine at New York University in Manhattan. Of the many aspects of human disease that Salk encountered as a medical student, the physiological intricacies of the immune response to pathogens fascinated him the most. His absorption in immunology was so intense that he was granted a year off solely to pursue research work in the chemistry of vaccines.

Upon graduation from medical school, Salk completed the customary internship training at Mount Sinai Hospital in New York City. He then left the arena of clinical medicine to join the University of Michigan Medical School basic sciences faculty, to conduct research on influenza vaccines. The influenza virus had recently been isolated, and working with Dr. Thomas Francis, Salk undertook the immense task of devising an influenza vaccine for the United States Army. Their efforts were successful and by 1947 Salk accepted a research professorship at the University of Pittsburgh, heading

their virus research laboratory to further study vaccine programs.

The Foundation for Infantile Paralysis, more commonly known as the March of Dimes, through its director Basil O'Connor, expressed interest in Salk's theory that a vaccine composed of killed virus particles might be as effective as a vaccine of modified, virulent virus particles. It had been believed that any laboratory manipulation of viruses would so alter its capacity to elicit an immune response as to make it ineffective as a vaccine. Salk believed otherwise, and by minimally altering the poliomyelitis virus through exposure to formaldehyde, he believed that the resulting vaccine, devised from the killed virus, would prove to be both immunologically effective and clinically safe.

The Foundation then chose to underwrite Salk's research protocol and for the next five years he labored to perfect a safe vaccine. Both he and the Foundation were under immense public pressure to hasten the development of this vaccine. In 1952, for example, 57,628 Americans, mainly children, were newly afflicted with paralytic poliomyelitis, making it the worst year on record for this dread disease. That same year, using a trial form of the vaccine, Salk inoculated a small group of volunteers, including his three sons, his wife and himself.

The results were encouraging and a



Dr. Jonas Salk, 1955 [NATIONAL LIBRARY OF MEDICINE]

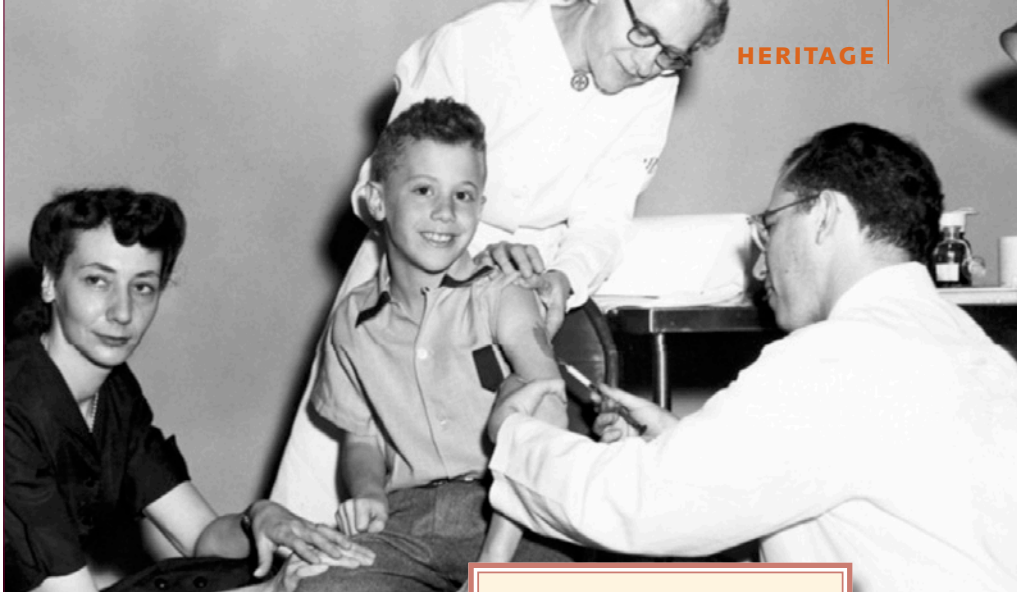
massive inoculation campaign was then undertaken in 1954 with 1.83 million children receiving the Salk vaccine. In the following year his results were published in the *Journal of the American Medical Association*, and on April 12, 1955, a number of monitoring committees jointly declared the injectable vaccine to be both safe and effective.

Salk then endeared himself to a vast public when he refused to patent the vaccine and thus did not profit from his discoveries. ❖

[Editor's Note: This article, written by the late Stanley M. Aronson, MD, founding dean of Brown's medical school and a former editor-in-chief of the *Rhode Island Medical Journal*, appeared in *Medical Odysseys*, a book published by the Rhode Island Medical Society, in 2011.]

Polio Pioneers

In 1954, The March of Dimes organized testing of the Salk polio vaccine with 1.8 million schoolchildren who became known as “Polio Pioneers” and were part of the largest peacetime mobilization of volunteers in our history. In all, 1.3 children took part as vaccine recipients, placebo recipients, or observed controls. The vaccine was declared “safe, effective, and potent” against paralytic polio on April 12, 1955.



Peter Salk gets a polio shot from his father in the spring of 1953, as his mother looks on.

[MARCH OF DIMES, MARCHOFDIMES.ORG]

Children who participated in the 1954 U.S. trial of Jonas Salk’s inactivated polio vaccine trial were dubbed “polio pioneers” and were given pins and cards to mark their status.

[PIN: THE HISTORICAL MEDICAL LIBRARY OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA]

**“Hope lies in dreams,
in imagination and in
the courage of those
who dare to make
dreams into reality.”**

— *Jonas Salk, MD*



Child in Providence receives the vaccine at a polio clinic in 1962.

[RHODE ISLAND DIGITAL ARCHIVES, SECRETARY OF STATE’S OFFICE, DEPT. OF HEALTH PHOTOGRAPHS]

During devastating polio epidemics, the March of Dimes paid for and transported thousands of iron lungs in 1946.