

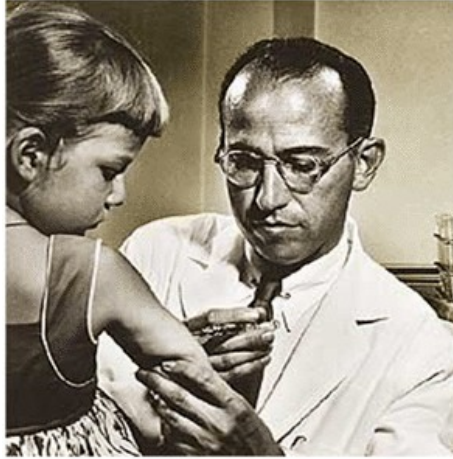


From the Annals of the World History

Jonas Salk

October 28, 1914 - June 23, 1995

Jonas Edward Salk was an American medical researcher and virologist, best known for his discovery and development of the first safe and effective polio vaccine. He was born in New York City to parents from Ashkenazi Jewish Russian immigrant families. Although they themselves did not have much formal education, they were determined to see their children succeed. While attending New York University School of Medicine, he stood out from his peers not just because of his academic prowess, but because he chose to do medical research instead of becoming a physician.



Until 1955, when the Salk vaccine was introduced, polio was considered the most frightening public health problem of the post-war United States. Annual epidemics were increasingly devastating. The 1952 epidemic was the worst outbreak in the nation's history. U.S. president Franklin D. Roosevelt was the world's most recognized victim of the disease and founded the organization that would fund the development of a vaccine.

In 1947, Salk accepted an appointment to the University of Pittsburgh School of Medicine. In 1948, he undertook a project funded by the National Foundation for Infantile Paralysis to determine the number of different types of polio virus. Salk saw an opportunity to extend this project towards developing a vaccine against polio, and, together with the skilled research team he assembled, devoted himself to this work for the next seven years. The field trial set up to test the Salk vaccine was, according to O'Neill, "the most elaborate program of its kind in history, involving 20,000 physicians and public health officers, 64,000 school personnel, and 220,000 volunteers." Over 1,800,000 school children took part in the trial. When news of the vaccine's success was made public on April 12, 1955, Salk was hailed as a "miracle worker", and the day "almost became a national holiday." His sole focus had been to develop a safe and effective vaccine as rapidly as possible, with no interest in personal profit. In 1960, he founded the Salk Institute for Biological Studies in La Jolla, California, which is today a center for medical and scientific research.

Early life

When he was 13, Salk entered Townsend Harris High School, a public school for intellectually gifted students. In high school "he was known as a perfectionist...who read everything he could lay his hands on", according to one of his fellow students. Salk enrolled in City College of New York from which he earned a Bachelor of Science degree in 1934. At his mother's urging, he put aside aspirations of becoming a lawyer, and instead concentrated on classes necessary for admission to medical school. As a child, Salk did not show any interest in medicine or science in general.

Medical school

During his years at the New York University School of Medicine he stood out from his peers because he had decided he did not want to practice medicine. Instead, he became absorbed in research, even taking a year off to study biochemistry. He later focused more of his studies on bacteriology which had replaced medicine as his primary interest. He said his desire was to help humankind in general rather than single patients.

Post-graduate research

During his senior year in medical school he chose a two-month elective to work in the laboratory of Dr. Thomas Francis. Francis had recently joined the faculty of the medical school after working for the Rockefeller Foundation, where he had discovered the Type B influenza virus. After graduating from medical school he began his residency at New York's Mount Sinai Hospital, where he again worked in Francis's laboratory.

Research career

By 1947, Salk decided to find an institution where he could direct his own laboratory. After three institutions turned him down, he received an offer from William Mc Ellroy, the dean of the University of Pittsburgh School of Medicine, which included a promise that he would run his own lab. He accepted, and in the fall of that year left Michigan and relocated to Pennsylvania. As time went on, however, he began securing grants from the Mellon family and was able to build a working virology laboratory, where he continued his research on flu vaccines.

He was later approached by the director of research at the National Foundation for Infantile Paralysis and asked if he would like to participate on the foundation's polio project, which had earlier been established by President Franklin D. Roosevelt, at the time thought to be a victim of polio himself. He quickly accepted the offer saying he "would be happy to work on this important project."

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Joining the fight against polio



Polio was a medical oddity that baffled researchers for years. It was first recorded in 1835 and grew steadily more prevalent. It took a long time to learn that the virus was transmitted by fecal matter and secretions of the nose and throat. It entered the victim orally, established itself in the intestines, and then traveled to the brain or spinal cord. At the start of the 20th century, during the 1914 and 1919 polio epidemics in the U.S., physicians and nurses made house-to-house searches to identify all infected persons. Children suspected of being infected were taken to hospitals and the child's family was quarantined until they were no longer potentially infectious, even if it meant they could not go to their child's funeral if the child died in the hospital.

As the fear of polio increased each year, funds to combat it increased from \$1.8 million to \$67 million by

1955. This was the situation when young Jonas Salk, a medical doctor in charge of a virology laboratory at the University of Pittsburgh, decided to use the safer killed virus", writes O'Neill. After successful tests on laboratory animals, it next had to be tested on human beings. "Who would take the risk?" author Dennis Denenberg asked. "Dr. Jonas Salk did ... along with his wife and children, who also allowed themselves to be human guinea pigs." In November, 1953, at a conference in New York's Waldorf-Astoria Hotel, he said, "I will be personally responsible for the vaccine." He announced that his wife and three sons had been among the first volunteers to be inoculated with his vaccine.

The field trial set up to test the vaccine developed by Salk and his research team was the most elaborate program of its kind in history, involving 20,000 physicians and public health officers, 64,000 school personnel, and 220,000 volunteers with over 1,800,000 school children participating in the trial.

Discovering a vaccine

On April 12, 1955, Dr. Thomas Francis, Jr., of the University of Michigan, the monitor of the test results, "declared the vaccine to be safe and effective." The announcement was made at the University of Michigan, exactly 10 years to the day after the death of President Roosevelt. Five hundred people, including 150 press, radio, and television reporters, filled the room; 16 television and newsreel cameras stood on a long platform at the back; and 54,000 physicians, sitting in movie theaters across the country, watched the broadcast on closed-circuit television. Eli Lilly and Company paid \$250,000 to broadcast the event. Americans turned on their radios to hear the details, department stores set up loudspeakers, and judges suspended trials so that everyone in the courtroom could hear. Europeans listened on the Voice of America.

Global acceptance and hope

Six months before Salk's announcement, optimism and hope were so widespread that the Polio Fund in the U.S. had already contracted to purchase enough of the Salk vaccine to immunize 9,000,000 children and pregnant women the following year. And around the world, the official news prompted an immediate international rush to vaccinate. Overnight, Salk had become an international hero and a household name. His vaccine was a modern medical miracle. Because he was the first to prove that a killed-virus could prevent polio.

By the end of 1990 it was estimated that 500,000 annual cases worldwide of paralysis as result of polio had been prevented due to immunization programs carried out by WHO, UNICEF, and many other organizations. In developing countries, estimates ran as high as 350,000 cases each year in 1988. As a result, in 2002, more than 500 million children were immunized in 93 countries, and by December 2002, there were only 1,924 cases worldwide, with 1,599 of them in India. However, there were still six other countries where polio is suspected of being endemic: Afghanistan, Egypt, Niger, Nigeria, Pakistan, and Somalia.

One of the greatest challenges to mankind always has been eradicating the presence of debilitating disease. Until just thirty years ago poliomyelitis occurred in the United States and throughout the world in epidemic proportions, striking tens of thousands and killing thousands in our own country each year. Dr. Jonas E. Salk changed all that.