

REVIEW ARTICLE

Contribution of Dr. Alert Sabin in Field of Pediatrics

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ABSTRACT

Dr. Albert Bruce Sabin, a Polish-American virologist, transformed global public health through the development of the oral polio vaccine (OPV), a breakthrough that played a pivotal role in the near-eradication of poliomyelitis worldwide. Born in 1906 and shaped by early experiences of poverty, migration, and disease, Sabin devoted his career to understanding and preventing infectious illnesses affecting children. Unlike Jonas Salk's injectable inactivated vaccine, Sabin's live attenuated oral vaccine induced strong intestinal immunity, effectively halting viral transmission and enabling large-scale immunization campaigns, especially in low-resource regions. Despite scientific rivalries, political challenges, and Cold War barriers, Sabin persisted and conducted crucial field trials internationally, including in the Soviet Union. His decision not to patent the OPV reflected his deep humanitarian commitment, ensuring global accessibility. Sabin's legacy is defined not only by scientific brilliance but by ethical leadership, resilience, and lifelong dedication to protecting children's health across the world.

Key Messages: Dr. Albert Bruce Sabin revolutionized global public health by developing the oral polio vaccine (OPV), a safe, low-cost, easily administered vaccine that protected millions of children worldwide and dramatically reduced polio transmission. His selfless decision to not patent the vaccine ensured universal accessibility, demonstrating that scientific innovation coupled with humanitarian ethics can transform global child health.

KEYWORDS

• Albert Sabin • Oral Polio Vaccine (OPV) • Poliomyelitis • Live Attenuated Vaccine • Global Health • Immunization • Virology • Pediatric Infectious Diseases

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INTRODUCTION

Background: Albert Bruce Sabin was born on August 26, 1906, in Białystok, then part of the Russian Empire (present-day Poland). He was born into a Jewish family, which emigrated to the United States in 1921 to escape religious persecution and economic hardship. The Sabins settled in Paterson, New Jersey, where Albert learned English and quickly adapted to his new environment. Initially interested in dentistry, Sabin enrolled at New York University (NYU). However, during his studies, he became increasingly fascinated with microbiology and infectious diseases. This shift in interest led him to pursue a medical degree at NYU, from which he graduated in 1931. He then joined the Rockefeller Institute and later the Children's Hospital Research Foundation in Cincinnati, where his life's work on poliovirus would begin. His early exposure to poverty and illness deeply influenced his passion for pediatric care and disease prevention. Scientific contributions Albert Sabin's most significant scientific contribution was the development of the oral polio vaccine, which played a crucial role in nearly eradicating poliomyelitis globally. Polio was a feared disease, especially among children. It could cause irreversible paralysis and death. Before Sabin's vaccine, Jonas Salk had introduced an injectable vaccine using an inactivated virus. While effective, it did not stop transmission of the virus in the gut. Sabin approached the problem differently. He developed a live attenuated vaccine, which, when taken orally, mimicked natural infection, stimulating a strong immune response in the gut. This not only protected individuals from the disease but also prevented the spread of the virus within communities. The oral method made the vaccine easier to administer, especially in mass immunization campaigns targeting children in remote or low-resource settings. The vaccine was tested successfully in the Soviet Union in the late 1950s and was later adopted globally. Sabin's OPV became the standard vaccine in many countries for decades and was a key component of the World Health Organization's Global Polio Eradication Initiative. Beyond polio, Sabin also made contributions to research on dengue, encephalitis, and toxoplasmosis, many of which affect children disproportionately.

Challenges and Breakthroughs: Sabin's journey to success was far from smooth.

As a Jewish immigrant, he faced social and professional barriers in early 20th-century America. The scientific community was competitive and often influenced by politics and public perception. For example, Jonas Salk became a national hero for his injectable vaccine, while Sabin worked in relative obscurity for years on his oral version. One of Sabin's major hurdles was getting support for field trials of his vaccine. The political climate of the Cold War made it difficult to collaborate internationally. However, he broke barriers by conducting large-scale trials in the Soviet Union, which later proved instrumental in global acceptance of his vaccine. Perhaps the most remarkable aspect of Sabin's character was his decision not to patent the oral polio vaccine. He believed that scientific progress, especially when it involved saving children's lives, should not be hindered by financial barriers. This altruistic choice allowed the vaccine to be manufactured and distributed globally at a low cost, making it accessible to even the poorest countries.

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1. Let passion guide your path – Sabin started in dentistry but found his calling in virology. Following one's true interests can lead to meaningful work.
2. Serve others with science – His commitment to using science for the betterment of children's health across the world exemplifies true humanitarian spirit.
3. Be ethically grounded – Refusing to patent the vaccine showed that ethics and compassion should guide professional decisions.
4. Persistence pays off – Despite obstacles, rivalries, and delays, Sabin continued working on what he believed was a better solution for polio. His persistence paid off not just for him, but for the world.
5. Global collaboration matters – Working with scientists from different countries, even during times of political tension, helped Sabin demonstrate that science transcends borders.

These values curiosity, service, resilience, and integrity are timeless and relevant to any student aiming to make a lasting impact

CONCLUSION

Albert Sabin's legacy goes far beyond the laboratory. His oral polio vaccine has protected generations of children from one of the most devastating diseases in history. But it is not just his scientific achievement that stands out it is the selflessness, perseverance, and vision with which he pursued his mission. In today's world, where healthcare disparities still exist and innovation is often driven by profit, Sabin's life reminds us that the true measure of success is not in fame or wealth, but in how many lives we touch and uplift. He remains an enduring role model for students, scientists, and global leaders

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Conflict of Interest: None

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