



Maurice R. Hilleman, Ph.D
Recipient of the Maxwell Finland
Award for Scientific Achievement

1998

Few have played a greater role in preventing human suffering and death than this year's recipient of the Maxwell Finland Award for Scientific Achievement, presented by the National Foundation for Infectious Diseases. As the developer of more than 40 vaccines that have saved millions of lives, Dr. Maurice Hilleman's accomplishments in disease prevention are unparalleled. He is known as the scientist who has developed more vaccines than any other person during a professional career that has spanned more than five decades in academia, government, and industry.

"Dr. Hilleman is one of the world's foremost vaccinologists, and one of the true giants of science, medicine, and public health in the 20th century," says Anthony S. Fauci, MD, director of the National Institute of Allergy and Infectious Diseases of the National Institutes of Health (NIH) and recipient of the Maxwell Finland Award in 1989. "One can say, without hyperbole, that Maurice has

changed the world with his myriad contributions in virology, epidemiology, immunology, cancer research, and vaccinology."

Many of our most important vaccines can be attributed to the work of Dr. Hilleman. He and his colleagues pioneered and developed vaccines from their initial concept to final licensed products, including vaccines against measles, mumps, rubella, varicella (commonly known as chicken pox), hepatitis A and B, meningococci, pneumococci, and Marek's disease of chickens (cancer). Dr. Fauci says that his pioneering work in this area has "brought us into the golden age of vaccinology."

His pioneering pursuit of live virus vaccines in the 1960s led him to develop the first licensed vaccine against measles using the Edmonston B strain of Drs. John Enders and Samuel Katz. Major hurdles that were overcome included attenuation of viral virulence for use in babies and in elimination of the chicken leukemia virus that was ubiquitously present in chick embryo cells.





Dr. Hilleman is especially well-known for the human interest story of father and daughters that aided his development of the live mumps vaccine licensed in 1967.

Dr. Hilleman's daughter, Jeryl Lynn, came down with the mumps in 1963. By preserving specimens from her throat, Dr. Hilleman was able to later use these same specimens to isolate the Jeryl Lynn strain of mumps virus and to develop the mumps vaccine. During the vaccine's clinical trials in the mid-1960s, Dr. Hilleman's younger daughter, Kirsten, received the experimental vaccine.

After his rubella virus vaccine was licensed in 1969, Dr. Hilleman was able to fulfill his vision of preventing measles, mumps, and rubella by a single injection of a triple-combined vaccine. This work led to the discovery and licensure of the widely-used measles-mumps-rubella (MMR) vaccine.

The MMR vaccine has virtually eliminated the threat of these diseases in the United States. "In addition to preventing pain, suffering, and death

from these diseases, MMR vaccines save, in the United States alone, over five billion dollars in direct and indirect costs for each birth cohort vaccinated," said Dr. Fauci.

Dr. Hilleman has been heralded for his pioneering development of the vaccine against human hepatitis B that causes cirrhosis and cancer of the liver. Developed originally using virus antigen purified from the blood of human carriers of the infection, it was replaced by the same antigen made artificially in yeast cultures. This vaccine is now being used worldwide, especially in infants, and it provides the means to prevent liver cancer and cirrhosis as well as to eradicate the virus itself in future years.

More recently, Dr. Hilleman has played a leading role in developing concepts and paths to follow to an AIDS vaccine, working with key figures from industry, government, and academia. He is hopeful that this much needed goal will be achieved. "As one of vaccinology's leading statesmen, his voice has particular resonance in this arena," Dr. Fauci explains. "This is not only because of his remarkable scientific acumen and broad experience, but because he knows first-hand the strengths of each sector and the synergy that is possible with visionary leadership."

Currently, Dr. Hilleman serves as the director of the Merck Institute for Therapeutic Research, Merck & Co., Inc., and as adjunct professor of pediatrics at the University of Pennsylvania School of Medicine. Throughout his career, he has focused his research on both basic and applied science, but

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his contributions do not stop with vaccinology. He has made breakthrough discoveries or co-discoveries of numerous viruses, including hepatitis A, simian virus 40, the adenoviruses, and rhinoviruses. He and his co-workers were pioneers in purifying and describing the mode of action of the interferons and in discovering the means and mechanisms for interferon induction by nucleic acids. He also made seminal contributions to epidemiology.

During the spring of 1957, while engaged in influenza research at Walter Reed Army Institute of Research, he noted a report in

The New York Times of a severe respiratory disease epidemic in Hong Kong. To Dr. Hilleman, this seemed like pandemic influenza. Subsequently, it did turn out to be the second pandemic of this century, following the 1918-1919 Spanish influenza pandemic. Dr. Hilleman's recovery and analysis of the virus showed it to be different from previous strains, allowing him to predict the pandemic occurrence the following fall. This early alert and the availability of the virus made it possible to develop 40 million doses of vaccine by the time the epidemic peaked at Thanksgiving—saving tens of thousands of lives.

Dr. Hilleman has received numerous awards for his achievements in science. Some of these include the Lasker Medical

Research Award, the National Medal of Science presented by President Reagan, the Special Lifetime Achievement Award from the Children's Vaccine Initiative of WHO, the Distinguished Service Medal for Research presented by the U.S. secretary of defense, and the Albert B. Sabin Gold Medal and Lifetime Achievement awards. Dr. Hilleman has also been recognized by numerous foreign governments for his work, including the San Marino Prize, the Robert Koch Gold Medal, and the Gold Medal for Scientific Achievement presented by King Hassan of Morocco.

Born and reared on the high plains of southeastern Montana, Dr. Hilleman received his bachelor's degree in 1941 from

Montana State University. He went on to complete his doctoral degree in 1944 at the University of Chicago and holds several honorary doctorates. Dr. Hilleman is an elected member of the U.S. National Academy of Science (NAS), the American Academy of Arts and Sciences, the Institute of Medicine of the NAS, and the American Philosophical Society. He serves on numerous global scientific advisory boards and committees, including NIH's Office on AIDS Research Program Evaluation, and has been a member of the Advisory Panel of WHO for more than 45 years.

