

# Hattie Elizabeth Alexander Biography

## Hattie Elizabeth Alexander

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# Biography

Hattie Elizabeth Alexander was a pediatrician and microbiologist who made fundamental contributions in the early studies of the genetic basis of bacterial **antibiotic resistance**, specifically the resistance displayed by *Hemophilus influenzae*, the cause of influenzal **meningitis** (swelling of the nerves in the spinal cord and brain). Her pioneering studies paved the way for advances in treatment that have saved countless lives.

Alexander was born in Baltimore, Maryland. She received her B.A. degree from Goucher College in 1923. After working as a **public health** bacteriologist from 1923 to 1926, she entered the Johns Hopkins School of Medicine. She received her M.D. in 1930. Alexander assumed a residency at New York City Babies Hospital in 1930. She remained there for the remainder of her career, attaining the rank of Professor in 1957.

Alexander pioneered studies of the antibiotic resistance and susceptibility of *Hemophilus influenzae*. In 1939 she successfully utilized an anti-**pneumonia** serum that had been developed at Rockefeller University to cure infants of influenzal meningitis. Until then, infection with *Hemophilus influenzae* type b almost always resulted in death. Her **antiserum** reduced the death rate by almost 80%. Further research led to the use of **sulfa drugs** and other **antibiotics** in the treatment of the meningitis.

In other research, Alexander established that *Hemophilus influenzae* was the cause of a malady known as epiglottitis (also called croup). Her discovery prompted research that has led to effective treatments for croup.

In the 1950s Alexander began studies on the genetic basis of antibiotic resistance. During the next two decades she made fundamental observations concerning bacterial and **viral genetics**. She demonstrated that the ability of *Hemophilus influenzae* to cause disease rested with its genetic material. Additionally she demonstrated that the genetic material of poliovirus could infect human cells. She also proposed that the mechanisms of inheritance of traits in **microorganisms** could be similar to the mechanisms operating in humans. Time has borne out her suggestion.

In addition to her research, Alexander devoted much time to teaching and clinical duties. For her research and other professional accomplishments Alexander received many awards, honorary degrees, and other honors. Notably she became the first woman president of the American Pediatric Society in 1965.