

Outbreak Central

The CDC headquarters in Atlanta, Georgia



The CDC has a long history of tracking epidemics in the U.S. and around the world.

"You may not know our name," a worker at the CDC says. "But you hear from us when an outbreak occurs and a quick response is needed."

The CDC is the U.S. government agency that fights epidemics. Here's a quick look at some of the epidemics it has investigated.

1946 1950 1953 1954 1958 1976 1989 2008 2020

1946: The CDC is formed. Its first mission is to wipe out malaria in the U.S. Malaria is an infectious disease carried by mosquitoes.



1950: The CDC studies polio in Ohio. The polio virus attacks the nerves and causes paralysis.



1953: The CDC reports the first case of rabies in a bat. Rabies is spread mainly by infected animals.

1954: The CDC begins studying leptospirosis. This disease is spread by drinking water that has been contaminated by urine from an infected animal.



1958: A CDC team goes to Southeast Asia to help with two epidemics: cholera, which attacks the small intestine, and smallpox, which causes blisters on the skin.

1989: The CDC reports that guns are the eighth-leading cause of death in the U.S., qualifying gun violence as an epidemic and a threat to public health.

2020: The CDC monitors and responds to the outbreak of a respiratory disease (COVID-19) caused by a new coronavirus. The virus was first detected in China in 2019, and it quickly turned into a pandemic with global effects.

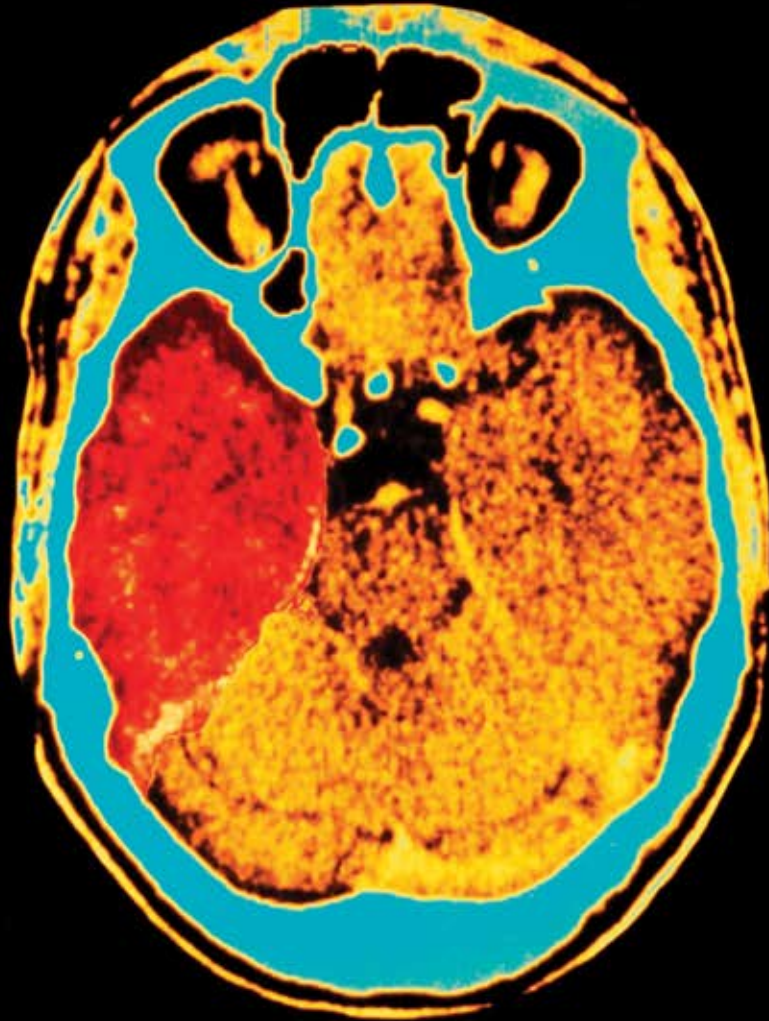
A CDC RESEARCHER does a test on an egg infected with a flu virus.



2008: The CDC monitors huge outbreaks of food-borne illnesses.

1976: The CDC investigates outbreaks of the Ebola virus in the African countries of Zaire and Sudan. Ebola causes massive internal bleeding.

THIS BRAIN SCAN shows encephalitis (red area) on the left side of a person's brain.



Search for the Vector

Scientists investigate a mysterious virus. Meanwhile, a killer is on the loose.

Dr. Ned Hayes met with his colleagues at the CDC. The CDC monitors epidemics and other events that threaten public health.

The CDC scientists were perplexed. Doctors in New York City were reporting mysterious cases of encephalitis. That's the term for a dangerous inflammation, or swelling, of the brain. It's often

fatal. One doctor saw two cases in a matter of days. And six cases were reported in the same neighborhood.

Viruses

Encephalitis can be caused by a virus. Viruses are extremely tiny. They grow and reproduce inside the cells of a host plant or animal. There are thousands of kinds of viruses. If the conditions are right, they can cause serious diseases in their hosts.

The doctors in New York tested the sick patients for the viruses that most commonly cause encephalitis. The patients' test results were negative for those viruses. That meant that they had been infected by a more unusual virus.

But how had they gotten the virus? Many of the infected patients lived near each other. The New York doctors suspected that they had all been infected by the same vector—or carrier—of the virus. That vector was most likely mosquitoes.

Scientists at the CDC asked the New York City Health Department for the patients' blood samples. These samples were tested. Results showed that the New Yorkers were indeed suffering from a mosquito-borne virus.

Disease Cycle

The patients appeared to have a viral disease called St. Louis encephalitis. It's carried by mosquitoes that belong to a group known as *Culex*.

The mosquitoes get the virus by feeding on infected birds. Then the infected mosquitoes pass the virus on to humans. Typically, neither birds nor mosquitoes are harmed by the St. Louis virus. Most people don't suffer any symptoms either. But the virus can cause headaches and fevers in some people. And some people, especially the elderly, can get very sick.

