

Then: Vaccines and Antibiotics

by Sophia Tutorial



WHAT'S COVERED

In this lesson, you will learn about different ways diseases have been classified and a few of the most important developments for dealing with diseases. Specifically, this lesson will cover:

1. Pandemics
2. Vaccines
3. Antibiotics



BEFORE YOU START

How has technology for treating diseases changed over time?

1. Pandemics

Disease has had profound effects on societies throughout history. One of the most famous examples of a **pandemic** is the bubonic plague that swept through Asia and Europe in the 1300s, which took so many lives that it came to be known as the Black Death. Another is smallpox, which was unknown in the Americas prior to the 1500s. European soldiers and colonists brought the smallpox virus with them to the New World, catastrophically infecting the indigenous population. The influenza pandemic of 1917–18 took the lives of somewhere between 20 and 40 million people (Billings, 2005). And at the time of this writing, COVID-19 is affecting countries all over the world, and scientists and doctors are racing to develop treatments and a vaccine.

To understand what pandemics were like in the past, let's read one account from a survivor of the 1918 influenza pandemic. Edna Register Boone was ten years old at the time, living with her family in rural Alabama. In a 2007 oral history, she recalled the limited resources available to treat the illness in her community (Boone, 2008).

Primary Source Excerpt

Type: Oral History

Author: Edna Register Boone

Year: 2007

The greatest problem, of course, was getting medication. There was only one doctor, Dr. Andrews, a wonderful man. He did the best he could. We had no penicillin, no sulfur, nothing to treat that

dreadful disease. Of course, there were wagon loads of sick people lined up at his front door all the time. If you loaded a sick person whom you could no longer help and put him in a wagon... and take him to Dothan to a hospital, chances are that patient would be dead when they got there. Ok, if he wasn't, there would be no room, the rooms would be filled. The doctors would be worked to capacity....

My mother would take a half a teaspoon full of soda and put it in a glass of water for each of us—my twin brothers and for me and we would drink that before breakfast. I've often thought that that's what saved us.

People around the world still suffer from influenza (commonly called “the flu”) each year, and some years are worse than others. But the development of a vaccine against the flu has greatly helped to lessen the virus’s impact on people. Let’s take a closer look at vaccines and how they’ve helped with other illnesses.



TERM TO KNOW

Pandemic

An outbreak of contagious disease that affects a large part of the world.

2. Vaccines

As you just read, smallpox was a widespread danger around the world for centuries. In response, a powerful medical technology was developed: vaccination. Once you’ve been infected with a virus, your body’s immune system learns to defend itself against that particular virus. A **vaccine** is a treatment that helps you develop immunity to a virus without having to become ill from the virus itself.

The idea is an old one: a similar technique called variolation was practiced in parts of India, Africa, the Middle East, and China. Practitioners would deliberately cause mild smallpox infections in order to trigger their patient’s immune response. In the late 18th century, Edward Jenner developed vaccination when he used a small dose of cowpox virus to create immunity to smallpox. This technique allowed patients to develop immunity without having to be exposed to even a mild case of smallpox. By 1959, after a concerted effort at worldwide vaccination, smallpox was eradicated. Vaccines have now been developed for many viruses that used to be common, including measles, polio, and influenza (Centers for Disease Control and Prevention, 2016).



TERM TO KNOW

Vaccine

A treatment that helps a patient develop immunity to a virus.

3. Antibiotics

Viruses, of course, are not the only way humans get sick. Bacteria that cause infections have been another major cause of disease throughout history. The development of antibiotics to treat bacterial infections in the first half of the 20th century was a medical breakthrough that has had enormous effects on humanity.

Penicillin, a substance made by a certain kind of mold, was first discovered in 1928, though it wasn't used widely until after World War II. Since the antibiotic era began, the main causes of death in industrialized countries like the United States have changed from infectious diseases to conditions like cancer and heart disease thanks to the widespread availability and effectiveness of antibiotics.

As some bacteria have evolved, becoming resistant to antibiotics, healthcare workers have had to adapt. Researchers are working to identify new antibiotics, while hospitals update their cleaning procedures and doctors are trained to prescribe antibiotics carefully and responsibly. Even patients need to show agility and critical thinking, understanding that antibiotics should only be used in appropriate circumstances.



SUMMARY

In this lesson, you learned about the history of a particular type of healthcare technology: vaccines and antibiotics. Before the 20th century, **pandemics** were more common, as viruses like the bubonic plague and smallpox traveled around the world. The widespread use of **vaccines** (which develop immunity against viruses) and the discovery of **antibiotics** like penicillin (which fight bacterial infections), have radically changed the history of disease in the United States and across the globe.

Best of luck in your learning!

Source: Strategic Education, Inc. 2020. Learn from the Past, Prepare for the Future.

REFERENCES

Billings, Molly. (2005, February). *The Influenza Pandemic of 1918*. Stanford University. virus.stanford.edu/uda

Boone, Edna. (2008, January 28). *Pandemic Influenza of 1918: An Interview With Edna Register Boone*. Alabama Public Health.

www.video1.adph.state.al.us/alphn/pandemic/EdnaBoone/Local/transcript_ednaboone.pdf

History of Smallpox. (2016, August 30). Centers for Disease Control and Prevention.

www.cdc.gov/smallpox/history/history.html



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