

The History of Pandemics Jeannette Guerrasio, MD

Someone asked me to write about pandemics at the close of this Jewish calendar year. Perhaps it is to remind us that civilization has lived through many a pandemic before, some with greater social upheaval, and continued to survive. It also reminds me that if we have faith, including in each other, and work together we can lessen the burden of pandemics and even end them. This is why I started the brief history of pandemics with polio. Polio is now eradicated in the United States thanks to an American virologist and medical researcher of Ashkenazi Jewish descent. A vaccine for polio was developed by Jonas Salk in 1954.

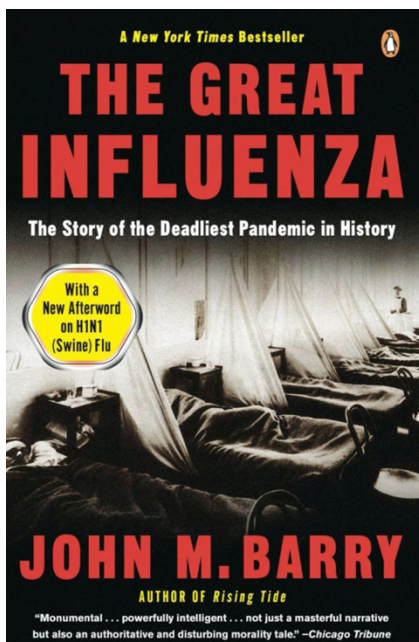
1916 - American Polio Epidemic

A polio epidemic started in New York City causing 27,000 cases and 6,000 deaths in the United States. The disease affected mainly children and often left survivors with permanent disabilities, including limbs or being confined to a metal canister called an "iron lung" to breathe. (see photo) Epidemics continued to occur sporadically until a vaccine was developed in 1954 by Jonas Salk.



1918-1920 – The Spanish Flu

500 million people in the world contracted the Spanish Flu, and 20% of those infected died. The flu spread so rampantly due to the migration of soldiers during World War I, their cramped living conditions and poor wartime nutrition. The book *The Great Influenza* by John M. Barry is an extremely well written historical piece that shockingly mimics our current social, medical, and political realities and I would highly recommend it anyone who is interested.



1957-1958 – H2N2 Asian Flu

This global influenza pandemic took 1 million lives. It started from a blend of 3 different avian flu viruses. It spread rapidly from China to Singapore to Hong Kong and then to the United States. 116,000 deaths occurred in the United States.

1968 – H3N2 Avian Flu

This Avian flu was comprised of 2 genes from an avian influenza including a new H3 hemagglutinin but also containing the N2 neuraminidase from the 1957 Asian Flu. It killed 1 million people worldwide, from Hong Kong to Australia to India and Europe, and 100,000 in the United States. Most deaths were in people over the age of 65. The

mortality rate was 0.5%. This flu continues to circulate worldwide as a seasonal influenza A virus, to which we get vaccinated.

1981-present – AIDS

AIDs, caused by the human immunodeficiency virus, has claimed 35 million lives. It developed from a chimpanzee in West Africa where the virus was transferred to humans. It then made its way around the world. 40 million people currently live with HIV, 64% of whom live in sub-Saharan Africa. Many unnecessary deaths in the United States were attributed to the governments lack of acknowledgement of the disease, and a decade delay in dedicating meaningful research funds towards its diagnosis and treatment.



2009-2010 – H1N1 Swine Flu

The 2009 swine flu originated in Mexico, infecting 1.4 billion people as it traveled around the world. Approximately 500,000 were killed by the swine flu, with 80% of the deaths occurring in young people. This flu was unusual in that it predominantly infected children and young adults, as older individuals seemed to have some level of immunity against the virus from prior viral exposures. Like H3N2 Avian Flu, this flu continues to circulate worldwide as a seasonal influenza A virus, to which we get vaccinated. (One flu vaccine covers many strains of the flu).

2014-2016 - Ebola

Ebola is a scary virus because it kills about half of the people that it infects. It started in West Africa and as it spread during this pandemic it infected 28,600 people and killed 11,325. Ebola was first discovered in bats in 1976 and was thought to have originated in bats. During this pandemic it spread from Guinea, to Liberia, Sierra Leone, Nigeria, Mali, Senegal, the United States and Europe before it was contained.



2015- present - Zika Virus

The Zika was a more limited pandemic geographically but it did spread from South America and Central America to North America via mosquitoes and occasionally from human to human through sexual contact. While in general Zika is not harmful to adults or children, it can affect fetuses resulting in severe birth defects that greatly impair brain development.

Now, I've only told you about pandemics that you either remember or remember hearing your relatives talk about. Pandemics have been occurring well before the current era. So how have pandemics in the past ended? Many of the solutions are going to sound remarkably familiar.

1. There was no one left to get it - For example, when the plague, which is now treatable, arrived in Constantinople in 541 CE, it decimated the population. The plague ended when entire communities died and there was no one left for the bacteria to infect.
2. Quarantine – In the Middle Ages, the Black Death swept through Europe. Venetians forced a 40-day isolation or “quarantino” to end the spread of the pandemic.
3. Separate and Isolate – England avoided this great plague and managed the 1665 Plague by separating and isolating. They marked infected houses with bales of hay, infected animals were killed, all public entertainment was banned and victims were forcibly shut in their homes.
4. Vaccination – Smallpox became the first virus to be ended by a vaccine thanks to a British doctor named Edward Jenner's observation that milkmaids infected with a milder virus called cowpox seemed immune to smallpox!
5. Ensuring clean water – Cholera pandemics were eradicated through infection tracing that led to contaminated water sources, which then could be avoided.

We are not the first generation to be tested and we will survive with perseverance. Let's not lose sight of the end goal. While it is hard to remember day to day, it is a relatively short period of time in our long lives. Life will return to a sense of normalcy. As it did after every other pandemic.