

Chapter 19: Technological Advances and Economics in the Global Age: 19-2d Pandemics, Medicine, and Public Health
Book Title: The Earth and Its Peoples: A Global History 7th Edition Update, AP® Edition
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19-2d Pandemics, Medicine, and Public Health

Birth rates are not the only factors in global demographic trends; mortality rates have increased in some regions as immigration, commercial expansion, and improved transportation have facilitated the transmission of disease. The highly lethal infectious Ebola virus has periodically caused widespread global alarm since it first appeared in Central Africa in 1976. Its deadliest outbreak, between 2013 and 2016, killed at least 11,000 people in West Africa, but the region's relative isolation and the virus's high mortality rate have largely kept Ebola from becoming a global pandemic.

The rapid spread of HIV/AIDS before the recent development of revolutionary treatments is an example of a different phenomenon. Since the beginning of the epidemic 70 million people have been infected with HIV and roughly 35 million have died. Less developed regions with poorly funded public health institutions and with few resources to

AP® Exam Tip

Consider the role of medical advancements such as antibiotics and of epidemic diseases such as HIV/AIDS on demographics in the twentieth and twenty-first centuries.

invest in prevention and treatment experience the highest rates of infection and the greatest mortality. Of the countries with the highest HIV/AIDS rates, thirty-seven are in Africa, three in Asia, and six in Latin America and the Caribbean. These countries were home to 87 percent of all HIV/AIDS infections. In recent years, prevention programs and much improved drug therapies have slowed both mortality and infection rates, with the greatest successes registered in rich countries with the greatest medical resources. Sub-Saharan Africa, with roughly 70 percent of the world's cases, remains the center of the epidemic in 2016, but the epidemic has persisted in other regions as well, with approximately two million cases found in Latin America and the Caribbean and another one million found in Russia.

Since fall 2019, a highly contagious, versatile, and aggressive strand of coronavirus disease (COVID-19) caused by severe acute respiratory syndrome (SARS) has reminded populations and governments around the world of the public health challenges posed by a globalized economy with highly mobile populations. In a little over a year, a handful of cases—traced back to contact with bats at a live animal market in the city of Wuhan, China—had mushroomed to more than 105 million cases and more than 2 million deaths worldwide by early February 2021. Unlike in previous outbreaks, infection and death rates from the coronavirus were not simply a matter of a nation's wealth, but more specifically of coordinated and timely public health measures. Notably the United States and United Kingdom, two nations whose recent governments have rejected international institutions and

science-based bureaucracies, stood out with death tolls and rates otherwise found in Latin America, a region with far fewer financial resources to combat the disease. The United States alone reported more than 450,000 deaths by early February 2021. By December 2020, several pharmaceutical corporations had developed vaccines ranging in effectiveness from 50 to 90 percent. At the beginning of the new year, the speedy, efficient, and equitable distribution of the vaccine remained a problem in many parts of the developing and industrialized world.

Aside from the personal injury and cost of disease, not to mention death, pandemics pose a global challenge for humanity because of their debilitating impact on local, regional, and global economies: commerce; travel; social life; culture; and education. Even nations with effective public health policies have seen their economies slide into deep recessions, causing unemployment and poverty amongst the most vulnerable.

Most expectations center on the development of a vaccine. The worldwide confidence in the ability of scientists to develop an effective remedy against the disease speaks to another trend in twentieth-century science and medicine—vaccinations. The Chinese demonstrated an early form of inoculation, called “variolation,” that helped curtail smallpox after the conquest of Beijing back in 1644. Jesuits brought the practice to Europe where inoculation was developed further without the significant risk associated with the original method (exposure to the actual virus). Since the 1800s, vaccination campaigns with a less dangerous method developed by Edward Jenner (1749–1823), which involved using the “cowpox” virus to inoculate against smallpox, have spread across the globe. Louis Pasteur’s (1822–1895) technique of using dead disease agents for vaccination protected against anthrax and rabies. Maurice Hilleman (1919–2005) subsequently developed vaccinations against measles, mumps, hepatitis A and B, chickenpox, meningitis, pneumonia, and an influenza strain over the course of the twentieth century. In 1955, Jonas Salk’s (1914–1995) development of the polio vaccine was celebrated as the defeat of one of the last viral epidemics instilling fear not just in the developing world but in middle-class families of developing countries, since its victims were mainly children.

Section Review

- Social scientists such as Sigmund Freud undermined the old certainties of European culture by revealing a dark side to human nature.
- Max Planck and Albert Einstein led a revolution in physics.
- In the twentieth century the developed nations made the demographic transition to low birthrates, while the developing nations began by stressing higher birthrates.
- A more globalized world has made the spread of diseases easier. At the same time, scientific advances have generated vaccines and antibiotics that have

saved millions of lives.

Medicine did not only advance in the field of vaccinations but also in the development of antibiotics. In 1928, Scottish scientist Alexander Fleming (1881–1955) discovered that a group of antibiotics derived from common molds could kill bacterial infections. Penicillin first came into widespread use during World War II when pharmaceutical companies developed the means for its mass production. Antibiotics have proliferated since then and prevented many deaths. At the same time, however, the overuse of antibiotics has significantly increased bacterial resistance against this medication, once again leaving a growing number of people vulnerable to more aggressive strands.

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