Chapter 5
Viruses

ABSTRACT

Throughout history, diseases have grown and mutated in ways that have taken lives globally around the world. To understand the danger of diseases and epidemics, a historical review is needed. This review provides context for how diseases begin, travel, and are mitigated throughout the last two decades. Pandemics have global implications as they grow and spread and have social, economic, and health impacts and can overwhelm healthcare systems. The emotional impacts of pandemics cause fear and anxiety. Pandemics have the power to impact globally or locally. Since 2003, pandemics from SARS to COVID-19 have created devastation around the globe, and even with modern science and technology have found ways to thrive and mutate.

This chapter reviews several more recent pandemic outbreaks in the twenty-first century. These include SARS, Avian Flu/H1N1, Swine Influenza, MERS, Ebola, and Covid. However, several severe pandemics in the twentieth century are relevant to the chapter. The 1918 Spanish influenza had a 25-50 million worldwide fatality rate. The Asian flu of 1957 had a fatality rate of one million. The Hong Kong influenza had a fatality rate of one million. Each pandemic covered in this chapter includes an overview of the symptoms, spread, overall impact, timeline, and resolution.

SEVERE ACUTE RESPIRATORY SYNDROME - SARS (2003)

What It Is

In 2003, Severe Acute Respiratory Syndrome (SARS), a viral illness, was found in Asia. The outbreak spread worldwide in less than one year before it was contained (CDC.gov). SARS, a viral respiratory infection, is associated with the Corona Virus. SARS symptoms include high fever, body aches and discomfort, diarrhea, dry cough, and the potential for pneumonia. Additional symptoms included sore throat, chills, rigor, and shortness of breath. The Virus is transmitted through close contact and respiratory drops such as coughing or sneezing (Tsegaye et.al., 2020). The drops can be transmitted within a 3-foot radius and deposited on membranes contained in the nose, mouth, or eyes. Spread can also occur by touching a surface that has been contaminated with the SARS drops. The incubation period between first contact and symptoms was 3-5 days, sometimes extending to as many as seven days.

Where It Started and How It Spread

The first reported cases of SARS were found in Asia when a fisherman named Zhou Zuofen was checked into a hospital in Guangzhou in January of 2003 (Xu et al., 2004). The origins of SARS were linked to an animal known as the Civet Cat; a mongoose-type mammal said to have been the carrier of the Virus. Civets are found on some Chinese menus as a delicacy item in Southern China and exported to other countries. According to Roos (2004), Civets were hunted and captured and then caged in Guangdong. Testing on the cats found that over 70% were carrying the SARS virus, increasing the speculation that the Virus took the jump from the Civets to humans.

The Virus was spread to Vietnam by a Chinese/American and to Canada by an elderly woman (Low, 2004) who later died after staying as a guest at the Metropole Hotel in Canada. SARS was spread to Singapore, Hong Kong, and Taiwan by guests staying at the same Canadian hotel. The Chinese Ministry of Health notified the World Health Organization in 2002 of over 300 cases of the symptoms, not yet identified as SARS (CDC.gov). By the time of the notification, five individuals had died, and the Virus had spread to six municipalities in China in 2002 and 2003. Travel in China spread the Virus from the mainland. By March of 2003, the cases increased to over 200

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