

The centenary of the “Spanish Flu”—Lessons for today

Part one of a two-part series

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The second part in this series is posted here.

World War I commenced on July 28, 1914, and ended on November 11, 1918, with the surrender of Germany, the last of the Central Powers to capitulate. The total number of military and civilian casualties was approximately 40 million. Estimates range from 15 to 19 million deaths and about 23 million wounded. Germany, Austria-Hungary, Russia, and France each recorded more than one million killed. The United States lost close to 54,000 soldiers.

By comparison, the 1918-1919 influenza pandemic, also known as the Spanish flu, commenced in three waves starting February-March of 1918 and ended in March of 1919, a period of approximately 12 months (though it is acknowledge that a fourth wave occurred in the spring of 1920). The flu infected 500 million people, nearly one-third of the world’s population at that time, including regions as remote as the Pacific Islands and the Arctic. Conservative estimates place numbers perishing from the disease at 50 million and as high as 100 million, with a case fatality rate—the proportion of those infected who subsequently die—estimated at 10 to 20 percent).

The First World War brought diverse regions closely together in an unprecedented manner. The Spanish flu was a byproduct of the global war that unleashed a global epidemic.

Seasonal flu is relatively benign, with case fatality rates of less than 0.1 percent. The disease usually has a limited course, with fevers, cough, and chill which resolve in a week. There is a U-shaped mortality curve by age: those who succumb are infants, the elderly and those with significant health morbidities.

The virulence of the Spanish flu remained a mystery until recent investigations were able to provide answers to some of the perplexing questions. These included why the second wave of the pandemic was so lethal compared to the first wave and why healthy young adults were so vulnerable to the virus by comparison to older people and young children

who seemed to fare better, giving a W-shaped mortality curve.

The ending of the second wave, the deadliest period of the pandemic lasting from September to November of 1918, coincided roughly with Armistice Day. By many accounts, influenza probably had little direct impact on the outcome of the war, as both sides were similarly affected.

“Death from the 1918 Pandemic Influenza during the First World War,” by Peter Wever and Leo Van Bergen, cites the description of one eyewitness, Captain Geoffrey Keynes of the Royal Army Medical Corps (RAMC): “There were rows of corpses, absolutely rows of them, hundreds of them, dying from something quite different. It was a ghastly sight, to see them lying there dead of something I didn’t have the treatment for.”

The catastrophe certainly tempered the celebrations of the end of the military conflict, as the wounded and those infected with the disease were both taken in at casualty clearing stations with severe colds and headaches, only to die in a few days from acute respiratory distress caused by pneumonia.

During the first year of the pandemic, life expectancy in the United States dropped by 12 years. Unlike most influenza outbreaks where the young, the old or those already weakened patients are most vulnerable, the 1918 pandemic killed healthy young adults at more than 20 times the rate expected.

In India, as many as 17 million people succumbed to the Spanish Flu. The disease hit Iran hard with estimates ranging from close to a million to as high as 2.4 million deaths. In Europe, the excess number of deaths is estimated at 2.6 million in the period of the pandemic. Japan reported 23 million infections and 390,000 deaths. In Indonesia 1.5 million were thought to have died. In the United States, about 30 percent of the population was infected and close to 675,000 died. Brazil saw 300,000 deaths.

The source of the epidemic

Another perplexing question is where did the Spanish flu originate? That Spain is identified with the origin of the influenza pandemic of 1918 has to do with Spain's neutrality during the war. Their press freely reported news of the flu outbreak, while in the warring nations military censors, concerned about keeping up public morale and not encouraging the other side, kept the news on the severity of the disease quiet. Influenza severely afflicted every army in the war. The Americans sustained the highest morbidity, with 26 percent of the US Army affected, over one million men. The German Army recorded over 700,000 cases of influenza and the British listed 313,000 cases. The pandemic's spread has been linked to the millions of men piled into trenches and camps fighting in the First World War.

Some medical historians have cited China as the site of the origin of the disease. They noted that a lethal outbreak of the pulmonary disease in 1918 might have been the harbinger of the pandemic. Chinese or Vietnamese laborers who came to the United States or were working in France could have been carriers of the virus.

Another theory suggested that the pandemic may have started at a British military base at Etaples, located at the coast of northern France, which is noted for its sea marshes and migratory birds with many farms nearby stocked with pigs, geese, and fowl as food for the soldiers. An outbreak of acute respiratory infection in the winter of 1916-197 resembled a milder version of the 1918 pandemic influenza. But many have discounted this as an incidental flare-up.

One of the first methodical examinations into the Spanish Flu pandemic was conducted by a prominent American bacteriologist and public health scientist, Dr. Edwin Oakes Jordan, who was a co-founder of the *Journal of Preventive Medicine*. In his 1925 book, *Epidemic Influenza*, he carefully reviewed the available data and commented that extreme overcrowding of troops in the American military not only helped spread the infection but contributed to the virulence of the disease.

Excluding France, British troops and even India as a source of the pandemic, he noted that in the United States the influenza was moving from Army camp to Army camp, then into the cities and traveling to Europe with the soldiers. About 12 percent of over 1.2 million American soldiers were hospitalized for respiratory illness from March to May of 1918. He concluded that the United States was the site of the origin.

Subsequent British and Australian studies have corroborated these conclusions. Jeffery Taubenberger, based

on his work on statistical analysis of the rate of mutation of the virus, became convinced that the virus emerged only a few months before the pandemic.

One of the first documented cases of influenza in 1918 was provided to the national public health service by a country physician working in Haskell County, Kansas, about 300 miles west of Camp Funston (today Fort Riley). Haskell County was a remote farming community raising cattle, poultry, and hogs as well as grain. In late January several patients came down with severe flu symptoms which quickly proceeded to pneumonia. Dr. Miner, concerned over public safety issues reported the outbreak to public health officials.

Soldiers recruited into the military from Haskell County arriving sometime in late February may have been the initial human vectors for the disease. On March 4, 1918, the first soldier at Camp Funston fell ill with influenza.

Within the first three weeks, over 1,000 of the 56,000 troops fell ill enough to be hospitalized. Soldiers moved quickly through training camps to other parts of the country and Europe. By the end of April 1918, 24 of the 36 main Army camps suffered an influenza epidemic. Thirty of the fifty largest cities also experienced the flu epidemic with excess mortality associated with influenza and pneumonia.

According to an article by John Barry, "A subsequent Army study said, 'At this time fulminating pneumonia, with wet hemorrhagic lungs, fatal in from 24 to 48 hours, was first observed.'" He notes that the first recorded autopsy in Chicago of an influenza victim was conducted in early April reporting that "the lungs were full of hemorrhages." Influenza then appeared at Brest, France, a disembarkation port for the American soldiers.

To be continued



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