



Pandemic Plan for the Church

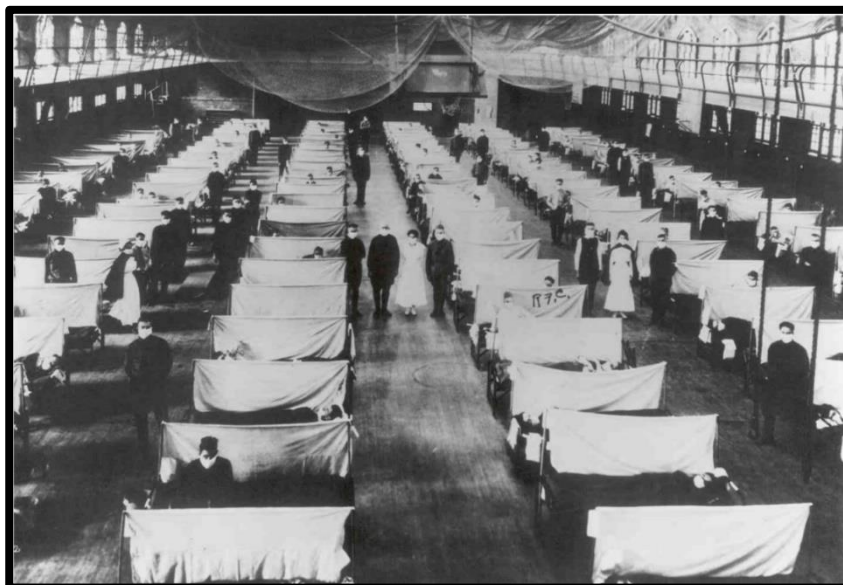
Ministering to the Community in a Time of Crisis

1918 Influenza Pandemic

The 1918 Influenza was a global disaster. It was a subtype H1N1 which was another avian flu that was first hosted in birds. The hemagglutinins (H) and the neuraminidases (N) had mutated to a stage in which this influenza was then transmitted from birds to humans; then eventually from human-to-human. The results were tragic. Nearly 20% of the world population suffered from this pandemic to some extent.

It has been stated by experts that the influenza pandemic of 1918-1919 killed more people in one year than in the four years of World War I; the four years of the Black Death Bubonic Plague in 1347; and twenty-four years of AIDS combined. One fifth of the world's population was attacked by this deadly virus. It is estimated that it killed 50 million people worldwide. Within months it had killed more people than any other illness in recorded history.

The 1918 Influenza was also known as the Spanish Flu due to the erroneous belief that it originated in Spain. This was mainly because the pandemic received greater press attention in Spain than in the rest of the world. Spain at the time was not involved in the war and did not censor the news as did the United States and other countries. In fact, some experts believe that it very likely began in the United States, in Haskell County, Kansas and was carried to Camp Funston by a new army recruit. It is estimated that the 1918 Influenza spread across the United States within seven days and around the world within three months.



Iowa State University Gym Transformed into a Temporary Hospital
During the 1918 Influenza Pandemic (Iowa State University)ⁱ

Due to the massive death rates, there was a lack of health care workers; a shortage of coffins; and scarcity of medicines. People were required to wear gauze face masks and were prohibited to meet socially for fear of the spread of the disease. Bodies were piled in cities as in the days of the bubonic plague. Society and its infrastructure were devastated.

Similar Pathogenesis of 1918 Influenza and H5N1

The H5N1 has been followed and studied extensively for the past decade. The virulence, structure, and origin of this particular strain are very similar to the influenza virus that caused the 1918 Influenza Pandemic. Due to these similarities, the pathogenesis (the origin and development of a disease) of the 1918 Influenza is used as a model for what to expect if the current highly pathogenic H5N1 Influenza strain were to become human-to-human transmissible. It is suspected that a similar pandemic will take place if the H5N1 strain mutates as the H1N1 strain did nearly one hundred years ago.

Health officials state that people who have died from the H5N1 circulating today have died in the same manner that those who died during the 1918 pandemic. The main difference between the 1918 influenza virus and the H5N1 virus is that the current one has not yet mutated to become transmissible from human-to-human. The study of the 1918 influenza has given great insight into the pathophysiology (the progression of a disease in the human body) as well as the social affects this current virus will have if it ever becomes a pandemic event.

American scientists believe that the 1918 Pandemic was so deadly because it triggered a tremendous immune response in the human body. This immune system response, or cytokine storm, causes the body to destroy its own healthy cells as well as infected cells. For more information on cytokine storms, please see the section, “The Role of Cytokines and Avian Influenza” in the chapter titled “H5N1 Avian Influenza.” The pathophysiology of the H5N1 is very similar.

Signs and Symptoms of 1918 Influenza

Records of healthcare providers and journals of family members paint a grim picture of the process through which a patient responded to the influenza. Archives of notes written by doctors and medical students depicted miserable deaths. Their notes described patients who became short of breath and who appeared blue from cyanosis (lack of oxygen). The patients would gasp for hours struggling for breath as their lungs filled with fluid from the inflammation caused by the cytokine storm. A blood-tinged froth would come from their nose and mouth. Some patients would hallucinate and presented with an altered level of consciousness as their system was starved for air.

Patients who first presented with the disease complained of a headache, sore throat, body and muscle aches, and an unproductive cough. These symptoms were similar to the seasonal influenza. However, the most common sign of the 1918 Influenza was a fever that lasted for several days. Many bled through the nose due to irritated mucous membranes. Secondary infections of bacterial pneumonia and bronchitis also contributed to the cause of death.

Current Research

An experiment to reconstruct the deadly 1918 influenza virus has given new insight into how the infection took hold. Researchers infected mice with a reconstructed H1N1 virus. They observed that not only did the mice suffer severe lung disease, but also their immune systems responded ferociously to the infection. Most of the mice became seriously ill within twenty-four hours and died within five days. This experiment proved to researchers that the host's inflammatory response is highly activated by the virus, causing severe damage and consequentially killing the host. This response is what makes the virus so lethal. Finding out why the immune system responds so aggressively but still fails to extinguish the infection might help to fight the present H5N1 virus.

In comparison, seasonal influenza viruses primarily cause inflammation, congestion, and some death to epithelial cells (tissue that line the airways) of the larger airways, with less inflammation to the alveoli (small air sacs where gas is exchanged). However, the H5N1 virus causes inflammation and congestion of the larger airways (trachea, bronchi, and bronchioles) in addition to causing extensive inflammation and damage to the alveoli. Patients literally drown due to the overreaction of their own immune system.

ⁱ State Gym transformed into a temporary hospital during the Spanish influenza epidemic, 1918. RS 13/16/D, Box 1123, used with permission, Iowa State University, Accessed November 16, 2015.
<https://isuspecialcollections.wordpress.com/2015/01/16/a-bird-named-enza-flew-to-isu-the-flu-epidemic-of-1918/>.