



# ***The 1918 Influenza: A Historical Vignette***

*By Captain Eric Marshall*

On 6 April 1917, the United States—with an Army of only 110,000 Soldiers—declared war on Germany. Before engaging in combat in the spring of 1918, the Army and Marines recruited or drafted more than 2 million men. This surge of troops from across the geographic and social spectrum created a “tinderbox” for the ignition of influenza, or flu, from cramped, domestic cantonments to the front lines in France. The virus exploded in September 1918, ultimately infecting one third of the Earth’s population and killing 10–20 percent of those who were infected. There were 675,000 deaths in the United States alone—more than the number of American combat-related deaths in World War I. In all, 21 million people died worldwide. One of the most horrible characteristics of the disease was that it targeted those in their 20s and 30s, consuming them with exceptional rapidity and resulting in the deaths of 8–10 percent of that group.

A study of the flu pandemic of 1918 provides a sobering lesson on the potential lethality of the H1N1 strain of flu and the particular vulnerability of initial-entry training (IET) Soldiers. Although the alarm of the 2009–2010 flu season has now passed, the historic 1918 event remains germane and, therefore, warrants review. The purpose of this vignette is to use history to provoke military leaders into embracing their responsibilities

in the areas of disease prevention, control, and response. All facts and statistics presented in the vignette were drawn from John M. Barry’s *The Great Influenza: The Epic Story of the Deadliest Plague in History*.<sup>1</sup>

## **Origin and Spread**

The virus that caused the 1918 pandemic was the H1N1 strain of flu. The virus was saddled with the misnomer of “Spanish Flu,” not because it originated in Spain, but because Spain—which was a neutral country during World War I—did not censor its press and was, therefore, the first nation to publically acknowledge the existence of an epidemic. Indeed, most epidemiologists track the origin of the disease to Haskell County, Kansas, where dozens of people on isolated farms across the county were diagnosed with a “severe type” of flu in February 1918. By late March, the intense symptoms disappeared. Due to the sparse population, the disease may well have been confined to Haskell County if it had not been for the war.

Camp Funston (located at Fort Riley, Kansas, about 300 miles from Haskell County) served as the IET site for about 56,000 Army recruits. At the time, this was the Army’s second-largest IET site. The facilities were hastily constructed

to train the expected upsurge of Soldiers due to the draft. As a result, the camp's overcrowded barracks were inadequately heated and its hospital was unfinished, under-resourced, and understaffed. And there was a constant flow of recruiting buses between Haskell County and Camp Funston. The flu began to spread. In March 1918, more than 1,100 Camp Funston Soldiers required hospitalization due to the flu—and 38 died. Although this number is high by today's standards, the "relatively mild" form of the virus caused no alarm and the substantial flow of Soldiers from Camp Funston to other American bases and to Europe continued unabated. In total, 24 of 36 Army camps and 50 cities located adjacent to those camps experienced a flu epidemic that spring. This initial wave spread to France, Germany, Great Britain, and Spain. Germany's Erich Ludendorff postponed and, ultimately, abbreviated his last great offensive because of the debilitation of his ranks due to the flu. After several days, the pestilence passed and seemed to disappear; however, the virus itself did not. Massive suffering and decimation were to arrive in the fall.

The second wave of the H1N1 virus began almost simultaneously on three different continents in late August 1918. The virus dispersed uncontrollably—and with a significantly higher death rate—at the major port cities of Boston, Massachusetts; Brest, France; and Freetown, Sierra Leone. On a single day at Camp Devens, which was an IET cantonment located near Boston, 1,543 Soldiers reported illness with the flu. On 22 September, 20 percent of the camp population was on "sick report" and 75 percent of those were hospitalized. As the flu virus continued to spread, the 1,200-bed hospital eventually became incapable of accommodating the 6,000-plus patients (see Figure 1). At one point, the camp averaged about 100 deaths (including doctors and nurses) per day. When pneumonia accompanied the flu, the death toll rose. The camp was not effectively quarantined, and asymptomatic carriers quickly spread the lethal disease to nearby Boston and elsewhere. At Camp Custer, located near Battle Creek, Michigan, 2,800 troops reportedly became ill with the flu in a single day.

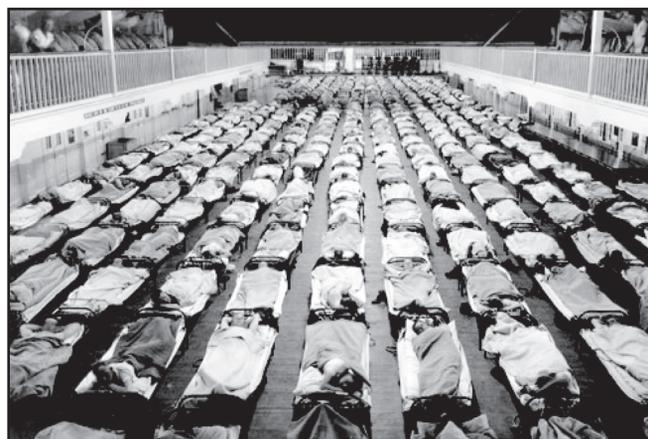
Camp Grant, near Rockford, Illinois, was another training base where the capacity was exceeded. On 21 September, the camp commander—ignoring ample warnings against overcrowding—permitted Soldiers to move from overflow tents into the barracks, where they would be warmer and more comfortable. Within six days, 4,102 Soldiers required hospitalization due to the flu and pneumonia. Training ceased, and personnel focused on the logistics associated with handling so much sickness and death. Ten barracks were converted into

hospitals to accommodate the growing number of patients; and by 8 October, more than 452 Soldiers had died. On the day of the first reported death at Camp Grant, a train carrying 3,108 Soldiers departed the camp en route to Camp Hancock, located near Augusta, Georgia. Ten percent of those Soldiers eventually died.

***Viruses are characterized by a phenomenon known as passage—the ability to adapt to the environment. As a virus passes from one person to another, it may undergo rapid mutations that increase its virulence or lethality. If a virus kills too efficiently, it may recede to a more mild form. Therefore, the flu virus commonly occurs in waves—tending more to a stable form until enough fuel is available to be relentlessly consumed.***

Of course, civilians throughout the country and world were also affected by the second wave of flu. Crowded factories, high-traffic port cities, shortages of doctors and nurses, and a press that was reluctant to publish negative material all contributed to another tinderbox in the civilian sector. On 1 October, in Philadelphia, Pennsylvania—just three days after a huge parade to encourage the purchase

of war bonds—the flu claimed 117 people; the number of fatalities was more than 700 within 2 weeks. In San Antonio, Texas, 53 percent of the population became infected. New Orleans, Louisiana; San Francisco, California; Los Angeles, California; and New York City, New York, were all dealt heavy blows by the disease—as were cities in Great Britain, France, India, China, Japan, Ethiopia, Australia, and the Pacific Islands. Entire villages of people in Alaska and southern Africa perished. Historians often compare the effects of the 1918 flu to the Black Death of the 1300s. Although the Black Death was responsible for killing a larger proportion of the population (more than one-third of Europeans throughout a century), the 1918 flu resulted in more total deaths in only 10 weeks. In fact, the flu killed more people in 1918 than Acquired Immune Deficiency Syndrome (AIDS) has in 24 years.<sup>2</sup>



**Figure 1. Severe overcrowding in the hospital at Camp Devens**

## Pathology

A discussion of the virology (various strains, mutation tendencies, and symptoms) of the flu and the human body's immune response to the virus is beyond the scope of this article. The vast majority of those infected by the 1918 H1N1 virus eventually recovered; however, when the virus did kill, it killed via three modes. First, the viral flu alone was capable of rapidly devouring enough lung cells to block the flow of oxygen, possibly resulting in death within hours. Second, the H1N1 strain could cause Acute Respiratory Distress Syndrome (ARDS) (also known as viral pneumonia), possibly resulting in the brutal death of the host over a span of two to four days. Third, as is often still the case, the flu may have been accompanied by bacterial pneumonia; most of these victims were probably killed via secondary complications within two to three weeks.

The most germane mode of death for military populations involves the development of ARDS. When the flu virus arrives in the lungs, white blood cells attack en masse, emitting proteins called *cytokines*, which raise the body's temperature and stimulate the marrow to produce more white blood cells (hence, the fever and aching bones associated with the common flu). If the immune system is unable to defeat the virus before it gains a firm foothold in the epithelial cells of the lungs, white blood cells continue to swarm, creating a "cytokine storm," which has a toxic effect on the alveoli and capillaries. This, in turn, compromises the lung's ability to exchange oxygen. Eventually, the virtual burning of lung tissue causes ARDS, which leads to rapid, irreversible organ decay and death. With the H1N1 strain, the more robust the immune system, the greater the cytokine storm and the more likely the disease will result in a fatality. This explains why otherwise healthy individuals ranging from 15 to 45 years of age are targeted by the H1N1 virus and why IET units face exceptional risks during H1N1 epidemics (see Figure 2).

### The Cure

No cure for the flu has ever been found. Dr. George Soper, the chief 1918 influenza investigator at the time (and later director of the American Cancer Society), concluded that the only effective measure against the flu in Army camps was the isolation of individual victims or entire commands. He explained that these efforts "failed when and where they were carelessly applied," and that they "did some good when rigidly carried out." According to Soper, nothing else changed the destructive course of the disease—except its own natural attenuation over time. Therefore, it was leadership

that made the difference in how an organization handled the flu epidemic. Leaders could heed medical warnings and take appropriate action, or they could treat disease prevention and response as though they were someone else's mission.

U.S. Army Training and Doctrine (TRADOC) Regulation 350-6 prudently indicates that the primary responsibility for preventing communicable diseases in the IET community rests with the individual. Good personal hygiene habits and deliberate sanitization absolutely reduce the survivability of viruses that are typically passed via water droplets and can remain on hard surfaces for several days. However, IET leaders must provide Soldiers with appropriate instruction and enforce the thorough cleansing of linens and living environments. Ultimately, IET leaders must thoughtfully consider all potential illness transmission hazards within their span of influence and accept ownership of preventive medicine as an essential aspect of their mission. 

#### Endnote:

<sup>1</sup>John M. Barry, *The Great Influenza: The Epic Story of the Deadliest Plague in History*, Penguin Group, New York, 2005.

<sup>2</sup>This statement was made based on data that was available in 2005.

#### Reference:

TRADOC Regulation 350-6, *Enlisted Initial-Entry Training Policies and Administration*, 1 July 2009.

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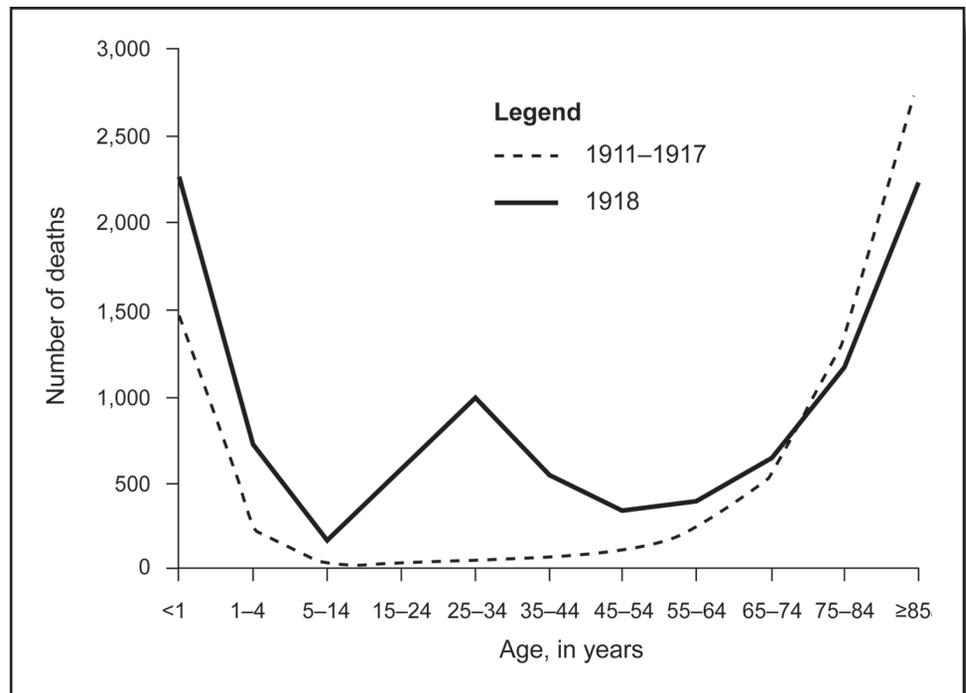


Figure 2. Flu-related death rates according to age