Outbreak of the Spanish Influenza Pandemic of 1918-1919

In the end, almost no place was spared. When the Spanish influenza virus circled the world between 1918 and 1919, nearly every place that man had occupied prior to that was affected, with some of the exceptions being islands in the Bering Sea, the northern coast of Iceland, and American Samoa.

Some experts today believe that the virus originated in China—the birthplace of many flu strains. It appears that the virus passed from birds to pigs and then to humans. Its first true victim has been lost to history. What is known is that on March 11, 1918, an Army cook named Albert Mitchell reported to the infirmary of Camp Funston, Kansas. He had typical flu-like symptoms—a low-grade fever, mild sore throat, slight headache, and muscle aches. He was ordered to rest in bed. By noon of the same day, 107 soldiers at the base were sick with similar symptoms. Within two days, 522 people were sick. Military posts have always been fertile ground for outbreaks of contagious disease. Barracks bring people from many regions into close quarters under high stress. So it wasn’t a surprise that ground zero of this epidemic was a military installation, or that the disease was next reported, on March 18, at several Army camps in Georgia. The symptoms were mild, with few deaths. But the numbers of ill were high -- 2,900 cases out of 28,586 troops at the Georgia camps.

The epidemic then hop-scotched from one military post to another in the eastern and southern United States, spilled into the civilian population, and reached the West Coast in late April, where an outbreak was recorded at San Quentin Prison. Influenza hit large cities exceptionally hard: in Philadelphia, 158 out of 1,000 people died; 148 out of 1,000 in Baltimore; and 109 out of 1,000 in the nation’s capital. The good news (if there was any) was that the disease peaked within two to three weeks after appearing in a given city. By then, however, it had already made a bigger and more fateful leap, across the Atlantic Ocean with hundreds of thousands of American soldiers going to join the Great War. Outbreaks were noted at an Army camp in Bordeaux, France, and in the port city of Brest in early April. By the end of the month it was at the Western Front, in the American, British, French and German armies. In May it arrived in England with troops returning from France. That month saw an outbreak in Madrid and Seville that caused a total death rate about twice normal for that time of year. This epidemic, with roots in Asia and the United States, had become a pandemic (an epidemic that is spread worldwide).

Spain was a neutral country during World War I. Because its news reports were uncensored, the Spanish outbreak received wide publicity, ultimately lending its name to both the pathogen and the pandemic itself. Even at the time, however, experts realized the name "Spanish flu" was entirely misleading as an indicator of the germ's origin.

The epidemic continued to move north and east, getting as far as Scandinavia and Poland. This "spring wave" reached India, arriving in Bombay on May 31 with a troop transport. Puerto Rico, part of the Brazilian coast, Indonesia, Australia and New Zealand experienced outbreaks in June.

Influenza tends to be seasonal, as the virus survives longest in cool, dry air and is most easily spread when people are crowded together -- all conditions favored by winter. It was unusual for the first wave of the 1918 pandemic to last as long as it did, and not surprising when things slowed down in August. Then something happened…
Becoming More Deadly

Microbes often adapt and change behavior while epidemics are under way. When slightly different strains are passing from person to person, a strain that kills its victims quickly, before they have time to infect others, may tend to disappear and be replaced by a strain that keeps its victims alive -- and transmitting disease -- for a longer time. There also can be evolutionary pressure for microbes to become more potent, if the change makes their hosts more infectious by, say, loading their mucus with germs or stimulating coughs and sneezes.

In late August 1918 a new outbreak of flu -- the "fall wave" -- began. The virus was as contagious as ever, but now more than 10 times as deadly. Between Aug. 22 and 27, the more potent strain appeared on three continents -- Europe, Africa and North America. The three places -- Sierra Leone's capital, Freetown; Brest, France; and Boston -- were each ports crowded with people coming from distant lands. Of the 2 million American soldiers who went to France in the war, 791,000 landed in Brest. Boston had a shipyard, naval hospital and many agencies shipping war materiel. Freetown was the main coaling station for steamships going from Europe to southern Africa. From these coastal cities the new wave of infection raced to both uninfected territory, such as Africa, and to areas only recently recovered from the spring wave, including Europe and America.
Spanish Flu Stations (Honors)

Directions:
- At each station, look at the information provided (picture, letter, or reading) and then answer the questions that follow under the heading of the information title.
- Work cooperatively with your group (work together to HELP each other learn. Working cooperatively does not mean one person does all work, or everyone works on their own at the same time).
- When you have finished at each station, raise your hand if your group has any questions.
- We will rotate to a new station when all groups have completed their assignment.

Letter:
1. After contracting the Spanish Flu, what symptoms do people develop?

2. How many men are dying per day in September 1918 according to the hospital physician?

Death by the Millions:
1. Did each country affected by the flu suffer the same death rates? Why or why not?

2. Do you think American Navy Commander John Poyer, the governor of American Eastern Samoa during the pandemic, was overly harsh in his quarantine of American Samoa or do you think the end results justified his actions? Explain.
Photo:

1. What do you see in this picture?

2. How large do you think this room is? What does that mean about the amount of people impacted by this?

3. How is the room cooled?

4. Why are all of these people lying in bed? Who is taking care of them?

Unsolved Mysteries/Crepe and Coffins:

1. Which group(s) of people was most affected by the Spanish Flu?

2. Why were doctors helpless against the spread of the flu?

Could It Happen Again?

1. Why do many scientists think that the world is overdue for another pandemic?

   a. Do you agree or disagree? Explain.
Letter
Camp Devens, Mass.
Surgical Ward #16
29 September 1918
(Base Hospital)

My dear Burt-
It is more than likely that you would be interested in the news of this place, for there is a possibility that you will be assigned here for duty, so having a minute between rounds I will try to tell you a little about the situation here as I have seen it in the last week.

Camp Devens is near Boston, and has about 50,000 men, or did have before this epidemic broke loose. This epidemic started about four weeks ago, and has developed so rapidly that the camp is demoralized and all ordinary work is held up till it has passed. All assemblages of soldiers (are) taboo.

These men start with what appears to be an ordinary attack of “la grippe,” or influenza, and when brought to the hospital they very rapidly develop the most vicious type of pneumonia that has ever been seen. Two hours after admission they have the mahogany spots over the cheek bones, and a few hours later you can begin to see the Cyanosis [a bluish discoloration of the skin and mucous membranes resulting from inadequate oxygenation of the blood] extending from their ears and spreading all over the face, until it is hard to distinguish the colored men from the white. It is only a matter of a few hours then until death comes, and it is simply a struggle for air until they suffocate. It is horrible. One can stand it to see one, two or twenty men die, but to see these poor devils dropping like flies sort of gets on your nerves. We have been averaging about 100 deaths per day, and still keeping it up. There is no doubt in my mind that there is a new mixed infection here, but what I don’t know.

The normal number of resident doctors here is about 25 and that has been increased to over 250, all of whom (of course excepting me) have temporary orders—“Return to your proper station on completion of work”…We have lost an outrageous number of nurses and doctors, and the little town of Ayer is a sight. It takes special trains to carry away the dead. For several days there were no coffins and the bodies piled up something fierce, we used to go down to the morgue (which is just back of my ward) and look at the boys laid out in long rows. It beats any sight they ever had in France after a battle. An extra long barracks has been vacated for the use of the morgue, and it would make any man sit up and take notice to walk down the long lines of dead soldiers all dressed and laid out in double rows. We have no relief here, you get up in the morning at 5:30 and work steady till about 9:30 P.M., sleep, then go at it again. Some of the men of course have been here all the time, and they are tired.

Good-by old Pal,

“God be with you till we meet again”

Roy
Deaths by the Millions (Honors)

Around the world, wide and cruel variations in mortality (death) were the rule. Poor and marginally nourished (fed) people, not surprisingly, fared worst. India lost about 18.5 million people, just less than 6 percent of its population. In the United States, 28% of the population became infected, and 675,000 people died, about 0.7 percent of the population and a figure greater than the amount of American lives lost in all of the 20th-century’s wars. In northern Nigeria, mortality among the general population of white Europeans was 19 per 1,000; among Nigerians, it was 32 per 1,000. Some aboriginal (native) populations were decimated. Mortality in Alaska was horrifying. In one settlement, Brevig Mission, 72 out of 80 natives died in five days, leaving only children and teenagers. The flu was most deadly for young people between the ages of 20 and 40. Worldwide, it is estimated that anywhere between 20 million and 40 million died.

As with SARS today, quarantine (separation from the rest of the population) was the main tool against Spanish flu. There were no effective medicines. In fact, it wasn't even known that a virus caused the disease. That wouldn’t be discovered until 1933. In general, quarantine worked poorly as it took just one infected person breaking isolation to spread disease. But in one place it worked famously. The Samoan Islands in the Pacific Ocean were split between the United States, which controlled the eastern islands, and New Zealand, which had seized the western islands from Germany at the start of the war. On Nov. 7, 1918, the steamship Talune, from New Zealand, anchored at Apia, the capital of Western Samoa. It carried people ill with flu. "Before the end of that year, a matter of less than two months, 7,542 died of influenza and its complications in Western Samoa, approximately 20 percent of the total population,” Crosby writes.

Without orders from the government but based on what he learned from a radio news service, the governor of American Samoa, Navy Cmdr. John Poyer, instituted a quarantine policy. When he heard of the outbreak on Western Samoa, he banned travel to or from the neighboring islands, which were about 40 miles apart. When Western Samoa sent a mail boat to American Samoa, Poyer refused even to allow the bags to be transferred. Poyer persuaded the island's natives to mount a shore patrol to prevent illegal landings. People who disembarked from ships sailing from the American mainland were kept under house arrest for a specified period, or examined daily. Aspects of the quarantine continued into mid-1920, and as a result, were no influenza deaths on American Samoa. Meanwhile, between 80-90% of the Western Samoan population was infected, with many of the afflicted starving to death simply because they were too weak to even feed themselves.

A third wave of Spanish flu began in January 1919, circulating intensively for two months. Although that wave, too, caused many deaths, the virus was running out of victims. The winter of 1920 again saw flu with relatively high death rates. At some point, on a day as lost to history as the one of its emergence, Spanish flu made a final human being ill and then disappeared.
Unsolved Mysteries (Honors)

There are a number of mysteries surrounding the 1918 flu virus. The virus was unusually deadly, even for a population that did not have the influenza vaccines and antiviral drugs we have today. For some reason, it was most lethal among 21-to 29-year-olds, sparing many of the children and elderly who are usually the first to die in an epidemic.

Crepe and Coffins

Other children who escaped the illness still witnessed the severity of the epidemic. Margaret Cassinelli, then 10 years old, saw at least a dozen people in her Bethlehem, PA, neighborhood die of Spanish influenza. She recalls families hanging colored crepe around their front doors to announce the grim news, black for the elderly, white for babies, and purple for those in between.

“I remember as a kid it used to bother me to know that people died,” said Cassinelli, who lives in Silver Springs Shores. “But when you think about it, we’re only put on this earth for a short time. I guess it was one of those things.”

“The doctors went around in the winter time with their heavy overcoats, and each of the pockets had pills in them,” Archie Schilly said. “They would come in, look at you, drop some pills over there, and say, ‘Take some every so often. Goodbye.’ That’s how busy they were.” Not only were the doctors busy, they were helpless. Until the advent of the Spanish flu, modern medicine had seemed invincible. Microscopes had enabled doctors to identify disease-causing pathogens. Scientists developed a battery of vaccines for smallpox, diphtheria, anthrax, rabies, and meningitis. But the Spanish flu stumped science. The virus was too small to be seen under the light microscope, and none of the medicines of the time had any effect. The doctors did what they could to quell a panicking public, but rumor and superstition began to take over.

The failure of medicine sparked a revival of folk remedies akin to those used against the Black Death of the 14th century. Onions, garlic, salt, and other pungent elements were worn as a first line of defense. Dorothy Schilly remembers wearing a small sack of camphor balls around her neck to fend off the flu. “I guess it worked, because I didn’t get it,” she said with a laugh.

In a matter of months, the virus worked its way across the globe, and those who slipped out of its deadly grip developed immunity to the strain. The disease then disappeared as quickly as it came.
Could It Happen Again? (Honors)

In the years since, scientists have studied the virus to find out where it came from and why it was so deadly—all to prevent such a disaster from recurring.

For starters, the term “Spanish flu” is a misnomer. Dr. Ed Kilbourne, pathologist at New York Medical College, said the leading theory is that the virus originated in China, and later humans passed it to pigs near Fort Riley, KS. Inside the swine, the virus probably mutated into its more deadly form before being reintroduced to the American population. The global travel coinciding with World War I then spread the virus to every continent.

Most virologists agree that the epidemics of the future will be influenza—not “exotic” diseases like the Ebola virus or the bubonic plague. The most dangerous flu strains are usually some combination of viruses that affect either pigs or birds. These strains usually come out of Asia, where the people live in close contact with such animals.

The two other major flu epidemics of this century—the 1957 Asian flu that claimed 70,000 U.S. lives and the 1968 Hong Kong flu that killed 28,000 Americans—originated in Asia. But flu epidemics do tend to come in 20-to-30-year cycles, and some experts believe we’re overdue for our next big flu.

Timing aside, Marion County health department director Dr. Nathan Grossman said improved communications and new medicines—including flu vaccines and the antiviral drug amantadine—have stacked the odds against another epidemic on par with the 1918 pandemic. But Grossman said people need to do their part by getting an annual flu shot. Every year, the common flu contributes to between 10,000 and 20,000 deaths in the United States, mostly among children or elderly with other health complications.