# The Return of the Spanish Lady?

The 1918 flu pandemic was one of the greatest killers in history; so there a chance the bird flu could be just as deadly?

By Michael Finger

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During the winter of 1918-1919, a terrible plague swept over the land. It was called the Spanish flu, though it would be years later before scientists determined the true origin of the disease. What they did know, however, was that this malady was more deadly than anything they had encountered since the yellow-fever epidemics of the late 1800s.

"It struck so suddenly that many victims could remember the exact instant they knew they were sick," writes John Barry, author of The Great Influenza. "So suddenly that throughout the world reports were common of people who toppled off horses, collapsed on the sidewalk." One Philadelphia doctor told of four women gathering one night to play a game of bridge; the following morning, three of them were dead from the flu.

The disease hit during the final months of World War I, and at first, this country's newspapers were reluctant to report the full extent of the disaster, especially when it began to ravage camps packed with soldiers about to be sent overseas. But the death counts soon became too high to hide, with more than 30,000 people killed in New York City alone.

Slowly but surely, the "Spanish Lady," as people began to call the mysterious malady, worked its way southward, with cases appearing in New Orleans, Little Rock, and Mobile.

On September 25th, the head of the Memphis Health Department confirmed what everyone had been expecting: The Spanish flu had made its way to Memphis. First there were only a few victims, but on October 3rd, The Commercial Appeal reported, "INFLUENZA CRIPPLING MEMPHIS INDUSTRIES." The "pesky little germ," as one reporter called it, killed Elliott Fontaine, the son of one of Memphis' most prominent families, and by mid-October, more than 20 people had died and hundreds lay deathly ill.

BATTLING AN EPIDEMIC

Every day, the news grew worse here. Physicians and pharmacists found themselves overwhelmed, and The Commercial Appeal admonished local nurses, who had ignored an appeal from the Red Cross for help. "These young boys, who have left all that is dear to them and have gone forth to face hardships so that the rest of us may enjoy the blessings of liberty, are now in dire need of attention," said Jane Van DeVrede, chairman of the Southern division of the Red Cross. "Now, when calls are made for 30 days' service in the camps, the nurses seem backward in responding." That's because many of them were already sick themselves.

Conditions deteriorated quickly. The health department ordered the closing of all schools and "places of amusement, including theaters, moving picture houses, dance halls, and even churches." The superintendent of the Memphis Board of Health warned this was the only way to prevent "the wave of influenza which is sweeping over our city."

Even that was not enough. Armed sentries were posted around the West Tennessee State Normal School (now the University of Memphis) and permitted only students with passes to enter and leave the campus. All church and lodge meetings were suspended. The police department installed emergency phone lines, manned by Boy Scouts, so anyone could report new cases of the flu. Residences with flu victims were strictly quarantined, and posted with signs warning they were off-limits.

And yet the newspapers continued their refrain: "Those involved in the fight are particularly anxious to avoid anything bordering on panic. There is no reason whatsoever for hysteria."

Really? That same issue of The Commercial Appeal reported, in bold type, a "600 Percent Increase in Boston Death Rate." Cities around the country posted signs warning "SPIT SPREADS DEATH." New York City enforced a $500 fine or a year in jail for anyone spitting in public. Arizona made it a crime to shake hands.

Finally, even funerals were canceled. A brief graveside service for the immediate family was allowed, but there would be no church service, no public gatherings.

A milestone was reached here on October 12th, when more than 100 influenza deaths were reported by the health department. Cases continued to increase faster than doctors and hospitals could handle them, so Central High School -- already closed on account of the flu -- was converted into the Red Cross Influenza Hospital. Patients would be treated there for free, though they were "encouraged" to make a donation to the Red Cross.

Meanwhile, the quack medicine manufacturers had a field day. Warning that the Spanish influenza "had become a great and terrifying menace," one company advised that the only way to avoid it was to "build up your constitution" with their product, something called Tanlac, "which will accomplish this like nothing on earth." The makers of Gade's Pepto-Mangan advertised it as the "Red Blood Builder" which would "fortify your body against the Spanish influenza."

Other bizarre remedies were suggested, such as pouring a spoonful of sulfur into your shoes each morning. A Pittsburgh doctor urged "a mixture of iodine and creosote" though it wasn't clear if you were supposed to drink it, sniff it, or slather it all over you. Nothing worked, though, because researchers were still baffled by the nature of the disease. Even though this was the twentieth century, some doctors fell back on the same causes that they had originally attributed to yellow fever. "Miasma," or bad vapors in the air, was causing this disease, and a slight drop in the number of cases reported one week was attributed to "recent rains which purified the atmosphere."

By the third week in October, with thousands of flu cases in the city, The Commercial Appeal asked people to pray. What else could they do? And since no public church services were permitted, families were ordered to remain indoors and hold private services. The Protestant Pastors Association even suggested this prayer: "Let prayers be offered for the suppression of the influenza, for those who are sick, for those who have lost loved ones by death, for our army and the armies of our allies, and for a speedily conquered peace." Oh, and also "for the success of the Fourth Liberty Loan Drive and for the president of these United States." The pastors warned people against mingling with their friends: "It is not desired that the neighbors be invited in, but hold a strictly family service."

By the last week in October, more than 350,000 cases of influenza were reported across the United States. The hardest hit community was Philadelphia, reeling from more than 195,000 cases in that city alone.

The only good news in the newspapers involved the war. The allies were finally winning. Headlines in October included: "Yanks Cut Through Kriemhilde Line," "Huns Are in Flight," "Tables Turned on Germans," and "10,000 More Huns Are Captured by Allies."

Meanwhile, in Memphis, the death toll mounted -- to 200, then 300, then 400. Rows of funeral notices placed in the paper gave the time and place of the burial, and some specifically mentioned "No Influenza," as if dying from the flu was something to be ashamed of.

These were lonely times for Memphis. Our city became a ghost town. Although stores remained open, all sales were canceled and few customers braved the flu to shop. Trolley cars were empty, theaters shuttered, schools and churches closed. Children were encouraged to stay indoors, though they amused themselves by skipping rope to this cheerful ditty:

I had a little bird,

Its name was Enza.

I opened the window,

And in-flu-Enza.

But the flu -- even the Spanish influenza -- is a disease much like an animal in search of food. It spreads through a population, "feeds" on its most susceptible victims, and then moves on as they develop resistance to it. As Barry puts it, "The virus burned through the available fuel. Then it quickly faded away."

And so the 1918 flu slowly left Memphis. At first, the newspapers published hopeful stories: "Death List Decreasing," but skeptical readers had heard that before. By October 26th, though, even the health department reported that the "epidemic was nearly at an end." Just as quickly as it hit, it was almost gone. By October 30th, the schools and churches reopened, the Red Cross hospital at Central was shut down, and within a few weeks, life in Memphis gradually returned to normal.

That was little consolation to some families, because the flu was not quite done with us. In November, it struck the family of noted Commercial Appeal cartoonist J.P. Alley. On the 27th of that month, the newspaper reported, "Death has claimed Richard Wesley Alley, the youngest son of James P. Alley, whose cartoons have delighted thousands. Richard was a bright, cheerful little fellow, with cheeks as rosy as the sunny side of a June peach. The dread disease laid its hand on him 10 days ago." The other members of the Alley family survived.

The health department reported that Memphis had seen 5,617 cases of the Spanish flu, with precisely 493 deaths. We were extremely lucky in 1918, but the "Spanish Lady" lingered on. It returned the following year, and for several years after. Though the strain of the virus was somewhat weakened, it still managed to kill several hundred here as late as 1923 (the exact numbers are still uncertain). Even as the disease faded away here, it continued to ravage other cities and countries around the globe. Before it was over, the flu killed at least 25 million people worldwide, and some researchers place the death toll as high as 100 million.

During World War I, the Spanish flu killed more soldiers than bullets, cannons, grenades, or gas. "The United States is reckoned to have lost somewhere from 500,000 to 650,000 people," writes Davies. "More souls than that nation has lost in every war fought in this century." Even so, today very little is written about it, usually garnering just a few sentences in history books. It's quite a mystery why one of the greatest epidemics in history -- and one that happened during our grandparents' lifetimes -- has been almost forgotten.

Perhaps it just blended in with all the other tragedies of World War I. "Spanish flu happened at the climax of the most appalling war yet seen in history," writes Davies. "At any other time, it would have been everywhere acknowledged, instantly and in horror, as a global disaster. At that time, however, it was just another layer atop the deepest pile of nightmares."

DETECTIVES FIND THE KILLER

Researchers in the 1920s and 1930s eventually discovered that the flu was -- and is -- caused by a virus, not by bacteria or bad air. The killer went undetected for so long because it is so small -- measuring less than 1/10,000 of a millimeter in diameter, and looking, as one writer put it, "like a dandelion with a forest of two differently shaped protuberances -- one roughly like a spike, the other roughly like a tree -- jutting from its surface." The spike is called hemagglutinin; the "tree" is neuraminidase, and the combination of their different shapes has allowed virologists to "type" the different kinds of flu viruses. Spanish flu is known as H1N1. The "Asian flu" of the 1950s was typed as H2N2, and the Hong Kong flu epidemic of 1968 was H3N2.

We know the exact type of the 1918 virus because scientists today have actual samples of the Spanish flu. In the mid-1990s, autopsy samples taken from the lungs of soldiers killed by the flu were discovered tucked away in the archives of the Armed Forces Institute of Pathology in Rockville, Maryland. And about the same time, a team of researchers, acting almost on a hunch, recovered the remains of a 1918 flu victim who had been buried in Alaska. Since her body had remained frozen in the permafrost all these years, it was remarkably preserved, and researchers were able to obtain samples from that victim's lungs. (Another expedition to exhume flu victims buried in Norway was unsuccessful because the ground had thawed several times since 1918.)

Though many feared these researchers were opening Pandora's box by dealing with a deadly and incurable disease, they took elaborate precautions to contain and preserve any samples they found. It was worth the risk, they felt, because they wanted to study the virus itself, if they could. A flu virus has a certain genetic code that is based on its RNA (as opposed to the DNA makeup of humans). Scientists began trying to pick out that code from the tissue samples, but it wasn't easy.

"They were trying to extract the RNA, but because it's 80 years old, it was broken into tiny fragments," explains Dr. Jonathan McCullers with the Infectious Diseases Department at St. Jude Children's Research Hospital. "It became a puzzle to put all the pieces together, and it has literally taken a decade to do so, but we finally have the complete genome for the virus found at Brevig Station [the victim in Alaska]."

That unique genome may help researchers learn more about the Spanish flu. "It's important that we understand why this particular virus was so good at killing people," McCullers says. "The viral infection itself killed, which is actually very unusual for viruses, but it was also exceptionally good at 'priming' people for bacterial infections, such as pneumonia and meningitis."

We have to know why, because everyone is wondering the same thing:

CAN IT HAPPEN AGAIN?

Despite all the advances in medicine over the last century, flu remains a great mystery. "What happened in 1918, why flu is seasonal, whether it has some means of hanging around undetected -- we don't know any of this," writes Davies.

One thing is certain: A major flu epidemic is just waiting to happen. "We have records as far back as the fifteenth century, and we know historically that they occur two or three times a century, like clockwork," says McCullers. "We haven't had one now since [the Hong Kong flu of] 1968, so we are due to have another one sometime soon. We just can't predict when."

Dr. Jeffrey Taubenberger is chair of the Department of Molecular Pathology at the Armed Forces Institute of Pathology. Dr. David Morens is a nationally renowned epidemiologist at the National Institute of Allergy and Infectious Diseases. In January 2006, they co-authored an article for the journal Emerging Infectious Diseases, called "1918 Influenza: The Mother of All Pandemics." It's a chilling analysis of the Spanish flu.

"What gave the 1918 virus the ability to generate rapidly successive pandemic waves is unclear," they write, noting that the Spanish flu hit some parts of the world in the spring of 1918, came back in the fall of 1918, and then returned again in the winter of 1919. "Three extensive waves of influenza within one year, occurring in rapid succession . . . was unprecedented." Taubenberger and Morens report that, so far, research indicates only that "the 1918 virus appears to be an avianlike influenza virus derived from an unknown source."

When the avian (or bird) flu, a type labeled H5N1, turned up in Asia three years ago, many feared it was related to the Spanish flu. Even worse, some worried that it was the Spanish flu.

Taubenberger and Morens believe it is, to a degree: "Like the 1918 virus, H5N1 is an avian virus, through a distantly related one." Unfortunately, these "distant relations" seem to share an unpleasant family trait. What puzzles scientists about the 1918 virus is its extraordinary fatality rate -- more than 20 times higher than a typical flu -- and they are seeing that same "pathogenicity" in the avian flu today.

Robert Webster at St. Jude, in fact, calls H5N1 "the nastiest flu virus I've seen in 30 years." And the reason so many people are concerned about the avian flu -- so concerned that in recent years every chicken, turkey, and bird sold in some parts of Asia had to be destroyed -- is the possibility of the disease leaping from animals to humans. "It's always a gamble whether an avian virus will be able to 'reassort' -- to make it pass easily between humans," says Webster. "There's so much hullaballoo about H5N1 because this particular virus shows the most promise of death and destruction if it makes that leap."

According to Taubenberger and Morens: "Even with modern antiviral and antibacterial drugs, vaccines, and prevention knowledge, the return of a pandemic virus equivalent in pathogenicity to the virus of 1918 would likely kill more than 100 million people worldwide."

And there is considerable concern that the avian flu may be capable of doing just that, since it is as deadly -- if not more deadly -- than the Spanish flu.

"The avian flu has been going on for several years now," says McCullers. "We have seen some 240 cases, and a little more than half of them -- 130 -- have died. That is an amazingly high percentage of fatalities, more than 50 percent. The 1918 flu killed only about 5 percent of its victims."

Need more bad news?

"We don't have an effective vaccine for the avian flu right now," says McCullers. "And even if we were able to [develop one], we would not have it available for six to eight months, so probably the entire first wave of the pandemic would not get the vaccine."

Author Barry reinforces this point: "Present production techniques and facilities are far from a best-case scenario. This was demonstrated dramatically in 2004, when contamination in a single plant in Britain cut the U.S. vaccine supply by roughly 50 million doses, roughly half the total."

The main hope, scientists say, is to continue studying what they know of the Spanish flu, to try to figure out just what made it so deadly, and maybe -- just maybe -- come up with a solution for other viruses like it.

"This is a detective story," Taubenberger told author Gina Kolata. "Here was a mass murderer that was around 80 years ago and who's never been brought to justice. And what we're trying to do is find the murderer."

“The Return of the Spanish Lady?”

1. Why were public officials so hesitant to inform, or warn, Memphians about the Spanish Flu in 1918?
2. How does this article support the fact that medicine, as we have discussed in class, was really primitive in the early 20th century?
3. Describe the scene in Memphis once the Spanish Flu began taking its toll.
4. How does the death toll from the Spanish Flu compare to the total from World War I in the U.S. and worldwide?
5. What reason does the author offer for the Spanish Flu often being overlooked in the history books?
6. Why are researchers willing to take such risks in working with tissue samples carrying the Spanish Flu?
7. What was it that scared researchers the most concerning the Avian Flu?
8. Please read “A 1918 Flu Memoir” to supplement what you have already learned from the previous article.