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ReachMD

www.reachmd.com
info@reachmd.com
(866) 423-7849

A Tale of Two Cities: Social Distancing in the 1918 Influenza Pandemic

Dr. Russell:

Coming to you from the ReachMD studios, this is *COVID-19: On the Frontlines*. I'm Dr. John Russell. Welcome to Social Distancing: 1918 Influenza, A Tale of 2 Cities.

So today we're going to talk about social distancing, the 1918 influenza epidemic, a tale of 2 cities. So, certainly, the concept of social distancing wasn't something people 2 months ago even had any sense about. "Flatten the curve" is a term that's been all over the media during the COVID-19 epidemic, and more and more Americans are being asked to shelter in place as cities and states start closing schools and nonessential businesses, but what's the history behind this.

Well, let's look back at influenza. So the term influenza comes from an influence of the stars, Medieval Latin *influentia*. The ancient Romans would look into the skies, and they would see certain stars, and they felt that that is what caused influenza. First described by Hippocrates, we've had epidemics with flu every 1–3 years for the last 400 years. Pandemics or worldwide epidemics occur less often. First documented one was in 1580. The last was 2009 when we had the H1N1 pandemic.

But I want to talk about the 1918-1919 pandemic where we saw 20–50 million deaths worldwide and over 500,000 deaths in the United States over a 6-week period of time.

Well, through this epidemic there's been a lot of discussions of where this all started, calling this the Chinese coronavirus. Well, in essence, the 1918-1919 flu epidemic began in Fort Riley, Kansas, in March of 1918. There were about 1,100 hospitalized, few died. April through June we started sending troops over to World War I. They started living in trenches, and the flu mutated and changed. Certainly there was a huge concentration of cases in Spain. That's why it became known as the Spanish Lady. In mid-July, the flu that was seen in 1918 was killing more soldiers than the war was, and it turned fatal. It led to the cytokine storm where people had cyanosis, headache, blood so thick it clogged needles, nothing that we would think about when we think about flu right now. So in late August of 1918, 2 sailors in Boston became ill. The *Boston Globe* actually talked about it being germ warfare. We were fighting the Germans, and the only pharmaceutical company at the time was Bayer, which was a German company, and someone postulated that the Huns were putting something in the aspirin. On September 8, 1918, a ship from Boston docked in Philadelphia. There also were sailors who docked at the same time in New York City, and the 2 cities had different approaches to these sick sailors. Three days later the first sailor in Philadelphia took ill, and by September 18, there were 600 sailors ill in the city of Philadelphia.

But the story that really happened in Philadelphia happened about 10 days later. So the City of Philadelphia was challenged to raise \$259 million for World War I to support Philadelphians who were fighting in World War I, so the City decided to host, amongst other things, a Liberty Loan Parade. At that point there were 525 cases and 75 deaths in the city of Philadelphia. Physicians throughout the city called for canceling the parade, but really, the City felt it had to raise money for World War I, and the parade went on. For people who attended it was a great success. The Philadelphia paper, the *Evening Bulletin*, described it as a great day in Philadelphia. But if you look in that edition of the bulletin and you look further back in the paper, it also described the death of a 30-year-old Philadelphia policeman and 118 new cases that day before the parade was held. Two days after the parade 160,000 Philadelphians were ill. By October 1, every hospital bed in the city was filled. By the third week of October, the grip had killed 4,500 Philadelphians. Doctors and nurses began working around the clock. Multiple healthcare workers died. There were even cases of nurses being kidnapped on their way home so they could go and take care of sick people who were home. So, local Philadelphians called for quarantine, but the health commissioner, Dr. Krusen, declined.

So we look at that flu epidemic. Two-thirds of the deaths were folks under 39 years of age. At the time, the Philadelphia morgue had room for 36 bodies. It had 500 bodies in it. Bodies were stacked 3 and 4 deep. Soon, schools, theaters and saloons were closed 5 days after the parade, where probably it was a little late. Funerals could only be attended by family members. And over a 6-week period of time, 12,687 Philadelphians had died with a height of 759 people dying in a day. And the flu was gone by November, and it had a death rate of 407 per 100,000 persons.

Now, if you look what happened in St. Louis, a much different story, and this is the graph you often see in the flatten the curve. So in late September 1918, Health Commissioner Dr. Max Starkloff began preparing for influenza that he thought would find its way west from Boston, so he began by asking the St. Louis Medical Society to report all cases of influenza to him. He wrote an article for the *St. Louis Post Gazette* on how to avoid influenza: avoid alcohol, fatigue, and crowds, get fresh air and avoid those who are ill—maybe one of our first discussions in a pandemic of socialization.

There was a Jefferson Army barracks 10 miles from St. Louis that had a few cases by October 1. The commandant of the base, who also was a little bit of a hero, banned public gatherings, revoked all leave and ceased all visitors from coming to visit the barracks where the soldiers were staying. Within a few days those 40 cases had ballooned to 500 sick soldiers. The hold on visitors did not include everyone. A local congressman from Missouri, Jacob Meeker, visited October 9 and died of influenza 7 days later. On October 5, the City of St. Louis saw its first case in a family with 7 ill patients. There were 50 cases by the next day.

Starkloff requested the upcoming Liberty Loan Drive be cancelled, so 2 cities approached raising money for World War I very differently. He also, through the aldermen, got the mayor powers to declare influenza a contagious disease, and the mayor got authority to declare a public emergency. That led to doctors having to report all cases and patients needing to self-isolate. By October 7, as cases increased, Starkloff asked the mayor, the public health service, public school system, St. Louis Medical Society, city hospitals, and representatives from the business community all to come together. They discussed mass closures. At the time there were only 100 cases in the city and 900 at the hospital barracks that was 10 miles away. This group eventually agreed on mass closures that began October 8. The school closed 1 day later on October 9.

By October 11, the city hospital was full. This was the city hospital. The private hospitals were not filled because they would not take flu patients. And the city rallied around the healthcare community through volunteerism, through visiting nurses. There were 40 nurses who cared for over 3,000 St. Louis residents in their home. October 15, as the cases went over 3,000, another hospital began accepting patients.

On October 20, Starkloff put restriction on business. The business community complained. The mayor wanted to overturn it, but the city physicians refused, and they said until there were less than 150 cases a day, they wanted the ban to stay in place. So, on November 9, all nonessential businesses were closed. Schools reopened on December 9 after the cases decreased, and all restrictions were lifted by December 28.

So, what happened? So we saw a very steep rise to the curve in Philadelphia, lots of deaths that happened over 6 weeks. St. Louis still had flu, but it happened over a longer period of time, from the beginning of October almost to January 1, but thanks to a quick-thinking health commissioner, St. Louis only had 358 cases per 100,000 people, so about 50, 60 less cases per 100,000 people just in how they did that, but the curve is longer, so the health system was not so overwhelmed. Only 7 American cities had lower rates: Minneapolis, Indianapolis, Milwaukee, Toledo, Grand Rapids and Columbus.

So, as you see this curve, about flattening the curve and social distancing, it does not mean we're not going to have COVID-19 patients. We're just hopefully not going to have COVID-19 cases at a point when we don't have enough ventilators, when we don't have enough PPE, when we don't have enough healthy healthcare workers. This is something that we're going to be hopefully battling for months and not overwhelmed by in weeks.

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