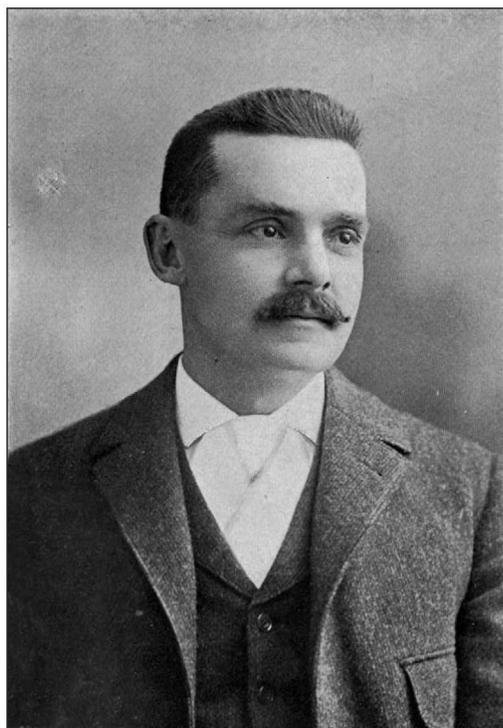


St. Louis and the 1918 Influenza: The Impact of Nonpharmaceutical Interventions

ROBERT WILSON*



Dr. Max Starkloff served as health commissioner of St. Louis, 1895-1903 and 1911-1933.

[History of the St. Louis Medical College, 1898. SHSMO]

There seemed to be no end in sight to the daily misery in the fall of 1918; everyone knew someone who had died from the influenza. Most families did battle with this mysterious airborne disease, and the medical community seemed helpless in preventing its spread. In some tragic cases, the virus wiped out entire St. Louis families, and as the epidemic continued, the number of orphans in the city grew exponentially. Influenza had visited the community every year, but something appeared vastly different this season. Usually, older citizens struggled with yearly influenza, but seemingly healthy twenty- and thirty-year-old residents who normally fought off the disease after a few weeks were succumbing to this virus. Only the closing of public venues, schools, and a ban on public gatherings helped to prevent a more widespread outbreak in the St. Louis community. Nonpharmaceutical interventions had been implemented throughout the country in various degrees, but because of the cooperation of St. Louis's citizens and the decisive action of Health Commissioner Dr. Max Starkloff and Mayor Henry Kiel, many lives were saved. These city leaders' efforts to stop influenza's spread allowed the community to post one of the lowest mortality rates in the nation during the fall of 1918.¹

Influenza fails to instill the same fear and panic associated with the plague, cholera, or yellow fever, but the 1918 influenza remains the single most deadly epidemic that mankind has ever encountered. Although the exact number is difficult to determine, the global death toll of influenza that year equaled the approximate number of individuals who have died from Acquired Immune Deficiency (AIDS) since 1981.² People suffering from the 1918 influenza bled from their extremities and often developed pneumonia during a slow painful death. Although current studies list the number of dead somewhere

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between 20 and 50 million, that number is probably an underestimate.³ The St. Louis community did not evade an encounter with the virus in 1918, but the virus's effects could have been much deadlier for the city's residents. Dr. Starkloff's and Mayor Kiel's respect for the power of the disease, a collectively well-thought-out proactive plan, and the cooperation of the city's residents helped lessen the impact of the outbreak. Without cooperation and quick decisive action, the St. Louis death rate would most likely have matched the high figures found throughout the country.⁴

Dr. Starkloff expected an influenza outbreak during the fall of 1918. Influenza traditionally appears every year, and in 1918 the first wave of the virus originated during the spring, disappeared throughout the summer, and returned with a vengeance in the fall. The first indication that this virus would not follow traditional virus rules came during the first few days of September when influenza broke out in Camp Devens, just outside Boston, Massachusetts. A week after the first soldier reported sick to the infirmary, 6,674 soldiers had reported flulike symptoms. By September 23 army physicians had diagnosed 12,604 people with influenza and 1,902 cases of associated pneumonia. Young healthy men began dying at an alarming rate, and little could be done to stop their deaths.⁵ Influenza soon broke out in the Philadelphia Naval Yard, Fort Dix in New Jersey, Fort Meade in Maryland, and the Great Lakes Training Station just outside Chicago.⁶ The many men traveling between World War I training camps created a fertile breeding ground for spreading the disease throughout army barracks and the nation.⁷ Too late, the army tried to stop the virus's spread by limiting troop movements, but influenza already had a foothold in the United States. It did not take long for even the smallest cities and towns in the most remote locations to be visited by its deadly hand.

The *St. Louis Post-Dispatch* reported on October 3 that influenza had broken out in forty-three states and the District of Columbia.⁸ The next day the *Post-Dispatch* reported 130 influenza cases in Springfield, Missouri, 11 pneumonia deaths in Kansas City, Missouri, and 500 influenza cases at Jefferson Barracks just south of St. Louis. On October 4 area newspapers reported the first influenza cases within the St. Louis city limits. According to published news reports, an African American family was diagnosed with the first cases in the city, although as many as fifty other people may have been diagnosed with influenza symptoms earlier. St. Louis Health Commissioner Starkloff later wrote that September 20 marked the beginning of the outbreak, but the exact day is hard to pinpoint. Influenza's entry date into the community cannot be definitely determined because the virus had never been a reportable disease. Even if it had been a reported disease, people initially responded as they would to the yearly flu and often did not seek medical care.⁹

Health Commissioner Starkloff realized he needed to act quickly to limit the virus's spread and prevent it from establishing a strong foothold in the city. On October 4 he introduced to the St. Louis Board of Aldermen an emergency bill requesting an ordinance to make influenza a reportable disease. Starkloff hoped that by requiring physicians to report the number of influenza cases in the city, it would be possible to gauge the number of new cases as well as monitor the virus's location within the city.¹⁰ Mayor Kiel proclaimed St. Louis to be in an epidemic state, and the board of

aldermen granted Starkloff's request. The health commissioner then urged the board of aldermen and the mayor to give him the power to do whatever was necessary to stop the influenza's spread. By granting this request, the mayor made Starkloff the most powerful person in the city.¹¹

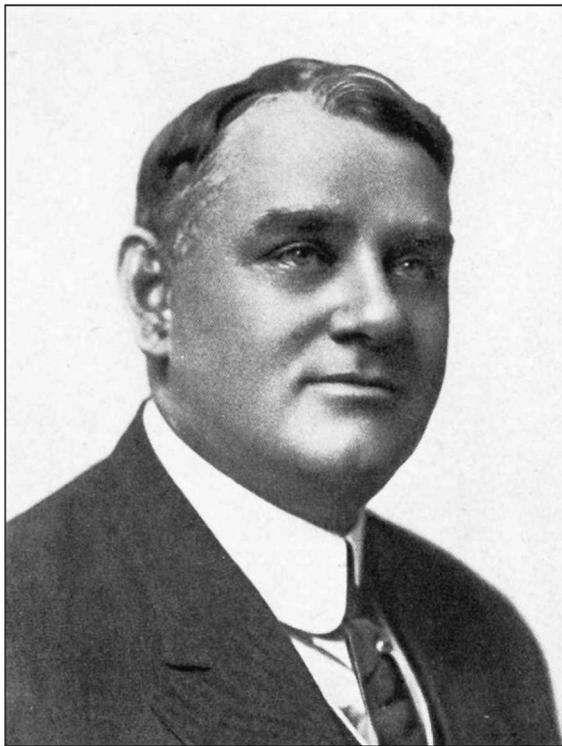
After confirming 44 new influenza cases in the city on October 5, Commissioner Starkloff moved to hold an emergency meeting the next day to discuss the dire situation. The mayor, members of the medical community, the U.S. Public Health Service, and the Red Cross—a group later known as the Medical Advisory Committee—met on October 6 to determine the most effective means of stopping the virus's spread.¹² After listening to the various health agencies proclaim that influenza was becoming epidemic in the city, Mayor Kiel gave the health commissioner the authority on October 7 to close schools, theaters, motion picture shows, pool and billiard halls, Sunday schools, cabarets, lodges, societies, public funerals, open-air meetings, dance halls, and conventions, and to declare it illegal to have any general gatherings of more than twenty people.¹³ Although Kiel was less than enthusiastic about the closings, he agreed to go along with the recommendations from the city's health professionals, stating he

was "to be guided by whatever the medical and public health representatives thought best for him to do to safeguard the city."¹⁴ The closings placed the mayor in a tough political spot. He recognized that the closure of various establishments could be met with much resistance from the business and religious communities, but he also realized limiting interaction among people was probably the best way to stem the influenza's spread. The need to move quickly became apparent to city authorities when, on the day of the proclamation, physicians reported 49 new cases within the city limits, bringing the citywide total to 164 sick and 9 dead.¹⁵

Starkloff developed his nonpharmaceutical intervention plans from cities throughout the country that had implemented similar closing orders. He had knowledge of the frightening death tolls in Boston, New York, and Philadelphia, and he was certain that St. Louis citizens would suffer a similar fate as those living on the East Coast if he did not take drastic measures. Starkloff argued that each day city leaders waited to close public venues, the more likely that influenza would spread throughout the community. Philadelphia

officials had waited two weeks after the first diagnosed case to impose bans on public gatherings and had even allowed a Liberty Loan Drive to take place after the order had been imposed.¹⁶

Once Starkloff had control over the city's efforts, the health department launched a campaign of circulars, pamphlets, newspaper articles, and posters informing citizens of the symptoms, spread, and ways to avoid the



A native of St. Louis, Henry Kiel served three terms as mayor, 1913–1925. [Prominent St. Louisans, 1916. SHSMO]

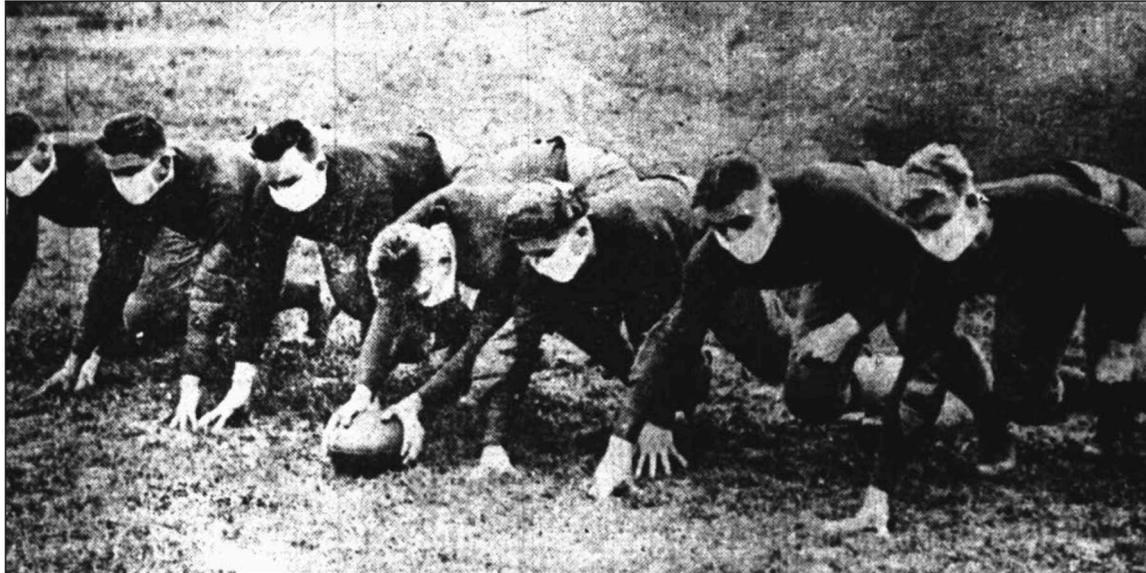
disease. His action had immediate positive results in St. Louis, and the newspapers reported no deaths in the week ending October 12. City officials throughout the country took notice of Starkloff's success, and after New York lost 979 citizens that same week, the New York health commissioner contacted the St. Louis Health Department for an analysis of the city's ordinance.¹⁷ Mayor Kiel, who had initially opposed the closing of churches and many other public venues, changed his opinion about the importance of nonpharmaceutical intervention upon hearing how much lower the death toll in St. Louis was in comparison to many of the East Coast cities.¹⁸

Much confusion and disagreement ensued as to what should be closed when the order went into effect on October 8. Retail stores stayed opened, but movie houses and theaters had to close their doors. Dance halls and cafes closed, but saloons stayed opened as long as customers did not loiter too long or the establishment did not become too crowded. A delegation of fifteen theater owners met with Kiel on the eighth and argued that if the theaters had to close, five-and-ten-cent stores, streetcars, and elevators in office buildings should also be closed. In the hope of staying open, the theater owners even offered to pay for and post advertisements warning the public against the danger of gathering. Children's playgrounds and library reading rooms closed, but factories remained opened because Mayor Kiel did not want to interfere with industry.¹⁹

A lot of confusion developed about when schools should close. Even though the closing order went into effect at noon on October 8, several policemen barred the doors at some schools in the morning and refused to allow students or teachers to enter the buildings. The closing order included all private, parochial, and public schools, although day cares could remain open for children who did not have some kind of a cold. St. Louis University closed promptly at noon on the eighth, and Washington University, located just outside the city limits, agreed to suspend its Saturday afternoon football game and to close the school on October 9.²⁰ For the foreseeable future most of the city would be shut down.

Dr. Starkloff controlled the city as long as St. Louis was in the midst of the epidemic. Mayor Kiel and the St. Louis Board of Aldermen basically yielded all citywide power to the health commissioner, who by then had become the definitive authority in all matters of public health. Starkloff instructed Police Chief William Young to refrain from arresting anyone for trivial offenses in order to lower the number of people in police stations and city courts. The doctor requested that area factories cooperate with the health department by hiring medical supervisors to examine both employees and customers for any signs of illness.²¹ Throughout the epidemic, Mayor Kiel and the board of aldermen recognized the political benefit of allowing the health commissioner to be the figurehead. The St. Louis politicians could thus avoid the political problems that had beset city authorities in Chicago and Kansas City.

Many St. Louis citizens complained about the closings, but most did not openly rebel as did Chicago and Kansas City residents. Many Chicagoans believed that social reformers were using the epidemic to advance their own moral agenda. The complaints arose when city leaders chose to keep open all the churches and schools, arguing that these places promoted the public



The Washington University football team wearing masks during the influenza epidemic.
[*St. Louis Post-Dispatch*, October 11, 1918. SHSMO]

health message, prevented panic, and fostered social cohesion. Although some leaders argued that children would be much safer in school because of parental incompetence, most parents strongly disagreed, causing a 30-50 percent truancy rate throughout the city's school system. In addition, saloons in Chicago remained opened because city leaders feared alienating the working class.²²

The closing orders caused similar problems in Kansas City. Not only did many merchants, restaurant owners, and theater operators refuse to comply, but a political feud undermined the credibility of the city's health authorities. A political fight between William Motley, president of the Kansas City Health Board, and Dr. A. J. Gannon, the head of the contagious disease division of Kansas City General Hospital, led to indecisive action by the health board, which in turn created a lack of citywide central authority in the fight against influenza. Many members of the Kansas City City Council felt that Gannon had overstepped his bounds by taking too much initiative with nonpharmaceutical interventions. Mayor James Cowgill sided with Motley in the political squabble, and in the end, Gannon served as the scapegoat when the virus continued to spread and the death toll mounted. When a second round of the epidemic surged during mid-November, the health board dismissed Gannon for his failed policies despite the fact that many people had ignored them.²³

The differences among the three cities came down to internal politics. In St. Louis, Starkloff served as a strong central head and leader in the battle against the virus, and he was given full authority by the mayor and board of aldermen. The differing political realities in Kansas City and Chicago had a strong negative effect on the situation. In both of these cities, the leadership focused more on politics than on practical nonpharmaceutical solutions. Positive results in St. Louis were also helped by the fact that Starkloff had served as the St. Louis health commissioner for twenty years and had proved his effectiveness and success in fighting diseases. Consequently, the

majority of the community had confidence in him and his decisions.²⁴ In the end, the Kansas City and Chicago health departments' closing policies were often ignored or not rigidly enforced. When the final counts were totaled, more than 14,000 Chicago residents and 2,302 Kansas City citizens had died from influenza or pneumonia.²⁵

As the epidemic continued through mid-October, Starkloff made a special plea to the public, asking them to avoid any kind of public gatherings. On October 10 he ordered Police Chief Young to stop all meetings attended by ten or more people unless the purpose was related to the war effort. Starkloff met with factory owners and managers of office buildings to request a limit on the number of people riding in elevators. In addition, the health commissioner directed that spectators be banned from court proceedings, and on October 11 he ordered all church gatherings and services of any kind suspended.²⁶ The Catholic church endorsed Starkloff's definitive order to suspend church services, and area religious leaders agreed to support the health authorities. Archbishop John J. Glennon agreed to cooperate fully with canceling services as long as the regulation came from the health authorities and not from the church administration. Glennon wanted to relieve Catholics of the obligation of attending Sunday mass, but he did not want the edict to come from the church itself. Another reason that there was little resistance to the closure was that people could still attend church and pray as long as groups remained small.²⁷ Both Catholic priests and Protestant ministers urged their parishioners to read the Bible and hold family worship in place of attending Sunday morning services.²⁸ As the number of infected people continued to rise each day, the majority of community members worked together to help stem the spread of the pestilence.

The Red Cross strongly supported Starkloff and Kiel in the fight against influenza. At the October 6 meeting to discuss implementing nonpharmaceutical interventions, the St. Louis Red Cross chapter agreed to mobilize and train all available nurses to help with supportive care. All nurses, nurse's aides, and anyone who had completed any elementary training for caring for the infirm were required to register with the local Red Cross chapter. The importance of this measure cannot be overstated. Nurses are indispensable in the response to influenza because there is very little that physicians can do for patients except provide supportive care.²⁹ On October 18 the Red Cross enlisted working-class women to cook, clean, and do laundry in homes of influenza victims who could not afford to pay for these services.³⁰ In addition to organizing the nursing staff, the Red Cross printed numerous pamphlets for the prevention of disease and care of patients, directed people to stay away from crowds, and implored residents to cooperate with the city's health authorities.³¹

Even during the peak of the St. Louis outbreak, the numbers afflicted with influenza never approached those of Chicago or the cities on the East Coast. Starkloff credited the slowing of the influenza to the cooperation of the public and their obeying the health regulations. The business leaders representing the St. Louis Associated Retailers promised their full cooperation and agreed to discontinue any special sales designed to draw crowds to their downtown establishments. Starkloff pointed out that many

large department stores fully complied with the health recommendation and that United Railways, the owner of the streetcars, cooperated in every way possible by opening windows and limiting the number of people onboard the cars.³²

Across the city, groups cancelled meetings, and schools called off their fall sporting events. Football and soccer coaches were quoted as saying that they would be willing to sacrifice the teams' schedules in order to prevent influenza from spreading. The St. Louis Tuberculosis Society opened information clinics so that health advice on influenza could be distributed, and doctors and nurses in the public school system volunteered to help during the outbreak.³³ Although the majority of St. Louis citizens

banded together and followed the guidelines outlined by the health commissioner, a few people chose to ignore the ordinances.

Starkloff cracked down on all establishments that failed to comply completely. On October 16 the doctor asked Mayor Kiel for the authority to close factories and businesses that refused to install health inspectors and proper ventilation. This regulation was met with some political ramifications as a few businessmen resented the squad of volunteer health workers imposed on their businesses. After the health



St. Louis Red Cross nurses moving an influenza victim. [St. Louis Post-Dispatch, October 12, 1918. SHSMO

commissioner issued an order requiring all clubs to close their pool and billiard rooms, police were directed to stop music in downtown hotels and restaurants because it encouraged large gatherings.³⁴ After Starkloff promised to shut down any saloon or cafe violating the closing orders, police arrested two bar owners on October 15 for playing music in their establishment.³⁵ Starkloff also instructed police to check for death notices that indicated public funerals, which the health department had forbidden. As the influenza continued to spread, the health department issued more regulations and limitations.

On October 20 Starkloff ordered all retail stores except grocery and drug stores to observe operating hours of 9:30 a.m. to 4:30 p.m. He argued that having white-collar office employees and retail store workers on different schedules meant that fewer people would be together on the streetcars during the morning and evening rush hours. As with earlier decrees, loopholes existed in the closing order. Starkloff required all bars to close but allowed restaurants to remain open if they were not connected to a bar.³⁶ These restrictions did not last long. Starkloff rescinded the new operating hours three days later after receiving pressure from Kiel and several small



businesses. The mayor agreed with the small businessmen, and Starkloff relented because he noted that the closing order caused additional hardships on small businesses and that their closing had little effect on stopping the spread of the influenza. Although he could not force compliance, the health commissioner requested that large department stores voluntarily maintain the restricted hours. On October 20 he closed the art museum, the zoo, and the Jefferson Memorial, and then he vowed to continue the ban as long as it appeared to help stem the spread of influenza.³⁷

By the end of October, the St. Louis Health Department had counted over 7,000 cases of influenza and 462 deaths; in comparison, Philadelphia had nearly 3,000 dead, New York had 2,153 deaths, and in Chicago 1,242 had succumbed to influenza or pneumonia related to the virus by October 26. Throughout the worst part of the epidemic, St. Louis citizens had certainly suffered, but according to the statistics compiled by the U.S. Census Bureau, the Gateway City had posted the lowest large-city death rate in the nation at the end of October.³⁸ On October 24 city officials, doctors, U.S. Army medical officers, and Red Cross officials held a conference on the state of the epidemic and voted unanimously to maintain the closing order. The army representatives agreed that St. Louis had experienced a “remarkable escape” in comparison to the rest of the country and that its “escape” was due to the order against public gatherings. Red Cross officials stated that St. Louis was the only city of comparable size to escape the ravages of influenza.³⁹

Starkloff and Kiel continued to hold their ground when pressure mounted to lift the closing ban at the beginning of November. In defense of his policies, Starkloff reported that when the health department issued the closing ban, St. Louis averaged 560 influenza cases per day, and within two weeks of the order, daily reported cases fell to 320 per day. Starkloff also referred to the U.S. Public Health Service records that reported that the eight largest American cities had averaged 1,440 influenza deaths between October 6 and October 26, while in St. Louis the number was 26.5 deaths per day. By the end of October, approximately 300,000 people across the country had died from influenza or associated pneumonia, and the number continued to rise.⁴⁰ St. Louis health leaders pointed out that the number of influenza cases in Kansas City had immediately skyrocketed after health

Detail of Famous and Barr Co. department store advertisement listing hours of business suggested by the health commissioner.
[*St. Louis Post-Dispatch*,
November 3, 1918.
SHSMO]

leaders had lifted the ban on indoor gatherings on October 12. When presented with the Kansas City numbers, Mayor Kiel agreed to maintain the restrictions and announced to Starkloff, "I do not want a single soul to die and I will not do one thing to hinder your work."⁴¹ Although St. Louis never reached mortality and morbidity totals similar to the rest of the country, several unforeseen events caused the city's numbers to rise.

The most unexpected event occurred on November 7 when several local newspapers prematurely reported that World War I had officially ended. Thousands of St. Louis citizens took to the streets to celebrate the armistice, giving little regard to the influenza. Stores declared a holiday, people poured out of office buildings and hotels, parades broke out, bars filled with people, men kissed strange women on the streets, and men, women, and children ran bareheaded and coatless into the rain to join the celebration. Health officials gave up trying to regulate the festive crowd and instead went home after streetcars dumped thousands of people downtown who crowded into saloons to celebrate. Although the cause for the celebration was understandable, this was exactly the kind of public gathering that Starkloff feared. As expected, the next day the city saw a spike in the number of reported influenza cases.⁴²

Starkloff and Kiel closed all mercantile establishments and nonessential businesses on November 8 in response to the premature celebration. Influenza continued to ravage the city, and Starkloff felt it was imperative to make the closing order more drastic than those in the past. The number of



November 7 celebration in downtown St. Louis following a premature announcement of the armistice ending World War I.

[*St. Louis Post-Dispatch*, November 8, 1918. SHSMO]

cases still had not sharply declined throughout the city, and combined with the fact that a large crowd had gathered downtown the previous day, the health commissioner felt it prudent to suspend downtown commerce entirely.⁴³ According to the *St. Louis Post-Dispatch*, the next day felt like a traditional Sunday, as virtually all commerce in the downtown section closed, and only businesses that supplied food or medical attention or those needed for the war effort were supposed to remain open.⁴⁴ Office buildings remained open, and according to the *St. Louis* newspapers, the occasional florist or cigar store could be found with its door open; for the most part, however, the city resembled a holiday weekend. Starkloff believed that this more drastic closing would shorten the overall time period of the epidemic and allow a return to normal operations more quickly. His plan, however, caused confusion and numerous complaints after he listed thirty-six mercantile categories as exempt from the closing ban. Hundreds of people went to

the health offices to complain and argue against the closing, but when confronted, the health department stated its only purpose was to save lives—not to worry about commerce. Some people forced to close their businesses complained about St. Louis serving as an example to the rest of the nation, and an argument ensued about the fairness of the restrictions.⁴⁵ Starkloff held his ground and explained that the closing would not have been necessary if the premature peace celebration had not occurred.

For the most part, the new stricter closing order was respected and met little resistance or defiance. The St. Louis Chamber of Commerce announced that it stood squarely behind the Medical Advisory Committee and the health commissioner and that its members fully supported the efforts of the public health officials. Despite the claim, the *St. Louis Post-Dispatch* reported that a wine shop, a shoe store, and several bars remained open. United Railways reported that at least fifteen fights had broken out on streetcars after conductors attempted to close the doors when all the seats became occupied.⁴⁶ When the police arrived to shut down one open bar on November 10, they found the door barricaded for over an hour.⁴⁷ Mayor Kiel and Health Commissioner Starkloff tried to stick to their original plans, and they refused to modify the closing restrictions when the real Armistice Day arrived on November 11.

The actual peace celebration again brought thousands of people into downtown St. Louis. Disregarding the ban against gatherings of more than six, people began marching in the streets before dawn, and flags appeared everywhere. The marchers quickly formed impromptu parades, and by 8:00 a.m. the streets were filled with people marching with flags, noise makers, banners, and effigies of the kaiser. After the war ended, the epidemic took a secondary role in the city, and arguments soon mounted to rescind the ban. Merchants wanted to open their businesses for Christmas, parents wanted their children to return to school, and churchgoers were anxious to resume services. With the number of new influenza cases decreasing each day and the public demanding the reopening of business establishments, schools, and churches, the Medical Advisory Committee agreed to resume the city's normal course of business on November 13.⁴⁸ Starkloff agreed the following week to lift the majority of the rules regarding the limits on public gatherings, although a few minor restrictions remained in place. The health commissioner decided to lift the closing because the influenza appeared to be slowing, as only about ten new cases a day were emerging in the various wards.⁴⁹ With schools reopening and all restrictions removed, it appeared by the end of



Celebrants dragging an effigy of the German kaiser in a St. Louis parade marking the World War I armistice.
[*St. Louis Post-Dispatch*, November 12, 1918.
SHSMO

November that the crisis was over. St. Louis citizens would soon discover this was not the case.

The last week of November brought the largest number of new influenza cases in the city in nearly a month. The spike came predominately from children who had returned to school, and not from adults. On November 27 the medical community reported the highest number of new influenza cases ever in a single day. Although there had been approximately 15,025 cases of influenza reported by the end of November, Starkloff declined to reinstate the citywide closing policy because the death rate totaled only 1,204, which was much lower than in the previous month. Because the virus seemed to be less virulent than in October, Starkloff closed only the schools and barred children under the age of sixteen from attending places of amusement, visiting stores, or congregating in large numbers.⁵⁰

The peak of the epidemic arrived during the first week of December when the health department confirmed a thousand new cases in the first few days of the month. Although the number of cases was high, the resulting deaths remained low, so Starkloff chose not to impose more restrictive measures in the belief that the virulence of the disease was abating.⁵¹ Another reason the doctor chose not to impose additional emergency restrictions was that approximately 40 percent of the cases each day were children under the age of fifteen.⁵² As the year progressed, Starkloff seemed to be changing his stance on the epidemic. Dr. G. A. Jordan, the assistant health commissioner, speaking for Starkloff, noted, "Our best policy is, I think, to keep the man with business going and shut off everything that is not necessary to the maintenance of the business."⁵³ City hall still refused to issue permits for meetings, and Mayor Kiel announced that schools would remain closed until after the Christmas holiday. He changed his mind the next day and granted permission for high schools to reopen for only juniors and seniors on December 9.⁵⁴ A few violations of the overcrowding order occurred throughout town, especially with streetcars, but as each successive week went by, the number of influenza cases gradually decreased.

By the end of December, the city was reporting fewer than 50 new cases per day, and on December 20 the health department rescinded most of the restrictions—except for those regarding children in public places. Theaters had to be fully ventilated, and conventions and banquets still required permits from the city, but for the most part business resumed.⁵⁵ On December 28 Mayor Kiel removed the closing proclamation completely and allowed the return of public gatherings. For the first time since October 7, children went to the movies, and meetings did not require permits; schools could reopen on January 2.⁵⁶ The siege had officially ended, and except for those who had suffered the death of a loved one, life in the city returned to normal.

The epidemic continued in St. Louis in some form throughout the spring of 1919. For approximately twenty-seven weeks, the epidemic inflicted its wrath on St. Louis citizens. Approximately 3,691 people died from influenza and associated pneumonia, many children became orphans, and more than 35,000 people suffered from the pestilence in some degree or another.⁵⁷ Although these numbers are tragic and quite high, they pale in comparison to other municipalities throughout the nation. The early action



by Starkloff and Kiel saved lives, and except for Grand Rapids, Michigan, the death rate in St. Louis was significantly lower than in any of the forty-three largest American cities.⁵⁸

There is no more effective way to stop the influenza's spread than by isolating people from one another, and in St. Louis during 1918 the cooperation of its citizens and decisive action by the city health commissioner and mayor saved many lives. Nonpharmaceutical interventions are the key to slowing influenza, but credit should also be given to the majority of citizens who followed the rules in 1918. By the time other cities like Philadelphia, Boston, New York, and Chicago began implementing nonpharmaceutical interventions, it was too late to stop the virus's spread. In retrospect, Starkloff stated that he regretted the necessity for having to enforce regulations that interfered with business, but he proudly proclaimed that he would do it again. The health commissioner believed the choice came down to protecting the merchant's economy versus protecting the health of the community, and he rightfully believed that he had done what was best for St. Louis citizens.⁵⁹

Detail from Scruggs-Vandervoort-Barney department store advertisement noting that children are not permitted to be in the store.
[*St. Louis Post-Dispatch*,
December 20, 1918.
SHSMO]

NOTES

1. An examination of the forty-three largest American cities revealed that St. Louis had a death rate of 30.0 per 100,000 at the first peak and a pneumonia and influenza mortality rate of 358 per 100,000. Of these cities, only Grand Rapids, Michigan, fared better than St. Louis, and credit is given to the city leaders' quick-acting and long-standing nonpharmaceutical interventions. "Social Restrictions Reduce Death Toll During Influenza Pandemics, Study Suggests," *Science Daily*, 8 August 2007, www.sciencedaily.com/releases/2007/08/070807165255.htm (accessed 18 December 2008).

2. The latest number published by the Center of Disease Control and Prevention lists 25 million deaths attributed to HIV/AIDS. The best estimate of influenza

deaths in 1918 ranges from 20–50 million worldwide. "The Global HIV/AIDS Pandemic, 2006," Center of Disease Control and Prevention www.cdc.gov/mmwr/preview/mmwrhtml/mm5531a1.htm (accessed 11 November 2010).

3. According to the U.S. Army, the greatest number of deaths was of people between twenty-five and thirty-two. *St. Louis Post-Dispatch*, 7 December 1918; John M. Barry, *The Great Influenza: The Epic Story of the Deadliest Plague in History* (New York: Penguin, 2004), 4; Gina Kolata, *Flu: The Story of the Great Influenza Pandemic of 1918 and the Search for the Virus that Caused It* (New York: Farrar, Straus and Giroux, 1999), 6–7.

4. Howard Markel et al., "Nonpharmaceutical Interventions Implemented by US Cities During the 1918–1919 Influenza Pandemic," *Journal of the American Medical Association* 298 (August 2007): 644–54.
5. Because of the call for troops during World War I, the camps were vastly overcrowded. Built to house 35,000 men, the camps contained up to 45,000 men. Alfred W. Crosby, *Epidemic and Peace, 1918* (Westport, CT: Greenwood Press, 1976), 5–7; Kolata, *Flu*, 15.
6. Kolata, *Flu*, 15–19.
7. By October 3 more than 100,000 American soldiers had contracted influenza, 7,645 had pneumonia, and 2,148 had died. *St. Louis Post-Dispatch*, 3 October 1918.
8. *Ibid.*
9. *Ibid.*, 4 October 1918; Marilyn Vessel, "The 1918 Influenza Epidemic: Its Effect on the City of St. Louis, Missouri" (master's thesis, Southern Illinois University–Edwardsville, 1977), 66; "The Influenza Epidemic," *Bulletin of the St. Louis Health Department* 8 (November 1918): 35.
10. "Influenza Epidemic" (November 1918): 34–35; *St. Louis Post-Dispatch*, 5 October 1918.
11. As of October 5 Kiel did not feel that the situation was serious enough to merit the closing of theaters and churches. Any physician who failed to report a case of influenza to the health department was to be fined. *St. Louis Post-Dispatch*, 5 October 1918; John C. Crighton, *The History of Health Services in Missouri* (Omaha, NE: Barnhart Press, 1993), 173.
12. "Influenza Epidemic" (November 1918): 35; *St. Louis Post-Dispatch*, 7 October 1918.
13. The closing included St. Louis University but not Washington University since it lay outside the city boundaries. "Influenza Epidemic" (November 1918): 35; Crighton, *History of Health Services*, 173; *St. Louis Post-Dispatch*, 7 October 1918.
14. *St. Louis Post-Dispatch*, 7 October 1918.
15. *St. Louis Star*, 8 October 1918.
16. Approximately two hundred thousand people gathered on twenty-three city blocks to sing patriotic songs, listen to speakers, and collect money for the war. Crosby, *Epidemic and Peace*, 72; "Rapid Response Was Crucial to Containing the 1918 Flu Pandemic," *Science Daily*, 3 April 2007, www.sciencedaily.com/releases/2007/04/070402215016.htm (accessed 18 December 2008).
17. "Influenza Epidemic" (November 1918): 35.
18. *St. Louis Post-Dispatch*, 8 October 1918; *St. Louis Star*, 12 October 1918.
19. The theater owners argued that the closing would cost them \$150,000 per week and the city \$25,000 per month in lost tax revenue. *St. Louis Star*, 8 October 1918; *St. Louis Post-Dispatch*, 8 October 1918.
20. With an enrollment of 21,000 students, the school board officials were concerned about effective communication to parents and felt it was best to explain the school closing to students in attendance the morning of October 8. Students were released from schools at noon that day. October 9 marked the first full day of the school closing. *St. Louis Post-Dispatch*, 8–9 October 1918; *St. Louis Star*, 9 October 1918.
21. *St. Louis Star*, 9 October 1918; *St. Louis Post-Dispatch*, 9 October 1918.
22. David E. Ruth, "Don't Shake – Salute!" *Chicago History* 19 (November 1990): 6, 10–11, 19.
23. Kevin McShane, "The 1918 Kansas City Influenza Epidemic," *Missouri Historical Review* 63 (October 1968): 56, 60, 66, 68–70.
24. "The Influenza Epidemic," *Bulletin of the St. Louis Health Department* 8 (January 1919): 51; Crighton, *History of Health Services*, 175.
25. Kansas City suffered a magnitude of first peak excess deaths of 58.1 per 100,000, and the city's excessive pneumonia and influenza mortality was 579.8 deaths per 100,000. These numbers are nearly double those of St. Louis. Chicago fared much worse at the beginning with a magnitude of first peak excess deaths of 84.8 per 100,000. Chicago's excess pneumonia and influenza mortality deaths per 100,000 population was closer to the St. Louis numbers at 373.2. "Social Restrictions Reduce Death Toll"; McShane, "1918 Kansas City Influenza Epidemic," 60, 68–70.

26. *St. Louis Star*, 9, 12 October 1918.
27. *Ibid.*, 10 October 1918; *St. Louis Post-Dispatch*, 10–12 October 1918.
28. *St. Louis Star*, 12 October 1918.
29. Barry, *Great Influenza*, 142–43; *St. Louis Republic*, 4 October 1918.
30. The city paid for the labor expense. *St. Louis Post-Dispatch*, 18 October 1918.
31. *Ibid.*, 6 October 1918.
32. *St. Louis Star*, 12 October 1918.
33. *St. Louis Post-Dispatch*, 10–11 October 1918.
34. Since cabarets, but not bars and hotels, appeared on the ban list, the owners of these establishments looked for a loophole in the ordinance and argued that they were exempt. *Ibid.*, 15 October 1918.
35. Health authorities argued that music enticed people to gather. At the bar where the arrests took place, there were twenty-four men and women listening to the music. *Ibid.*, 16 October 1918.
36. The Missouri Woman's Christian Temperance Union sent a letter to Missouri governor Frederick Gardner arguing that it was discriminatory to close theaters, schools, and churches while permitting bars to stay open. Religious leaders joined the temperance crusade in asking for the closing of bars. This was similar to the problem in Chicago where certain groups used the epidemic to mix their moral agenda with the health crisis. The complete closing of bars would not happen although Starkloff stated that the matter had been considered from both a moral and physical standpoint. Police were still instructed to close any bar that permitted a crowd to gather. *Ibid.*, 20–21, 24 October 1918.
37. *Ibid.*, 23–24 October 1918.
38. Boston, New York, and Chicago each had more people die of influenza during one day than St. Louis had since the epidemic began on October 7. *Ibid.*, 24, 26 October 1918.
39. *Ibid.*, 24 October 1918.
40. *Ibid.*, 1 November 1918.
41. Kansas City's Health Department recognized the mistake and reinstated the closing ordinances. "Influenza Epidemic" (November 1918): 35; *St. Louis Post-Dispatch*, 1 November 1918; Vessel, "1918 Influenza," 81.
42. Four days later the U.S. officially signed an armistice with Germany, bringing an end to the war. Starkloff, while viewing the bogus armistice celebration, was quoted as stating that this was "just the sort of weather and conditions for the spread of influenza. I fear the effects of this." *St. Louis Post-Dispatch*, 8 November 1918.
43. *Ibid.*, 9 November 1918.
44. *Ibid.*, 8 November 1918.
45. For a list of exempt businesses, see *ibid.*, 9 November 1918.
46. *Ibid.* Standing passengers were prohibited in order to cut down the number of people riding on streetcars.
47. A fine of between \$50 and \$500 could be imposed on those who failed to comply with the health department's restrictions. Several bartenders were arrested that day, including the one who had barricaded the door. *Ibid.*, 10 November 1918.
48. In lieu of the mayor having to issue a new ordinance, the proclamation was to remain in force, and the closing would be tightened again if city leaders deemed it necessary. The ban on public meetings remained in effect for a few more days, schools were given several days to get ready for reopening, and the rules regarding streetcars remained unchanged. Crighton, *History of Health Services*, 175; *St. Louis Post-Dispatch*, 12 November 1918.
49. "Increase of Influenza Cases," *Bulletin of the St. Louis Health Department* 8 (December 1918): 41; *St. Louis Post-Dispatch*, 12–13 November 1918.
50. Kansas City closed its schools on November 27. Starkloff also prohibited streetcars from carrying more than twenty passengers, allowed elevators to carry only two-thirds of their capacity, and prohibited businesses from offering special sales to induce crowds. *St. Louis Post-Dispatch*, 26–29 November 1918; Crighton, *History of Health Services*, 175; Vessel, "1918 Influenza," 87.

51. On December 2 there were sixty-three deaths from pneumonia—the highest one-day number since the outbreak had begun—but Starkloff argued that the proportion of deaths was not increasing in comparison to the number of new influenza cases. *St. Louis Post-Dispatch*, 2–4 December 1918.

52. Irene Kalnins, “The Spanish Influenza of 1918 in St. Louis, Missouri,” *Public Health Nursing* 23 (September–October 2006): 481.

53. *St. Louis Post-Dispatch*, 1 December 1918. Regulating streetcars continued to remain a problem as some people would break windows in order to board.

54. The schools made up the lost time by extending hours. *Ibid.*, 9 December 1918.

55. *Ibid.*, 21–22 December 1918.

56. *Ibid.*, 28–29 December 1918.

57. The Children’s Aid Society assisted many of the orphans, and after being besieged by calls, the organization published an appeal to St. Louis families to take the children into their homes. Sometimes the housing was only temporary until the parent recovered, but in many cases it became permanent. *St. Louis Post-Dispatch*, 22 December 1918. The exact number of sick and dead is hard to determine because the virus was not initially a reportable disease, and many people died alone. Crosby, *Epidemic and Peace*, 60–61.

58. Markel, “Nonpharmaceutical Interventions,” 644.

59. “Influenza Epidemic” (January 1919): 51–52; Nicholas Bakalar, “How (and How Not) to Battle Flu: A Tale of 23 Cities,” *New York Times*, 17 April 2007.