

Legionnaires' Disease Outbreak in Philadelphia and the 1976 United States Presidential Election

Ryota Sakamoto 

Abstract

In the summer of 1976, prior to the United States presidential election between Gerald Ford and Jimmy Carter, an outbreak of Legionnaires' disease occurred in Philadelphia. After an epidemiological survey, 221 people with pneumonia or similar symptoms were identified, 34 of whom died. The outbreak prompted the advancement of legislation to exempt companies that produced influenza vaccines from liability for damages, resulting in significant losses for the government. The outbreak was a major economic blow to the Bellevue Stratford Hotel, an iconic historical hotel in Philadelphia, which was forced to close 16 days after the election. Following the outbreak, media coverage was extensive, and there was frustration over the inability to determine the cause of the outbreak in Philadelphia. The critical factor was that the cause of the outbreak was not determined to be rod-shaped bacteria, later named *Legionella pneumophila*, before the election date. While many aspects had an impact, it is possible that the Legionnaires' disease outbreak may have affected the outcome of the election, particularly in Pennsylvania. This study does not make definitive causal links but focuses on Legionnaires' disease and the 1976 elections.

INTRODUCTION

The Coronavirus Disease 2019 (COVID-19) had a substantial impact on the outcome of the 2020 United States (U. S.) presidential election between Republican incumbent President Donald Trump and Democratic candidate Joe Biden. There had been an outbreak of COVID-19 in the White House in September 2020 when President Trump became infected. He was reported to have fever and congestion and was transferred to the Walter Reed National Military Medical Center and hospitalized for 3 days. The President was treated with remdesivir, dexamethasone, and a combination of two antibodies directed against a key protein in COVID-19 (Cohen, 2020). The response to the COVID-19 pandemic was one of the significant points of contention in the televised debate between Joe Biden

Contact information: Center for Southeast Asian Studies, Kyoto University, 46 Shimoadachi-cho, Yoshida, Sakyo-ku, Kyoto, 606-8501, Japan.

E-mail address: sakamoto65@cseas.kyoto-u.ac.jp

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2024 The Authors. *Sociology Lens* published by John Wiley & Sons Ltd.

and Donald Trump.^{1,2} Baccini et al. (2021) detected the negative impact of the COVID-19 incident on Trump's support, especially in states without a stay-at-home order, in states that Trump won in the 2016 presidential elections, in swing states, and urban counties.

This article discusses the impact of the outbreak of Legionnaires' disease on the outcome of the 1976 U.S. presidential election between the Republican candidate, incumbent President Gerald R. Ford, and the Democratic candidate, former Georgia Governor Jimmy Carter. Several studies have discussed the relationship between pandemics or outbreaks of infectious diseases other than COVID-19 and elections. Abad et al. (2021) pointed out the possibility that the mortality of the 1918 Spanish flu pandemic had a statistically significant negative effect on the Congressional or gubernatorial vote in the U.S. but not as much on the presidential election in 1920 (Abad et al., 2021). Beall et al. (2016) suggested the possibility that the Ebola outbreak might influence the 2014 U.S. Federal Elections. Urbatsch (2017) showed an association between influenza outbreaks and lower voting rates. However, to the best of our knowledge, this is the first study to focus on the impact of the Legionnaires' disease outbreak on election outcomes.

NOTED FACTORS THAT IMPACTED THE PRESIDENTIAL ELECTION AND THEIR TIMELINE

In the summer of 1976, shortly after Jimmy Carter, the former governor of Georgia, was elected as the Democratic nominee for the presidential campaign of that year, an election poll showed that the incumbent President, Gerald R. Ford, trailed Carter by a large margin, with 29% of the vote in comparison with Carter's 62% (Jones, 2006) (Figure 1). Two years earlier, Gerald Ford had been elevated from Vice President to the 38th President of the United States without an election because Richard Nixon, the 37th president, had been forced to resign after the

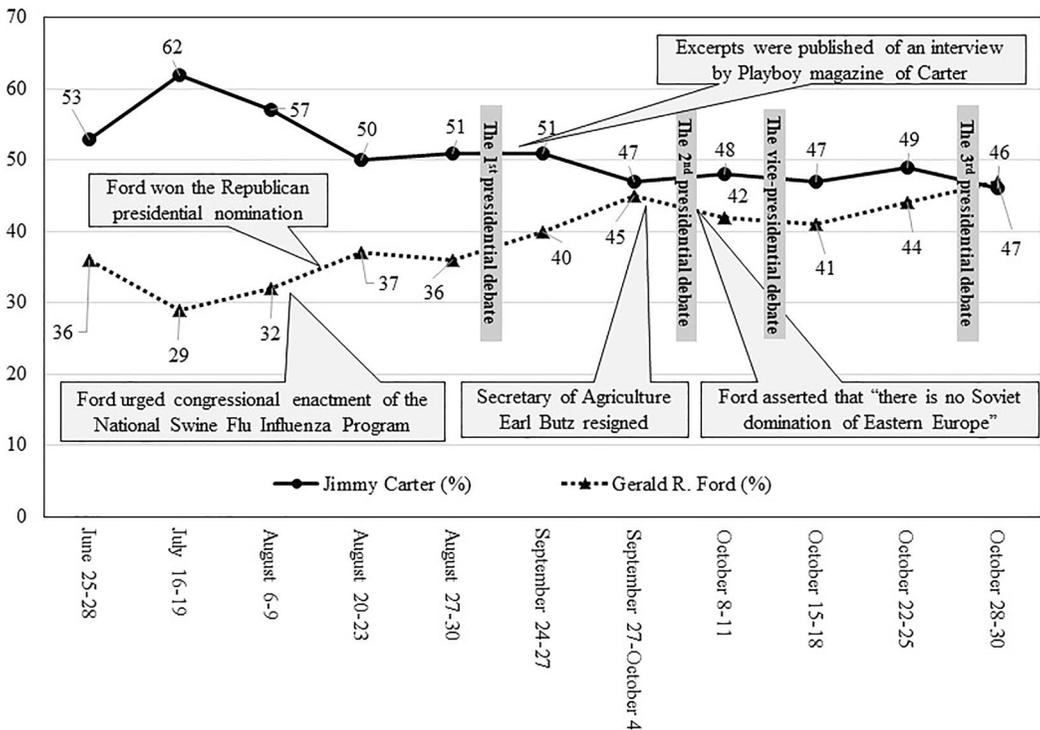


FIGURE 1 Trends in public opinion in the 1976 United States presidential election.

Watergate Scandal. Despite growing political distrust, Ford pardoned Nixon by issuing Presidential Proclamation No. 4311 soon after taking office.

In the immediate aftermath of Ford's election as the Republican nominee, polls continued to show Carter ahead; however, the gap narrowed considerably to 50% for Carter and 37% for Ford (Figure 1). On September 20, 1976, excerpts were published in an interview conducted by *Playboy* magazine of Jimmy Carter, in which he made statements that could be sexually off-putting and heavily criticized late Lyndon Johnson, the 36th president (Roessner, 2020; Wertz, 1976; Witcover, 1977). Criticism of the mass market interview and its content brought about Carter's suitability for office.

Soon after, on September 23, 1976, the first televised debate between Carter and Ford was held in Philadelphia, Pennsylvania; many viewers found Carter's answers on unemployment measures to be unpersuasive. Ford did not stay at the Bellevue-Stratford Hotel like past presidents, but he participated in a reception there on the same date as the TV debate. There, he mentioned, "The polls are going our way, the momentum is on our side." After the events, opinion polls in late September and early October showed a close contest, with 47% in favor of Carter and 45% in favor of Ford (Jones, 2006) (Figure 1).

However, an event that frustrated the momentum of the Ford camp occurred on October 4, 1976 when Earl Butz, the Secretary of Agriculture, suddenly resigned. In August, on a flight from the Republican National Convention in Kansas City to Los Angeles, Butz was asked by entertainer Pat Boone why the Party of Lincoln could not attract more African-American voters; Butz proceeded to make insulting remarks about people of color.

On October 6, 1976, a second televised debate between Ford and Carter was held in San Francisco. A pivotal moment during this debate was Ford's assertion that "there is no Soviet domination of Eastern Europe," a statement he made in response to a question from journalist Max Frankel concerning relations with the Soviet Union. When Pauline Frederick, the moderator of the debate, asked Carter about his reaction to Ford's answer, Frankel interrupted to challenge Ford's reply. This exchange raised doubts regarding Ford's sense of urgency regarding the Soviet Union. Ford was considered a gaffe in foreign affairs and national defense, where he was expected to have the upper hand as the incumbent president (Bitzer & Rueter, 1980).

On October 8, 1976, the Bureau of Labor Statistics of the U.S. Department of Labor reported that the overall rate of unemployment was 7.8%, and unemployment totaled 7.4 million, seasonally adjusted (U.S. Bureau of Labor Statistics, 1976). This was the most recent monthly report on unemployment before the election. Carter repeatedly pointed out the high unemployment rate under the Ford administration. Ford would have liked to see a significant improvement in the unemployment rate but was unable to achieve it.

On October 11, 1976, two women and one man died of heart attacks in Allegheny, Pennsylvania, within hours of receiving the flu vaccination; all three had received the vaccine at the same clinic (Frederick, 1976). All were in their seventies and had a history of heart or lung disease. The causal relationship to the vaccine was unknown, but this event led to heightened anxiety regarding the vaccine, and a number of states decided to discontinue vaccinations. Thus, the National Swine Flu Immunization Program subtly influenced this campaign.

On October 14, 1976, Ford received the vaccine with a smile in front of the reporter; however, this did not allay the public's fear. On December 14, the Center for Disease Control (CDC) reported that at least 30 people had developed paralysis and suspected Guillain-Barré syndrome after receiving the influenza virus vaccine; consequently, the mass influenza vaccination program was aborted.

On October 15, 1976, in Houston, Texas, the first televised debate between vice-presidential candidates was held, as Democratic vice-presidential candidate Walter Mondale and Republican vice-presidential candidate Bob Dole debated with each other. The reason for this focus on vice-presidential candidates was the strong recognition of the importance of the vice president brought about by the recent presidential changeover from Nixon to Ford.

The election was held on November 2, 1976 and the candidates were closely matched. There is a common saying that the "Republicans pray for rain" referencing the phenomenon that Republican supporters tend to be more enthusiastic about their candidates when compared to Democrats and tend to go to the polls regardless of the weather. However, on the day of the election, the weather was sunny throughout the country. The election,

which could have gone either way until the end, resulted in a victory for Carter with a slight difference of 2.06% between the two candidates (Leip, 1976) (Figure 2).³

Williams (2020) argued that one of the critical factors was that Carter succeeded in appealing to lower-income voters through promises of jobs and economic change (Williams, 2020). Many other factors also played important roles in the campaign, such as Carter's standing as a Washington outsider, the political power of African Americans and Hispanics, the battle to win the support of Jewish immigrants, the establishment of Carter's campaign headquarters, the Asian Pacific American Coalition, which aimed to connect with Asian voters, and Carter's image-making strategy (Roessner, 2020; Witcover, 1977).

THE POLITICAL SITUATION IN PENNSYLVANIA

Pennsylvania, the site of the pneumonia outbreak, was one of the battleground states that made a difference in elections. The Carter campaign sought support from Philadelphia Mayor Frank Rizzo; however, this was not a straightforward task. Although a Democrat, Rizzo supported the Republican candidate Richard Nixon in the previous presidential election. Moreover, Rizzo was amidst a recall campaign. Some Democrats were at the center of the movement's activities.

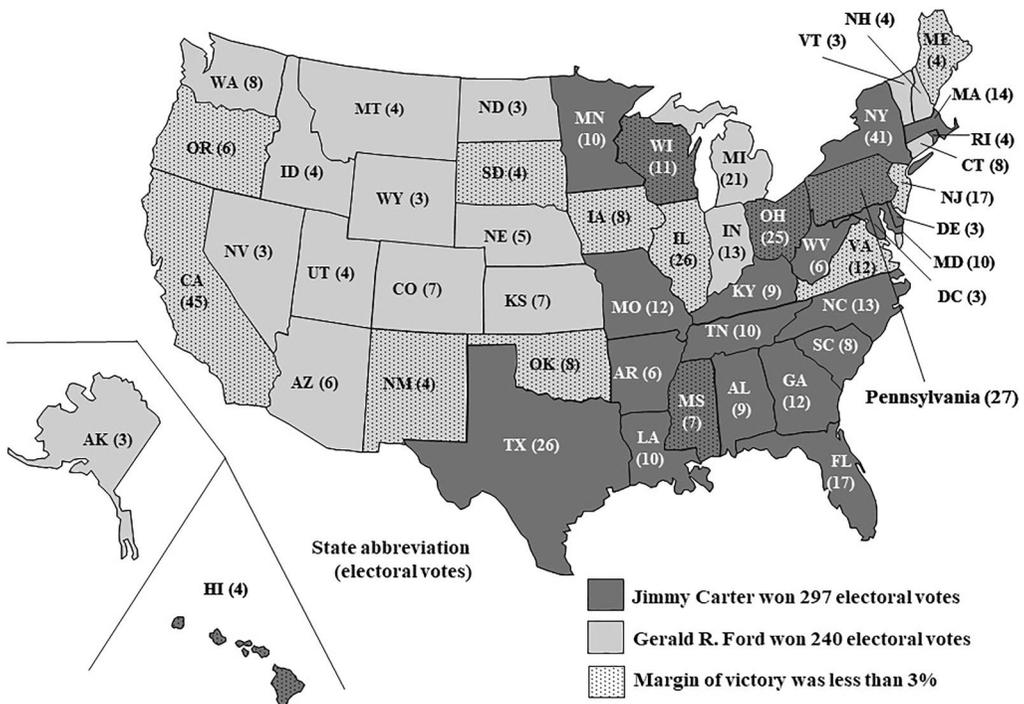


FIGURE 2 Result map of the 1976 United States presidential election. AK, Alaska; AL, Alabama; AR, Arkansas; AZ, Arizona; CA, California; CO, Colorado; CT, Connecticut; DC, District of Columbia; DL, Delaware; FL, Florida; GA, Georgia; HI, Hawaii; IA, Iowa; ID, Idaho; IL, Illinois; IN, Indiana; KS, Kansas; KY, Kentucky; LA, Louisiana; MA, Massachusetts; ME, Maine; MI, Michigan; MN, Minnesota; MO, Missouri; MS, Mississippi; MT, Montana; NC, North Carolina; ND, North Dakota; NE, Nebraska; NH, New Hampshire; NJ, New Jersey; NM, New Mexico; NV, Nevada; NY, New York; OH, Ohio; OK, Oklahoma; OR, Oregon; PA, Pennsylvania; RI, Rhode Island; SC, South Carolina; SD, South Dakota; TN, Tennessee; TX, Texas; UT, Utah; VA, Virginia; VT, Vermont; WA, Washington; WI, Wisconsin; WV, West Virginia; WY, Wyoming.

Contrary to promises made in the previous mayoral election, Rizzo announced a 29% increase in civic property taxes, a 20% increase in payroll taxes, a 15-cent increase in transit fares, and the furloughing of 1,000 city employees to offset the city's deficit. In addition, Philadelphia Inquirer reporter Desmond Ryan published a satirical article in his Sunday column depicting Rizzo discriminating against female police officers, which resulted in supporters of Rizzo surrounding the Inquirer building for ten hours, refusing to let newspaper employees in and physically assaulting two photographers. Rizzo had been working in the police field since he was 22 years old and was rumored to have allowed investigations featuring brutality, illegal violence, and disregard for human rights, especially against the Black Panthers Party and other African American activist organizations. Furthermore, during his time as Philadelphia's police commissioner, a post he held for almost 4 years starting in April 1967, the percentage of African Americans hired as police officers by the Philadelphia Police Department declined from 27.5% in 1966 to 7.7% in 1970 (Commonwealth of Pennsylvania V. O'Neill, 1972).

Rizzo built his support base among people of European backgrounds, opposing desegregation in schools and the construction of public housing for African Americans in predominantly European American neighborhoods. Carter, who wanted support from African Americans, had to strike a balance between Rizzo's support and the opposition. In the presidential primary, Carter apologized for using the term "ethnic purity" to defend the stability of established neighborhoods. Obtaining African American support was a sensitive issue (Washington, 1981; Witcover, 1977).

Carter held a meeting with Rizzo but prevented reporters from photographing him in attendance. Rizzo needed Carter's support for the recall campaign and investigations of illegal police violence against him led by David W. Marston, who was appointed U.S. Attorney in Philadelphia by Gerald R. Ford. After this meeting, Rizzo encouraged Italian Americans living in southern Philadelphia to support Carter.

Consequently, Carter won Pennsylvania with a margin of 2.66% and received 27 electoral votes (Leip, 1976; U. S. National Archives and Records Administration, 1976; Corbett et al., 2013) (Figure 3). It was critical of the Pennsylvania vote that Carter won Philadelphia with more than 250,000 votes over Ford. The final number of electoral votes was 297 for Carter and 240 for Ford (U.S. National Archives and Records Administration, 1976).

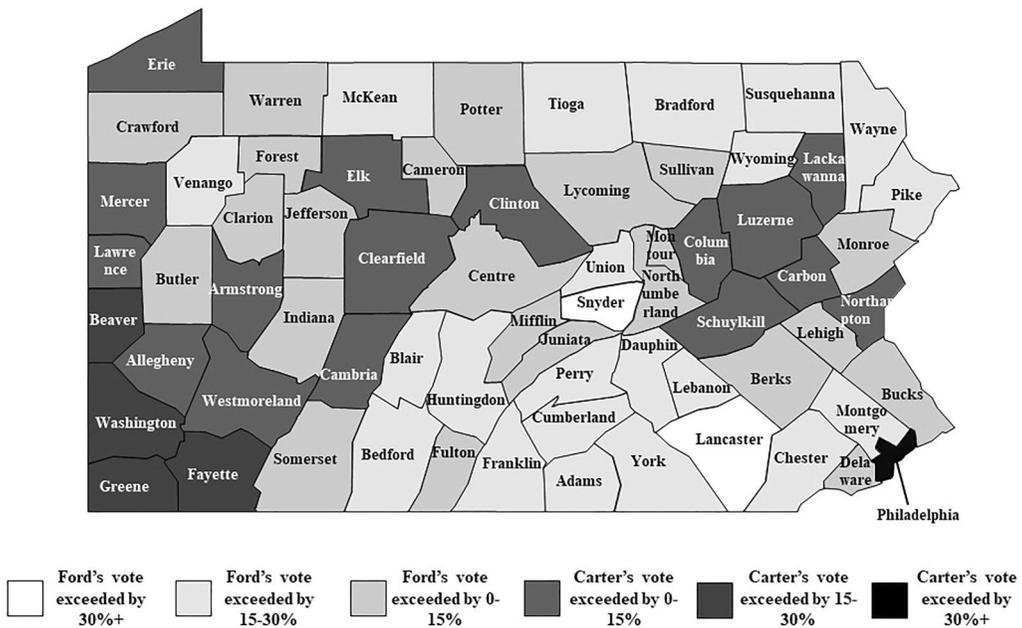


FIGURE 3 Result map of the 1976 United States presidential election in Pennsylvania.

If the Pennsylvania vote had gone to Ford, there would have been a three-vote difference between the two candidates (270 vs. 267), which would have placed great emphasis on the neighboring state of Ohio, in which the difference between the two candidates was 0.27% (Leip, 1976; Ohio Secretary of State, 1976) (Figure 2). In Ohio, many Czechs, Poles, Hungarians, Bohemians, Slovaks, and Lithuanians who were forced to leave their Eastern European homelands because of economic deprivation and communist repression settled. Ford's comments about Eastern Europe likely had a significant impact on election results. In support of this, a survey conducted in Cleveland, Ohio, reported that viewers had a negative impression of Ford (Davis, 1979).

THE OUTBREAK AT THE BELLEVUE-STRATFORD HOTEL IN PHILADELPHIA

The year 1976 was a bicentennial period in the American Revolution. Prior to the Bicentennial Independence Day of July 4, 1976, Philadelphia Mayor Frank Rizzo had requested that President Gerald R. Ford send 15,000 federal troops to the city because of the potential for communist extremists to commit acts of sabotage and violence. Britain's Queen Elizabeth II was scheduled to visit Philadelphia on July 6, 1976. Ford said that he would send troops to help keep order if needed. Rizzo said that if the federal government refused the request, "the blood [would be] on their hands, not mine." However, the Ford administration ultimately determined that troops were not needed and refused the request from the mayor. A few weeks after the July 4 celebrations, an outbreak occurred during the Legion Convention.

From July 21 to July 24, 1976, the 58th Annual Convention of the American Legion was held at the Bellevue-Stratford Hotel in Philadelphia, also known as The Grande Dame of Broad Street. It was one of the most luxurious Renaissance-style hotels in the country and where the Declaration of Independence was adopted on Walnut Street. This event was a milestone gathering with about 4,500 people, including their families, gathering for 4 days (Honigsbaum, 2019; U.S. Committee on Interstate and Foreign Commerce, 1977).

When retired Air Force Captain Raymond Brennan returned home from the convention, he was exhausted and had a fever and chills (U.S. Committee on Interstate and Foreign Commerce, 1977). Three days later, on the night of July 27, 1976, Brennan died after experiencing chest pain, fever, breathing difficulties, and frothy bloody sputum (U.S. Committee on Interstate and Foreign Commerce, 1977). By August 2, it was determined that 11 people who had attended the convention had died (Carpenter, 1976).

Initially, swine flu (influenza A virus subtype H1N1) was proposed as a candidate due to an outbreak of swine flu at Fort Dix, New Jersey, in January and February of 1976. During this period, 13 soldiers were infected, and one died (Gaydos et al., 1977). On the advice of the CDC Director David Spencer, Deputy Director of Programs Bruce Dull, and others, the Ford administration moved forward with a mass national vaccination program known as the "National Swine Flu Immunization Program." A bill was proposed to provide immunity from liability to pharmaceutical companies that produce vaccines; however, there was a debate regarding the merits of the bill. Questions remained regarding the safety of the vaccine, and there were objections to spending \$135 million on the immunization program because, unlike the 1918 H1N1 Pandemic, there were no signs of spread. Edwin D. Kilbourne, a leading flu scholar at the time, described the policy as "a \$135 million gamble" (Kilbourne, 1976). Sidney Wolfe, the head of Ralph Nader's Health Research Group, argued that the analogies that had been drawn between the Fort Dix strain and the swine flu virus that caused the 1918 pandemic were vastly overstated. Beare and Craig at the Medical Research Council Common Cold Unit of Harvard Hospital argued that it seems possible that the outbreak in the U.S. was an isolated event and that the virus would not become established in humans (Beare & Craig, 1976). Stuart-Harris said, "It is indeed highly questionable whether the amount of vaccine required for those between 20 and 50 years of age should be prepared at present for any country, including even the U.S. until the shape of things to come can be seen more clearly" (Stuart-Harris, 1976). Restak, a Washington D.C. neurologist, pointed out the possibility of the vaccine having harmful effects on recipients (Boffey, 1976). The government was aware of the

various uncertainties, but in practice, it could not postpone its decision to produce the vaccine and administer it to the population before the threat outbreak occurred (Norman, 1976).

On August 6, 1976, while news of the Philadelphia disease outbreak shocked society, President Ford held a press conference to urge Congress to pass the bill quickly. The President stated, "I have been following with great concern the investigations into the cause of the tragic outbreak of illness in Pennsylvania in the past week. I am greatly relieved that these tragic deaths were not the result of swine flu. However, let us remember that they may have been. The threat of a swine flu outbreak remains genuine this year. Clinical tests conducted to date have clearly demonstrated that this vaccine is safe and effective. Further delays in this urgent need for legislation are unconscientious. I call on Congress to act now -- before its next recess -- so that the health of the American people is fully protected" (Ford, 1976). Congress passed the bill on August 10, 1976.

DELAY IN DETERMINING THE CAUSE OF THE OUTBREAK

The outbreak at the Bellevue-Stratford Hotel terrified and confused people. Various causal theories were proposed, including those for viruses, bacteria, fungi, and chemicals (U.S. Committee on Interstate and Foreign Commerce, 1977). In Philadelphia, there were rumors that garbage was not collected and piled up due to a breakdown in negotiations with the garbage collector, resulting in garbage attracting rats carrying plague germs. Moreover, because this incident occurred during the Cold War between the U.S. and the Soviet Union, rumors circulated that it was a sabotage campaign by communists and anti-war activists, an anti-government movement against the Gerald Ford administration, or a secret operation by the Central Intelligence Agency (CIA) (Honigsbaum, 2019). There were even stories of a nefarious man releasing a poisonous substance into the air through air vents, someone stealing biological and chemical weapons from the military, a terrorist radiation attack, or perhaps acid on a microphone (Kaplan, 2015).⁴ At its peak, the city received 1,500 calls per hour, claiming that an unidentified Philly Killer was responsible (U.S. Committee on Interstate and Foreign Commerce, 1977).

Some citizens agreed with Rizzo's concern and his request for the federal government to send troops (Franks, 1976). Rizzo, who had been recalled, was not out front in response to the outbreak, and Rizzo's principal advisor, Albert V. Gaudiosi handled media relations as a city representative. Gaudiosi promptly set up a hotline for citizens and medical professionals and assigned 50 homicide detectives to the case (Drake, 1985). Approximately 150 experts from Pennsylvania and the federal government, including doctors, biologists, and chemists, were assigned to investigate the causes.

Based on autopsy results, the cause was suspected to be nickel carbonyl, a highly toxic nickel carbon monoxide complex. Nickel carbonyl is volatile and can enter the body via inhalation or percutaneously, mainly targeting the lungs, causing pulmonary edema, cyanosis, and death. About 45-162 mg of nickel per 100 g of dry weight was detected in the lung tissue of five of the six patients (U.S. Committee on Interstate and Foreign Commerce, 1977). However, re-examination and more detailed tests ruled out that nickel had been deposited by the tools used during the autopsies. Other theories, such as infection and death caused by phosgene gas from corroded air-conditioning equipment, paraquat, cadmium, ozone, or lead, could not be confirmed. The cause remained shrouded in mystery for many months.

PRESS COVERAGE OF LEGIONNAIRES' DISEASE

Following the original outbreak, Legionnaire's disease spread across the country. TIME and Newsweek magazines also featured the disease on the cover of their August issue. The Legionnaires' disease outbreak in Pennsylvania was listed by the Associated Press as its fifth top news story in 1976, following Jimmy Carter's defeat of President Gerald R. Ford; the deaths of Mao Tse-Tung and Chou En Lai, China's top leaders; the U.S. bicentennial celebration;

and the U.S. economy. This indicates that the outbreak of Legionnaires' disease was an event of great interest in that year.

Newspapers frequently featured it, particularly in Pennsylvania, where the outbreak occurred. The authors analyzed the coverage of 75 major newspapers published in Pennsylvania.⁵ The most articles on Legionnaires' disease appeared in August when a number of deaths were detected, and they continued through election day in November (Figure 4).

On September 29, 1976, one of the peak days with many newspapers on Legionnaires' disease, the press reported the view of Morton D. Rosen, Pennsylvania's Deputy Secretary of Health, that the disease may have remained unconfirmed until now and was incorrectly considered viral pneumonia. On October 13, 1976, the newspapers reported the deaths of three elderly persons inoculated against swine flu, and the cause of Legionnaires' disease remained unidentified, although the federal government continued various tests.

On October 21, 1976, David W. Fraser of the CDC said, "I would strongly suggest something in the water at the Bellevue-Stratford Hotel or something in the lobby, probably airborne," because there was a statistically significant association between illness and the amount of time spent in the hotel lobby and drinking hotel water during the Philadelphia Legion Convention in July. "As time goes by, it certainly looks more remote that we will come up with an answer. We have no confidence in what was there when the legionnaires got sick when we started testing 2 weeks later," Fraser said.

On October 28, 1976, a story about the Philadelphia pneumonia outbreak written by Pulitzer Prize-winning columnists Jack Anderson and Les Whitten was published in "Washington Merry-Go-Round," a widely read news column in the country, just prior to the election. In an article titled "Poison Tied to Legionnaire Deaths," they

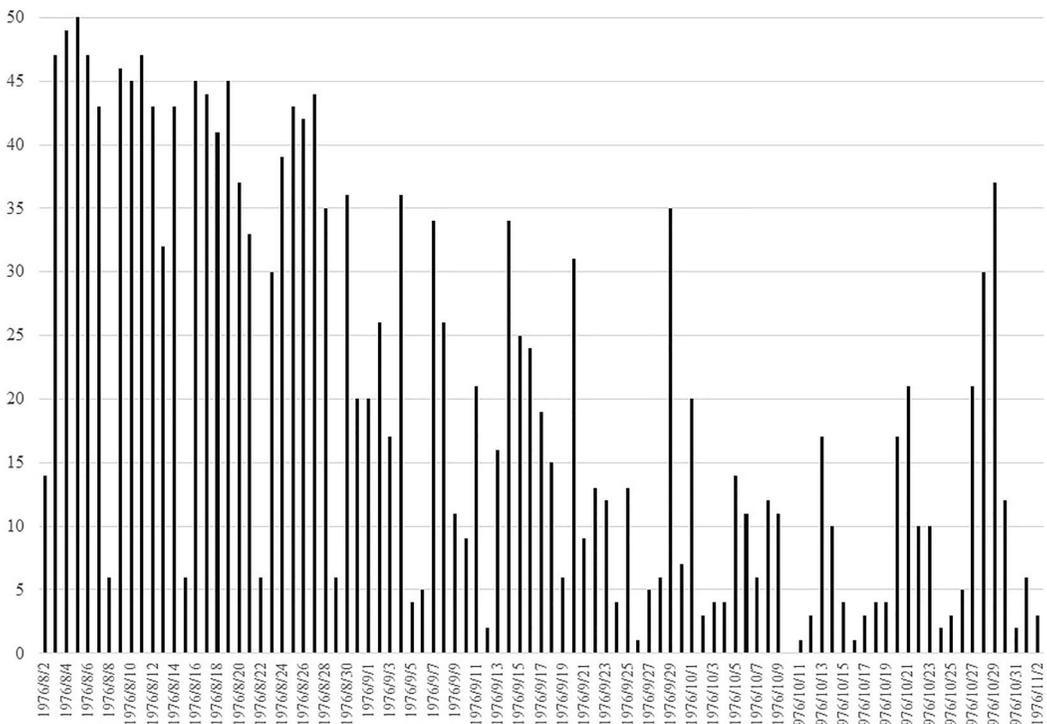


FIGURE 4 Number of newspapers reporting on Legionnaires' disease in Pennsylvania*. * Analysis of 75 major newspapers published in Pennsylvania.

reported that a “madman” had mixed dry ice with nickel carbonyl at the Bellevue-Stratford Hotel at the time of the pneumonia outbreak (Anderson & Whitten, 1976).

The cumulative number of newspaper days searched was 4,008, and the cumulative number of newspaper days in which articles on Legionnaires' disease were published was 1,860 (46.4%). When analyzed by county, a negative correlation was detected between cumulative newspaper days in which articles on Legionnaires' disease were published divided by the cumulative newspaper days searched, and Gerald R. Ford's vote share in the November 2nd presidential election (the Pearson correlation coefficient $R: -0.432$, $p = 0.006$) (Figure 5). The percentage of cumulative newspaper-days in which articles on Legionnaires' disease were published in the cumulative newspaper-days searched in each county (OR 1.066, 95%CI 1.003–1.132, $p = 0.039$) was a significant factor for the likelihood of Ford's loss against Carter in each county in the U.S. presidential election by logistic regression analysis.

MAJOR ECONOMIC BLOW TO THE HISTORIC HOTEL

On November 18, 1976, the Bellevue-Stratford Hotel in Philadelphia, the site of the pneumonia outbreak, was forced to close its doors because of a Legionnaires' disease outbreak. Consequently, approximately 350 employees lost their jobs (Robert, 1976). Although the decision to close the hotel itself was made after the vote, the circumstances leading to its closure were apparent before the vote. The hotel's image was severely damaged after the outbreak. On September 1, 1976, Milton J. Shapp, Governor of Pennsylvania, said that unresolved Legionnaires' disease was directly responsible for a 25–30% decrease in predicted bicentennial summer tourist traffic in

Vote share of Gerald R. Ford

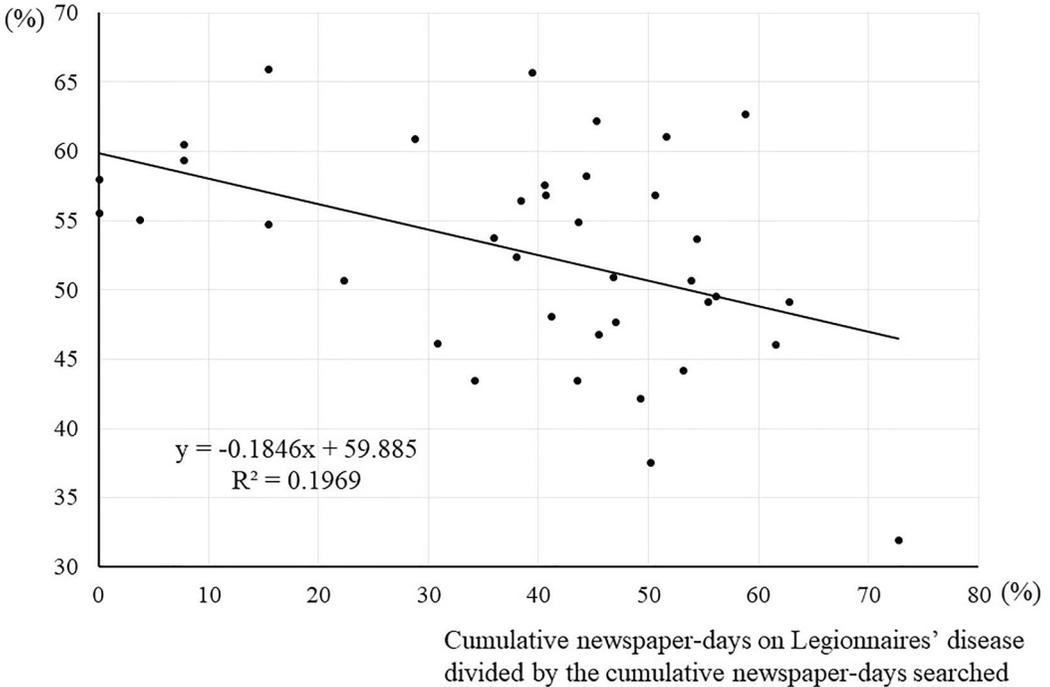


FIGURE 5 Relationship between cumulative newspaper days on Legionnaires' disease divided by the cumulative newspaper days searched, and the 1976 United States presidential vote share of Gerald R. Ford, by county, in Pennsylvania*. * Analysis of 75 major newspapers published in Pennsylvania.

Philadelphia. On September 4, 1976, about 15 hotel employees at the Bellevue Stratford, carrying "I Love the Bellevue" signs, marched in a demonstration to bring back business lost due to the still-undiscovered "Legionnaires disease." On September 7, 1976, John Bunting, the chairman of the First Pennsylvania Bank and a supporter of Carter, and the newly formed committee "Friends of the Bellevue" shared the plan to organize a formal dinner dance at the Bellevue Stratford Hotel in October to combat the negative image. Bunting lamented that the hotel was being blamed unjustly for the mystery disease and said, "The Bellevue is more than a hotel; its name is synonymous with Philadelphia," "The Bellevue is to Philadelphia what the Waldorf Astoria is to New York and the Savoy to London," and "When the Bellevue has a problem, Philadelphia has a problem." On October 7, 1976, a party took place, but it did not resolve the deteriorating business situation. The old mahogany clock, which had been ticking for 72 years since it was opened on September 20, 1904, by George Charles Boldt, stopped its pendulum. The hotel was not an ordinary hotel but the center of the convention business in Philadelphia.⁶

After its opening, the hotel was used by Theodore Roosevelt, the 26th President of the United States, and subsequent presidents of the U.S. and other dignitaries of the world.⁷ On July 4, 1976, President Gerald Ford dined at the hotel. Since the outbreak, Philadelphia's landmark hotel was repeatedly vilified. The San Francisco Giants used to stay at the Bellevue Stratford Hotel as part of their regular lodging in Philadelphia. However, after the outbreak, they decided not to stay at the hotel for the three-game series against the Philadelphia Phillies because some players threatened to sleep in the stadium if they did not change the hotel. Approximately 30 of the 50 meeting reservations made that fall were canceled, and the occupancy rate of rooms, which was 84%, plummeted to only 3% (Robert, 1976). Philadelphia Mayor Frank Rizzo lamented the closure as "a sad and terrible thing." During the farewell party in the Hunt Room, many joined in a chorus of "Auld Lang Syne" at midnight.⁸

DETECTION OF THE CAUSE OF THE OUTBREAK

After an intensive epidemiological survey, 221 people with pneumonia or similar symptoms were identified among the attendants of the convention and those in areas around the hotel, 34 of whom were confirmed dead. Epidemiological studies have shown that the incubation period between exposure to the source of infection and the onset of the disease is two to 10 days, and it was estimated that only approximately 6.8% of the attendants who were suspected of being exposed to the source of infection developed the disease (Fraser et al., 1977). Older adults, men, attendants at formal gatherings, smokers, and those who spent time in the hotel lobby or on the sidewalk in front of the hotel were more susceptible. Those who drank hotel water also seemed slightly more susceptible; however, the majority of those who developed the disease did not drink hotel water. There was no association with any particular event at the gathering, meal, ice cream, or beverage consumption, nor with any evidence of human-to-human transmission. Human-to-human transmission was ruled out as there was no association between the patient and being in a shared room. Instead, the infection was associated with the hotel lobby or adjacent outdoor areas and was suspected to be airborne. The low incidence among hotel employees suggests that they had been previously exposed to the causative microorganism and were, therefore, already immune to it.

The turning point came around Christmas in 1976, when McDade and his wife were at a party, and a drunk man came up to them and said, "Everything knows all you scientists at CDC are kind of strange. However, we count on you to figure out these things. There is something out there that is killing people, and it could do it again, and we do not know what is causing it. That's really scary." (McDade, 2016).

On Monday, December 27, during Christmas vacation, McDade returned to the laboratory to attempt to determine the cause (Katz, 1985). Before New Year, he liked to sit in a quiet laboratory and go over his work individually, tidying up any unfinished business. However, he went to the laboratory alone that year and decided to examine the tissue specimens of guinea pigs injected with lung tissue from patients infected by the outbreak, which he had kept in a wooden box. McDade likened the task of searching for a contact lens that had fallen onto a basketball court to looking 10 cm off the floor. He rechecked each slide of the specimen, which was stained with

fuchsin carbonate and malachite green, in that order, using a technique called Gimenez staining, which also darkens the cytoplasm and allows observation of intracellular parasitic bacteria. This image attracted his attention. He detected a cluster of red rod-shaped bacteria. He had seen similar bacteria before but assumed that they were contaminated from outside and were not the cause of the problem. However, they believed that if the bacteria were in a cluster, it would mean that they had multiplied in that area. He attempted to cultivate the bacteria using hatched chicken eggs, but the eggs showed no signs of infection, and the culture failed. Therefore, they revised the procedure and did not add antibiotics, which they had done when culturing *Rickettsia*. The hatched eggs showed signs of infection and died. Microscopic examination revealed that the tissues were filled with bacteria.

The final step was to test for the presence of antibodies against the organism in the serum that had been collected and stored from outbreak patients. If the organism were indeed the cause, then antibodies would have been produced in the sera of recovering patients to attack the organism. In the evening, McDade decides to go to a slightly hidden place with a few colleagues to observe the results. They mixed the specimens from the patient and non-patient and coded them so that the person performing the test would not know which one it was. Under a fluorescence microscope, bright green-glowing images were observed on some slides. The moment he unlocked the code and opened the results, McDade felt shivers running down his spine. All non-patient samples were negative, whereas all patient samples were positive. Finally, the cause of this mysterious disease was identified.

Although the source and route of the outbreak have not been proven and the mystery remains, it was suspected that *Legionella pneumophila* grew in a cooling tower on the roof of a hotel and was released in an aerosol that traveled down the valley of the buildings and entered the lobby through the streets and windows adjacent to the hotel.

DISCUSSION

Many factors impacted the U.S. presidential election in 1976, including the unimproved unemployment rate, the pardon for Nixon, the Soviet-related comments in the televised debates, the resignation of Agriculture Secretary Earl Butz, the aborted National Influenza Immunization Program, and Philadelphia Mayor Frank Rizzo's support for Carter, and the political power of African-Americans and Hispanics (Roessner, 2020). However, the possibility that the outbreak of Legionnaires' disease in Philadelphia affected the outcome of the presidential election should also be considered. Pennsylvania, one of the states that ultimately decided the election outcome, was also a manifestation of the pneumonia outbreak. As mentioned above, the 250,000 voting margin that Carter had over Ford in Philadelphia was critically important in the Pennsylvania vote. The pneumonia outbreak advanced legislation to exempt pharmaceutical companies that produce influenza virus vaccines from liability for damages (Neustadt & Fineberg, 2005). This ultimately caused significant losses to the government because the feared flu pandemic did not occur, and the potential side effects of the vaccine later emerged. In October in Allegheny, Pennsylvania, doubts regarding the flu vaccine were ignited.

Since the outbreak, there has been extensive daily media coverage. Even after the deaths ceased, there was no shortage of topics to discuss, including the situation of epidemiological investigations, economic losses to hotels and Philadelphia, the burden of medical costs on patients, various theories of cause, and complaints about the government's initial response. Frustration over the inability to determine the cause of the outbreak built up, and even after 3 months had passed and the voting day had arrived, there was no end to media coverage of the outbreak, especially in major Philadelphia newspapers such as *The Philadelphia Inquirer* and *Philadelphia Daily News*. In both of these papers, "Legionnaires' disease" was mentioned multiple times almost every day in August 1976, on most days of the week in September, and even at the end of October, at least multiple times each week.

By analyzing the content of 75 newspapers published in Pennsylvania between August 2, 1976, and November 2, 1976, this study found a significant relationship between the frequency of newspaper articles on Legionnaires' disease and the number of votes received by Gerald Ford in Pennsylvania. As a limitation, the author analyzed only

the major newspapers that were available, and other newspapers could not be searched in this study. In addition, coverage by other media, such as television, radio reports, and magazines, was not analyzed. Furthermore, voting behavior is complex and intertwined with a variety of factors, and confounding factors may be hidden; therefore, it is not possible to determine a short-circuit causal relationship from the results of this study alone.

Among the various articles, the one that might have had a strong impact was the article by Jack Anderson and Les Whitten on October 28, 1976, as described previously. Their story was based on a report by Democratic Congressman John M. Murphy, Chairman of the Consumer Protection and Finance Subcommittee, and his team. The report strongly criticized the federal CDC's initial response to Legionnaires' disease and its obsession with swine flu, describing it as a "fiasco." Since September 1976, Murphy had repeatedly shared his view that the cause of the mysterious disease could have been a toxic substance "willfully introduced" into the convention of the American Legion. The report relied on the findings of William F. Sunderman Jr., a toxicological expert at the University of Connecticut, that nickel carbonyl levels were elevated in the lung tissue of patients with Legionnaires' disease. An Anderson newspaper article mentioned Murphy's report with the stamp "Secret Classified" described the misguided focus of the investigation into the cause of the outbreak and declared, "We have found ourselves [...] chasing whales with a butterfly net in that we had the wrong people at the right places at the wrong time." Murphy recommended that the Federal Bureau of Investigation (FBI), CIA, and chemical warfare experts investigate cases to prevent recurrence. He added that his panel would hold hearings on the matter in Philadelphia, but since the federal inquiry proceeded on the theory that a virus was involved, much important evidence is no longer available, and "the cause of Legionnaires Disease may never be found."

However, this study had some factual discrepancies. This article criticizes the federal government's insistence on the swine flu theory. However, the CDC has ruled out the swine flu causation theory. In addition, Sunderman himself, who was quoted, expressed concern about the report's overemphasis on nickel carbonyl because nickel carbonyl was also detected in the tissues of the control group. He did not rule out the possibility of contamination from stainless-steel autopsy knives or specimen containers. Democrat Republic John Murphy and Jack Anderson may have described these stories to strongly impress upon readers the failure of the federal government just before the election.

On television, Anderson said, "There are two desperate men. Ford displays locker room camaraderie, and he is interested in people on a personal basis but is insensitive to the masses. Carter, while personally aloof, displays great sensitivity toward the problems of the masses. Although I like Gerald Ford more, I am going to vote for Jimmy Carter." Jack Anderson wrote an article on the unexplained outbreak immediately before the election, implying that the Ford administration's policy missed this point. Jack Anderson's preference for Carter may have been primarily due to President Ford's pardon of former President Richard Nixon and his continued appointment as Henry Alfred Kissinger's secretary of state.

In 1976, Philadelphia was hit economically by an outbreak of Legionnaires' disease at a prestigious hotel and the subsequent heated media coverage. The year was the bicentennial anniversary of independence, and between 20 and 45 million travelers were expected to visit Philadelphia, but the actual number of visitors fell far short of these expectations (Knowles, 2009). The primary cause of this depression is considered the outbreak of Legionnaires' disease (Fox, 1976). The hotel played a central role in the convention business, and its influence was significant throughout Philadelphia. However, they were subsequently forced to close.

If there had been no outbreak of Legionnaires' disease, there would have been a more careful discussion of the safety and usefulness of flu vaccination. The massive loss to the Bellevue-Stratford Hotel in Philadelphia would have been spared, more tourists would have visited Philadelphia, and there would not have been so many articles criticizing the federal government's response to Legionnaires' disease. Importantly, it was only after the election on December 28 that Joseph McDade of the CDC detected rod-shaped bacteria, later named *Legionella pneumophila*, in samples from the outbreak, determining this bacterium as the cause of the outbreak (Dubin & Yaylor, 1977; McDade et al., 1977).

The outbreak of Legionnaires' disease overshadowed the historic and proud momentum of Philadelphians to celebrate the bicentennial of independence. This may have had a significant impact on the U.S. presidential election, especially in Pennsylvania.

CONCLUSION

The 1976 presidential election between Ford and Carter is closer to the 2020 presidential election between Trump and Biden. The Legionnaires disease outbreak occurred in Pennsylvania, one of the states that ultimately determined election outcomes. This prompted the advancement of legislation to exempt companies that produce influenza vaccines from liability for damages, resulting in significant losses to the government. The outbreak dealt a major economic blow in that the Bellevue-Stratford Hotel, a prestigious hotel, was forced to close 16 days after the election date. The hotel's closure itself was finalized after the voting day, but the circumstances leading to the closure were clear, even before voting day. Newspaper articles are another critical factor. Following the outbreak, the media coverage was extensive. Media coverage of the outbreak did not end, especially in Philadelphia, and there was frustration over the inability to determine the cause of the outbreak. The critical point was that the cause of the outbreak was not determined to be rod-shaped bacteria, later named *Legionella pneumophila*, before the election.

While many factors had a more definite impact, such as the unimproved unemployment rate, the pardon for Nixon, the Soviet-related comments in the televised debates, the resignation of Agriculture Secretary Earl Butz, the aborted National Influenza Immunization Program, and Philadelphia Mayor Frank Rizzo's support for Carter, the political power of African-Americans and Hispanics, there is a possibility that Legionnaires' disease outbreak has had a significant impact on the outcome of the presidential election in 1976, particularly in Pennsylvania. It is hoped that this study will spur interest in further research and debate on the connections between Legionnaires' disease and the 1976 elections.

ACKNOWLEDGMENTS

The author declares that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

DATA AVAILABILITY STATEMENT

The data used in this study were obtained from Jeffrey M. Jones (2006). "Gerald Ford: Retrospective." *Gallup*, at <https://news.gallup.com/poll/23995/gerald-ford-retrospective.aspx>; for Figures 2 and 3 from Dave Leip's Atlas of U.S. Elections, at <https://uselectionatlas.org/RESULTS/index.html>; and for Figures 4 and 5 from 75 newspapers published in Pennsylvania and stored at Newspaper.com, at <https://www.newspapers.com>.

ENDNOTES

- ¹ It was also pointed out the possibility that the steroids used in the treatment may have influenced Trump's hyperactive tweets.
- ² An article in the *New England Journal of Medicine* stated, "Our current leaders have undercut trust in science and government, causing damage that will certainly outlast them" (Editors, 2020). Forty-four years prior, an article in the *New England Journal of Medicine* was published saying, "Whatever the outcome of the election, the future of the science office seems assured" in October 1976 (Greenberg, 1976).
- ³ Immediately after the election, Ford invited Carter into the White House. At the beginning of his inaugural address on January 20, 1977, Carter expressed his gratitude and respect for Ford, who was participating in the event. He said, "For myself and for our Nation, I want to thank my predecessor for all he has done to heal our land." During his presidency, Carter made many calls from the Oval Office seeking Ford's advice; they bonded during the funeral of Egyptian President

Anwar el-Sadat and the long flight from Cairo and collaborated on over 25 different projects (Carter, 2007). On January 2, 2007, at the funeral of Gerald R. Ford, Carter spoke the exact words he had used in his inaugural address: "For myself and for our nation, I want to thank my predecessor for all he did to heal our land." On June 5, 2017, Carter was announced as the recipient of the Gerald R. Ford Medal for Distinguished Public Services. In response, Carter sent the message: "I hope you continue the heritage of Gerald R. Ford of integrity and honesty and truthfulness, and competence in public services" (Vejnoska, 2017).

- ⁴ Bob Dylan even wrote a song named "Legionnaire's Disease" © 1981 by Special Rider Music.
- ⁵ The Gettysburg Times (Adams County), Pittsburgh Post-Gazette (Allegheny County), The Pittsburgh Courier (Allegheny County), The Pittsburgh Press (Allegheny County), Simpson's Leader-Times (Armstrong County), Bedford County Press and Everett Press (Bedford County), The Canton Independent-Sentinel (Bradford County), The Evening Times (Bradford County), Courier Times (Bucks County), News Herald (Bucks County), The Daily Intelligencer (Bucks County), Centre Daily Times (Centre County), The Courier-Express (Clearfield County), The Progress (Clearfield County), Berwick Enterprise (Columbia County), The Morning Press (Columbia County), The Evening Sentinel (Cumberland County), The Valley Times-Star (Cumberland County), Delaware County Daily Times (Delaware County), Lake Shore Visitor (Erie County), The Daily Courier (Fayette County), The Evening Standard (Fayette County), The Morning Herald (Fayette County), Kenny Letter (Franklin County), Public Opinion (Franklin County), The Fulton Democrat (Fulton County), The Daily News (Huntingdon County), Indiana Evening Gazette (Indiana County), The Brookville American (Jefferson County), The Jeffersonian-Democrat (Jefferson County), The Scrantonian (Lackawanna County), The Miner (Lackawanna County), The Scranton Times (Lackawanna County), The Scranton Tribune (Lackawanna County), Elizabethtown Chronicle (Lancaster County), Intelligencer Journal (Lancaster County), Lancaster New Era (Lancaster County), Sunday News (Lancaster County), The Ephrata Review (Lancaster County), Ellwood City Ledger (Lawrence County), New Castle News (Lawrence County), Lebanon Daily News (Lebanon County), The Morning Call (Lehigh County), Standard-Speaker (Luzerne County), Sunday Dispatch (Luzerne County), The Luzerne Union (Luzerne County), The Mountaintop Eagle (Luzerne County), The Times Leader (Luzerne County), McKean County Miner (McKean County), The Kane Republican (McKean County), The Pocono Record (Monroe County), News Record (Montgomery County), The Mercury (Montgomery County), The Danville News (Montour County), The Daily Item (Northumberland County), The News-Item (Northumberland County), The News-Sun (Perry County), Philadelphia Daily News (Philadelphia County), The Philadelphia Inquirer (Philadelphia County), Pike County Dispatch (Pike County), The Potter Enterprise (Potter County), Evening Herald (Schuylkill County), Pottsville Republican (Schuylkill County), The Call (Schuylkill County), The Press Herald (Schuylkill County), The Selingsgrove Times-Tribune (Snyder County), The Daily American (Somerset County), The Republic (Somerset County), The Derrick (Venango County), Latrobe Bulletin (Westmoreland County), The Ligonier Echo (Westmoreland County), Record Advertiser (York County), The Evening Sun (York County), The York Dispatch (York County), and York Daily Record (York County).
- ⁶ When it first opened, one person said, "Above all, I want you to see the Bellevue. Come to Philadelphia and not see it is like going to Egypt and missing the pyramids." The hotel's ballroom is where Helen Hope Montgomery Scott, the model for Tracy Lord, the main character in Philip Barry's "The Philadelphia Story," was proposed to by four men at a debutante party in 1922 (Moon, 2006).
- ⁷ In the 1948 presidential election, when Democratic candidate McDonald S. Truman pulled off a major upset against Republican candidate Thomas E. Dewey, headquarters were installed at the Bellevue-Stratford Hotel for both Republican and Democratic national conventions. On October 31, 1960, before the presidential election, John Fitzgerald Kennedy departed from this hotel and made a speech at Conventional Hall, Philadelphia, that ended with "So give me your help, your hand, your voice in the week ahead - and remember what the Bible tells us: 'That whatsoever a man soweth, that shall he also reap.' In the coming week and in all the coming weeks and years that follow, we can sow the seeds of dedication and effort; we shall surely reap a great victory for our country and serve importantly and significantly in our time and the whole cause of human freedom" (Kennedy, 1960). On August 2, 1965, at this hotel, Martin Luther King Jr., who stood for nonviolence, and Cecil B. Moore, president of the local branch of the National Association for the Advancement of Colored People, who endorsed resistance aggressively, had a meeting. The meeting was held amid the bomb threat. After the meeting, they shook hands with each other.
- ⁸ The Bellevue Stratford Hotel was later taken over by various companies, including the Fairmont Hotel, Westin Hotel, Rubin Company, Cunard Line, and the Interstate Hotel and Resort. At one time, it was regarded as outdated in size, but with the opening of the newly renovated Pennsylvania Convention Center nearby in late June 1993, demand for the hotel increased once again, and today, it is operated by Hyatt Hotels as the Bellevue Hotel. Although the name "Stratford," after Stratford-upon-Avon, the hometown of William Shakespeare, the playwright whom Boldt admired, has disappeared, the hotel still retains its grandeur.

ORCID

Ryota Sakamoto  <https://orcid.org/0000-0002-0774-9925>

REFERENCES

- Arroyo Abad, L., & Maurer, N. (2021) Do pandemic shape elections? Retrospective voting in the 1918 Spanish flu pandemic in the United States. CEPR Discussion Paper No. DP15678. Available from: <https://ssrn.com/abstract=3783893>
- Anderson, J., & Whitten, L. (1976) Poison tied to legionnaire deaths. *The News and Observer*, 28(October), p4.
- Baccini, L., Brodeur, A., & Weymouth, S. (2021) The COVID-19 pandemic and the 2020 US presidential election. *Journal of Population Economics*, 34(2), 739–767. Available from: <https://doi.org/10.1007/s00148-020-00820-3>
- Beall, A.T., Hofer, M.K., & Schaller, M. (2016) Infections and elections: Did an Ebola outbreak influence the 2014 U.S. federal elections (and if so, How)? *Psychological Science*, 27(5), 595–605. Available from: <https://doi.org/10.1177/0956797616628861>
- Beare, A.S., & Craig, J.W. (1976) Virulence for man of a human influenza-A virus antigenically similar to “classical” swine viruses. *Lancet*, 2(7975), 4–5.
- Boffey, P.M. (1976) Swine flu vaccination campaign: the scientific controversy mounts. *Science*, 193(4253), 559–563. Available from: <https://doi.org/10.1126/science.193.4253.559>
- Bitzer, L.F., & Rueter, T. (1980) *Carter vs Ford: the counterfeit debates of 1976*. University of Wisconsin Press.
- Carpenter, P. (1976) 11 at Legion's convention. *Pottsville Republican*, 2, p18.
- Carter, J. (2007) *Former U.S. President Jimmy Carter's remarks at the funeral service for President Gerald R. Ford*. Carter Center. Available from: https://www.cartercenter.org/news/editorials_speeches/ford_eulogy.html. accessed on 13 October 2022.
- Cohen, J. (2020) Update: here's what is known about Trump's COVID-19 treatment. *Science*. Available from: <https://doi.org/10.1126/science.abf0974>. accessed 13 October 2022.
- Commonwealth of Pennsylvania v. O'Neill. (1972) 348 F. Supp. 1084.
- Corbett, T., Cawley, J., & Phillip, S. (2013) *The Pennsylvania Manual*. Commonwealth of Pennsylvania, 121.
- Davis, D.K. (1979) Influence on vote decisions. In: S. Kraus (Ed.) *The Great Debates*. Bloomington. Indiana University Press, pp. 331–347.
- Drake, D. (1985) Chronicle. In: S.M. Katz (Ed.) *Legionellosis: Volume II*. CRC Press, pp. 183–196.
- Dubin, M., & Yaylor, P. (1977) *But now, there's a clue*. The Philadelphia Inquirer.p1.
- Editors. (2020) Dying in a leadership vacuum. *New England Journal of Medicine*, 383, 1479–1480.
- Franks, H. (1976) Rizzo was right. *Philadelphia Daily News*, 16(Aug), p27.
- Ford, G.R. (1976) *Remarks urging Congressional Enactment of the Swine Flu Immunization Program*. Washington DC.
- Fox, T. (1976) When a bum was king. *Philadelphia Inquirer*, 12(Aug), 3.
- Fraser, D.W., Tsai, T.R., Orestein, W., Parkin, W.E., Beecham, J., Sharrar, R.G., et al. (1977) Legionnaires' disease: description of an epidemic of pneumonia. *New England Journal of Medicine*, 297(22), 1189–1197. Available from: <https://doi.org/10.1056/nejm197712012972201>
- Frederick, D. (1976) *Deaths in county trigger clinic watch nationwide*. In: The Pittsburgh Press.p1.
- Gaydos, J.C., Hodder, R.A., Top, F.H., Jr., Soden, V.J., Allen, R.G., Bartley, J.D., et al (1977) Swine influenza A at Fort Dix, New Jersey (January-February 1976). I. Case finding and clinical study of cases. *The Journal of Infectious Diseases*, 136(Supplement 3), S356–S362. Available from: https://doi.org/10.1093/infdis/136.supplement_3.s356
- Greenberg, D.S. (1976) Medicine and public affairs. *New England Journal of Medicine*, 295, 1027–1028.
- Honigsbaum, M. (2019) *The Pandemic Century: One Hundred Years of Panic Hysteria, and Hubris*. W. W. Norton Company.
- Jones, J.M. (2006) *Gerald Ford Retrospective*. Gallup. Available from: <https://news.gallup.com/poll/23995/gerald-ford-retrospective.aspx>. accessed 24 June 2020.
- Kaplan, S. (2015) *Legionnaires' disease, once 'the greatest epidemiological puzzle of the century', kills in seven in NY*. The Washington Post. Available from: <https://www.washingtonpost.com/news/morning-mix/wp/2015/08/03/legionnaires-disease-once-the-greatest-epidemiological-puzzle-of-the-century-kills-four-in-n-y/>. accessed 7 April 2015.
- Katz, S.M. (1985) Isolation of a new microbe: an interview conducted with Dr. Joseph McDade, the scientist who isolated *Legionella pneumophila*. In: S.M. Katz (Ed.) *Legionellosis: Volume I*. CRC Press, pp. 3–10.
- Kennedy, J.F. (1960) *Speech by Senator John F. Kennedy*. Convention Hall.
- Kilbourne, E.D. (1976) A \$135 million gamble. *Natural History*, 85(6), 39.
- Knowles, S.G. (2009) *Imagining Philadelphia: Edmund Bacon and the Future of the City*. University of Pennsylvania Press.
- Leip, D. (1976) *Presidential General Election Data - National by State*. Dave Leip's Atlas of U.S. Elections. Available from: <https://uselectionatlas.org/RESULTS/index.html>. accessed 25 April 2022.

- McDade, J.E., Shepard, C.C., Fraser, D.W., Tsai, T.R., Redus, M.A., & Dowdle, W.R. (1977) Legionnaires' disease: isolation of a bacterium and demonstration of its role in other respiratory disease. *New England Journal of Medicine*, 297(22), 1197–1203. Available from: <https://doi.org/10.1056/nejm197712012972202>
- McDade, J.E. (2016) Centers for Disease Control and Prevention, 'History, mystery, and discovery: 40 years of Legionnaire's disease'.
- Moon, V. (2006) *A Sunday horse: inside the grand prix show jumping circuit*. Capital Books.
- Neustadt, R.E., & Fineberg, H.V. (2005) *The swine flu affair: decision-making on a slippery disease*. University Press of the Pacific.
- Norman, C. (1976) USA: Behind the politics of influenza. *Nature*, 260(5550), 381–382. Available from: <https://doi.org/10.1038/260381a0>
- Ohio Secretary of State. (1976) *General election overview*. Ohio Secretary of State Report. Available from: <https://www.ohiosos.gov/elections/election-results-and-data/1970-1979-official-election-results/general-election-overview-november-2-1976/>. accessed 13 October 2022.
- Robert, C. (1976) *Bellevue-Stratford holds its wake tonight*. The Evening Times.p6.
- Roessner, A. (2020) *Jimmy Carter and the birth of the marathon media campaign*. Louisiana State University Press.
- Stuart-Harris, C. (1976) Swine influenza virus in man. Zoonosis or human pandemic? *Lancet*, 2(7975), 31–32.
- Urbatsch, R. (2017) Research note: influenza and voter turnout. *Scandinavian Political Studies*, 40(1), 107–119. Available from: <https://doi.org/10.1111/1467-9477.12079>
- US Bureau of Labor Statistics (1976) *The employment situation: September 1976*. US Department of Labor.
- US Committee on interstate and foreign commerce. (1977) "Legionnaires' disease": Hearings before the subcommittee on consumer protection and finance of the committee on interstate and foreign commerce house of representatives (pp. 23–24).
- US National Archives and Records Administration. (1976) Electoral College Results. Available from: <https://www.archives.gov/electoral-college/1976>. accessed 8 February 2021.
- Vejnoska, J. (2017) *Jimmy Carter wins award from former political rival Gerald Ford's foundation*. The Atlanta Constitution. Available from: <https://www.ajc.com/news/jimmy-carter-wins-award-from-former-political-rival-gerald-ford-foundation/Zzc8QyNT4gnRT800tXx8DK/>. accessed 8 April 2023.
- Washington, M.L. (1981) *The black press views Carter's presidential race: 1976. A thesis submitted in partial satisfaction of the requirements for the degree of Master of Arts in Mass Communication*. California State University.
- Wertz, W.C. (1976) *Carter interview with Playboy released*. Johnson City Press-Chronicle.p1.
- Williams, D.K. (2020) *The election of the evangelical: Jimmy Carter, Gerald Ford, and the presidential contest of 1976*. University Press of Kansas.
- Witcover, J. (1977) *Marathon: pursuit of the presidency 1972-1976*. Viking Press.

How to cite this article: Sakamoto, R. (2024) Legionnaires' disease outbreak in Philadelphia and the 1976 United States presidential election. *Sociology Lens*, 1–16. Available from: <https://doi.org/10.1111/johs.12442>