



Covid-19 in Historical Context: Creating a Practical Past

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Abstract

Decades ago, in his foundational essay on the early days of the AIDS crisis, medical historian Charles Rosenberg wrote, “epidemics start at a moment in time, proceed on a stage limited in space and duration, following a plot line of increasing revelatory tension, move to a crisis of individual and collective character, then drift toward closure.” In the course of epidemics, societies grappled with sudden and unexpected mortality and also returned to fundamental questions about core social values. “Epidemics,” Rosenberg wrote, “have always provided occasion for retrospective moral judgment” (Rosenberg 1989, pp. 2, 9). Following Rosenberg’s observations, this essay places COVID-19 in the context of epidemic history to examine common issues faced during health crises—moral, political, social, and individual. Each disease crisis unfolds in its own time and place. Yet, despite specific contexts, we can see patterns and recurring concerns in the history of pandemics: (1) pandemics and disease crises in the past, along with public health responses to them, have had implications for civil liberties and government authority; (2) disease crises have acted as a sort of stress test on society, revealing, amplifying or widening existing social fissures and health disparities; (3) pandemics have forced people to cope with uncertain knowledge about the origin and nature of disease, the best sources of therapies, and what the future will hold after the crisis. While historians are not prognosticators, understanding past experience offers new perspectives for the present. The essay concludes by identifying aspects of history relevant to the road ahead.

Keywords COVID-19 · History · Memory · Pandemics · Epidemics · Public health · Nonpharmaceutical intervention

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Introduction

Decades ago, in the early days of the AIDS crisis, Charles Rosenberg (1989), a foundational voice in the history of medicine, observed that “epidemics start at a moment in time, proceed on a stage limited in space and duration, following a plot line of increasing revelatory tension, move to a crisis of individual and collective character, then drift toward closure” (p. 2). During epidemics, societies have not only grappled with sudden and unexpected mortality, but also have returned to fundamental questions about core social values. “Epidemics,” Rosenberg wrote, “have always provided occasion for retrospective moral judgment” (p. 9). Rosenberg, who wrote as AIDS ravaged the globe, saw epidemics as not just biological events but social and cultural ones as well, and provided a framework for comparing and contrasting how epidemics originate and endure, how both germs and information are transmitted, how individuals and states respond, and how disease crises end. These events follow trajectories that medical historians can uncover.

Following Rosenberg’s observations, this essay places COVID-19 in the context of epidemic history for the purpose of examining common issues faced during disease crises—moral, political, social, and individual. Each disease crisis unfolds in its own time and place. Yet, despite specific contexts, we can see patterns and recurring concerns in the history of pandemics and identify aspects of history relevant to the road ahead.

Although it may seem like we are living in unprecedented times, there is in fact a great deal of historical context for the COVID-19 pandemic. Smallpox, introduced to North America from Europe in the seventeenth century, killed 90 percent of the native American population (Archer 2020). Typhoid fever ravaged the US multiple times in the nineteenth and early twentieth centuries before the introduction of public sewage sanitation (Wolman and Gorman 1931). Polio, at its height in 1952, infected nearly 60,000 children in the US, of which more than 3000 died (Ochmann 2017). The 1918 influenza pandemic, also known as the Spanish flu, H1N1 flu, the “forgotten pandemic” in the wake of World War I, killed an estimated 50 to 100 million people globally (University of Michigan 2020). HIV/AIDS was first documented in 1981. More than 700,000 people with AIDS have died in the US, and nearly 33 million globally (United Nations 2020). Swine flu, a new H1N1 virus, emerged in 2009 and became a global pandemic, including 60 million cases and more than 12,000 deaths in the US (CDC 2009). COVID-19 echoes the past not only in disease and mortality, but in deliberations over the social and economic consequences of the virus and public health measures; conflicts over commerce, quarantines, and what we now call social distancing; dispute over public health measures’ impact on personal freedom and civil liberties, and struggle to make sense of the disease’s variable impact across populations and regions.

Pandemics, Civil Liberties, and Government Authority

Disease crises in the past, along with public health responses to them, have had implications for civil liberties and government authority. In the absence of vaccinations and cures, non-pharmaceutical interventions (NPI) and other public health measures have been part of even the earliest disease crises in the United States. The last big pandemic, the 1918 flu, was the deadliest in human history, and with it, one of the leading examples of NPI implementation. The etiology of the 1918 virus remains poorly understood (Belser and Terrence 2018), though avian and swine sources have been suggested (Jester et al. 2018). The 1918 flu was characterized by extraordinary virulence, global transmissibility, and morbidity. It is estimated that between September, 1918, and April, 1919, 500 million people or one third of the world's population became infected with the virus. The number of deaths was estimated to be at least 50 million worldwide, with about 675,000 occurring in the United States. Within months of the first of its three waves, the virus had killed more people than any other illness in recorded history (CDC). No subsequent influenza epidemic in the United States has reached comparable morbidity and mortality levels.

Historians have looked to the 1918 flu for comparisons to COVID-19 because both are respiratory diseases and highly transmissible, and because the crises are in some measures comparable in gravity, scale, and uncertainty. The first wave of the 1918 flu, often called the “three-day flu,” struck quickly, but was mild enough for most victims to recover. A far more severe second wave appeared in the fall of 1918, followed by a third wave in winter of 1918 (CDC). The virus filled victims' lungs with fluid, and they suffocated, some within hours of their first symptoms (Jester et al. 2018). Wartime conditions, including limited health service in the absence of medical personnel who were overseas, contributed to enormous death rates (Saunders-Hastings 2016). Overcrowded military camps, cities cramped with people seeking wartime employment, and troop movements between the United States and Europe (Stewart 2010) facilitated disease transmission as scientists, doctors, and public health officials struggled to identify and control the disease (Friedlander et al. 1918). With no antivirals or antibiotics for secondary infections (most deaths resulted from bacterial infection), treatment consisted mostly of supportive care (Jester et al. 2018).

The nation's wartime focus largely left cities and states to cope with the virus on their own. Officials in major cities who feared mass hysteria advised citizens to stay indoors, avoid crowded places, and wear face masks. In the absence of a vaccine, the public used nonpharmaceutical measures to control the virus including isolation, quarantine, school closures, good personal hygiene, disinfectants, and limitations on public gatherings (Markel et al. 2007).

The 1918 flu pandemic confirmed the value of NPI. According to Jester et al. (2018), “cities that promptly implemented nonpharmaceutical interventions experienced delayed and reduced peak death rates compared with cities that implemented interventions later.” Specifically, the 1918 influenza demonstrated that social distancing, masking, and self-isolation measures “had to be activated as close to the

time of disease onset as possible and sustained throughout the peak of disease trajectory to be most effective” (Hagen 2020). It proved that properly executed non-pharmaceutical interventions can help slow the spread and decrease the number of disease-related deaths during pandemics (Hagen 2020).

NPI measures continue to be a crucial part of public health. In recent years, they have been influential in lessening the impact of HIV/AIDS and containing the 2009 outbreak of Swine flu, and they are being used today to face COVID-19. While theories of contagion have advanced, many current approaches to reducing disease transmission have changed little and remain focused on barriers and containment.

In the face of epidemic outbreaks, public health demands, whether for the wearing of masks, stay-at-home orders, quarantines, curfews, no-spitting ordinances, or mandatory testing, have pitted individual freedoms against public well-being. In the past, as today, controversies have flared over those demands and their lasting consequences. For example, in 1918, after San Francisco municipal officials had first shuttered then reopened restaurants and public spaces only to be struck by a second wave of illness, the self-proclaimed “Anti-Mask League” gathered in a skating rink to protest continued use of NPI (*San Francisco Examiner* 1919). The group cited motivations of constitutional rights and economic good, though there were also questions about NPI efficacy and a fair amount of political jockeying (Dolan 2020). Guided by San Francisco’s health commissioner, Dr. William C. Hassler, the city remained resolute. The masking debate unfolded before a frightened and frustrated public, much like debates over masks during COVID-19, raising questions about perceived legitimacy of state power and expressing public discomfort with face covering. As Kane points out, “publicly concealing oneself has often been associated with lawlessness and behaviors deemed antisocial or deviant” (Kane 2020). Examples might include the Guy Fawkes masks associated with the plot against the British Parliament or the face covering of the Ku Klux Klan.

In the past, as now, tensions have developed around other public health measures, like quarantine, that have pitted values of public health against commerce. The situation has been exacerbated by asymptomatic carriers like the well-known Mary Mallon, the Irish-American cook known popularly as “Typhoid Mary,” who infected 51 people with typhoid fever and was the first person in the United States to be identified as an asymptomatic carrier of the disease. As such, Mallon never accepted that she was infected with a pathogen, defied public health officials’ orders to isolate, and returned repeatedly to work as a cook. She spent most of her life in mandatory quarantine on North Brother Island, New York (Leavitt 1997).

Historic examples like the Mallon case and the Anti-Mask League suggest that universal consensus or compliance for NPI should not be expected. “Then, like now, we see conflicting information [about NPI]—from the health profession, the politicians, the business community, and civil rights proponents” (Dolan 2020, p. 21). We also see familiar patterns of NPI creating social conflict, often along existing ideological or political divisions. Although current NPI look very much as they did in 1918, it is worth noting that then, as now, most people did not agitate against them. “(A)ttempts to persuade the majority to comply today appear to yield better results than in the past in controlling the spread of disease” (Dolan 2020, p. 23).

The success of NPI has depended on public compliance, and public compliance—especially long-term public compliance—has depended in large part on successful risk communication. In this, the 1918 influenza crisis illustrates the importance of trust. By winter of 1918, the disease had spread through major cities including Boston and Philadelphia, demonstrating the magnitude of the crisis. Some cities responded with public health measures like quarantine and social distancing. But as historian John Berry (2005) explains, the main communication pattern was one of officials avoiding the topic and misleading the public because they either misunderstood the threat or feared political consequences of a quarantine or shutdown. Berry states, “As terrifying as the disease was, the press made it more so... People could not trust what they read. Uncertainty follows distrust, fear follows uncertainty, and, under conditions such as these, terror follows fear” (Berry 2005, p. 335). For Berry, the most important lesson from 1918 is to tell the truth. Although that idea is part of preparedness plans, its actual implementation depends on the leadership of the people in charge when a crisis erupts.

Because epidemic infectious diseases cause surges in suffering and death, they have often increased possibilities for control over future disease crises and public health protection. Yellow fever and cholera are cases in point. Both terrorized the United States throughout the eighteenth and nineteenth centuries. Fear of disease and death moved major American cities to costly sanitation projects to improve water supplies and sewage and garbage disposal. Historian Judith Leavitt (1996) emphasizes that disease crises have the power to capture public attention and focus it on needed public health measures in ways that endemic diseases do not. According to her study of cholera in Milwaukee, public fright energized local officials to enact expensive public health measures, while it also authorized them to protect public health through compulsory isolation of people with dangerous diseases.

Such power has not always been used constructively. During Milwaukee’s 1894 smallpox epidemic, for example, health officials took sick children from immigrant parents while allowing native-born families to care for children at home. Leavitt (1996) shows how unfairness can result in diminished public healthcare. The actions by Milwaukee city officials sparked months of rioting and the ouster of the city’s public health commissioner. Ultimately the local context of political party competition combined with tension between government and immigrant groups reduced the city health department’s authority and budget for decades.

Pandemics as Stress Tests

As Rosenberg suggested, epidemics weigh heavily on societies. They have acted as stress tests, revealing and magnifying existing social fissures and health disparities. Amid an epidemic’s deadly unknowns, people want to assign responsibility for the disease. As part of this, NPI like quarantine or mandatory inoculations have sometimes been used unequally to attribute diseases to recent immigrants, racial and ethnic minorities, and the poor. This type of blaming risks advancing political agendas and existing power relationships over medical efficacy.

We see this, for example, in the 1899 bubonic plague outbreak. Following the death of a Chinese bookkeeper and 4 neighbors from the disease in Honolulu, city officials established a cordon sanitaire, quarantining 14 city blocks where Chinese-Hawaiians lived. California public health officials monitored travelers from China and Japan during the plague outbreak despite scientific evidence that the disease was transmitted by rats and fleas (Shah 2001). Historian Nayan Shah (2001) argues that subsequent confiscation of property to burn in the streets and requirement of residents to use common showers in public view stemmed not from scientific evidence but stereotypes of Chinese people as a filthy race. When the president of the Honolulu Board of Health ordered a systematic burning of buildings within the cordon to vanquish the plague, all of Honolulu's Chinatown caught fire and burned for 17 days, destroying 28 acres and leaving 4500 people homeless (Shah 2001). As the blaze burned out of control, citizens who tried to escape were initially repelled by the National Guard and white vigilantes until the cordon was breached (Byrne 2008).

The 1899 plague exemplifies the pattern of disease crises as stress tests, but also shows the importance of historical specificity for comprehending pandemics. In the anti-Asian context of the 1899 plague outbreak, authorities vilified the Chinese, but in doing so they also awakened Chinese cultural identity and solidarity in Honolulu, San Francisco, and other US cities. Interestingly, Asian-Americans leveraged anti-Asian sentiment to their advantage, arguing that they deserved equal public health protection including sewer construction and vaccination programs, demanding the very things that authorities pursued as disease-control measures that were originally motivated by racist reasoning (Shah 2001).

Similarly, the current health crisis is bringing race-based health disparities into view. African Americans are contracting the virus and dying from it at disproportionate rates (Coughlin et al. 2020). The ability to live a long and healthy life requires access to a range of social and economic resources including reliable healthcare, which many African Americans have been denied. This disparity is rooted in history, including pandemic history. When the 1918 epidemic began, African Americans already faced many medical and social problems including racist theories of black biological inferiority and poor health status (Gamble 2010). The influenza virus overwhelmed African American hospitals and professionals. Yet it appears that the overall incidence of influenza and mortality rate in the United States was lower in African Americans than in Caucasians. According to historian and physician Vanessa Gamble (2010), statistics published by the Philadelphia Board of Public Health and the National Medical Association (the professional medical association of black physicians) indicate that by 1919 black physicians, white physicians, and the public agreed that the epidemic's mortality rate was lower among African Americans than whites. These statistics contradicted prevailing racial theories of biological difference that asserted blacks were more susceptible to pulmonary diseases, a contradiction made especially clear since many influenza victims died from complications of pneumonia (Gamble 2010). The few explanations offered upheld notions of biological difference. One hypothesis suggested that African Americans were less susceptible to infections that entered the body through the upper respiratory tract, such as influenza and polio, because the nasal lining was more resistant

to microorganisms (Love and Davenport 1919). A study comparing flu rates among black and white soldiers concluded that African Americans were not as susceptible to the disease when they lived under good hygienic conditions of the military (Vaughan 1921).

The 1918 flu showed the intransigence of racist theories of black biological inferiority in the face of discrediting evidence (Gamble 2010). When the epidemic ended, the major problems that African Americans faced remained unaddressed. Unlike the 1918 flu, the present medical and social crisis is affecting African Americans and other people of color at much higher rates than whites. Serving as a kind of stress test, COVID-19 is highlighting the nation's long history of health disparities based on race, sex and gender. In 1918, "differences in sex-based mortality varied across regions; they were not significant for the aggregate population" (Paskoff and Sattenspiel 2018, p. 1; Viboud et al. 2013). Today, early sex-disaggregated data suggest that fewer women are dying from COVID 19 than men (Gausman and Langer 2020) though Gausman and Langer of Harvard's T.H. Chan School of Public Health warn that "taking this observation at face value oversimplifies the biological, behavioral, and social and systemic factors that may cause differences to emerge with regard to how women and men experience both the disease and its consequences" (2020, p. 465). Given women's disproportionate numbers as caregivers, both formally and informally (Langer et al. 2015), and risks posed by Covid to women's reproductive health (Rasmussen et al. 2020) they emphasize the importance of studying the pandemic and its effects through a gender lens and sex-disaggregated data, calling for a special CDC task force to ensure that current gender and sex-based disparities do not increase.

Uncertain Knowledge About Disease, Therapies, and the Future

Pandemics have required people to cope with uncertain knowledge about the origin and nature of disease, the best therapies, and what the future will hold after the crisis. In any disease crisis, it is natural to want to know what will happen next and why. While historians are not prognosticators, understanding past experience can show us patterns, provide insight, and lead us toward useful questions to ask ourselves about this disease crisis.

In some ways, the history of epidemic and pandemic disease in the United States is a history of resilience: in times of crisis, when we are facing something scary and fatal, we see scapegoating and discrimination, but we also see acts of care by both professionals and informal networks of compassion and solidarity. Today, we know from experience that we have the capacity to solve many problems; the polio vaccine and public sanitation measures eradicating cholera prove this. History shows that we can learn, we can prepare, we can recognize problems and improve healthcare.

The search for disease explanations has had the positive effect of surging social and medical investigation, giving rise to new therapies and vaccines and to new theories about the workings of the human body. After Jonas Salk developed

a polio vaccine, Dr. Herman N. Bundesen, who served as Chicago's coroner and public health officer, puzzled over the vaccine and the emerging understanding of antibodies:

The Salk polio vaccine works — we know that now. But how does it work? ... When injected into a person, the vaccine induces the body to produce antibodies as a defense against the invasion. We can't explain just what these antibodies are. We only know that they are small particles of protein manufactured by your body as the result of infection...Nor do we know precisely how these antibodies protect. In some manner, however, they appear to keep the virus from harming the body cells. Building up the antibody levels to attack the virus in the blood prevents the virus from getting to the nervous system and causing paralysis. (Bundenen 1955, p. 26)

The 1918 pandemic also advanced modern clinical research. When the Metropolitan Life Insurance Company lost \$24 million in death benefits, fearing the next pandemic, it conducted what is thought to be the first multi-institutional controlled clinical trial, performing alternate allocation studies at Boston City Hospital, Bellevue, and Harlem Hospital. Concerns over such "alternate allocation" implementation and possibilities of cheating them spurred adoption of concealed randomized allocation. These efforts developed into the randomized controlled trial (Podolsky 2020).

In the past, specialists made significant advances during pandemics beyond the bounds of their field. For example, US Army Surgeon Walter Reed identified unsanitary conditions as the cause of typhoid spreading through military camps during the Spanish American War. Reed later advanced Carlos Finlay's yellow fever research, leading controlled investigations into the disease vector and correctly identifying the mosquito, a discovery that launched life-saving public health measures. It is worth noting that Reed was among the first to use written informed consent in English and Spanish (he was working in Cuba), furthering medical ethics (Barr et al. 2020; Bean 1982). COVID-19 raises questions about specialization today. In 1918, with far less to know and far fewer medical specializations, it may have been reasonable to expect that any physician would be able to perform as a generalist in a crisis. But is that the case today? Appropriate expectations depend in part on whether medical specialization is viewed as an addition to a common body of knowledge and skills or a subtraction from that common base. Specialization in any profession (e.g., legal, academic) results in deeper, focused understanding at the cost of general knowledge. How should specialization function in a disease crisis?

Remarkable advances have transformed our ability to face disease, from germ theory to antibiotics to gene therapy. We now expect good outcomes from medicine. Yet, science is messy, and magic pills are rare. Even with dedicated effort and resources, results that we want sometimes do not materialize; there is still no cure for HIV/AIDS, for example. The pandemic prompts us to ask questions about our expectations. What is reasonable to expect of medical science and research?

This is not the first time the United States or the globe has faced devastating disease, and it is only a matter of time before the next pandemic strikes. Influenzas are likely candidates; three influenza pandemics occurred in the twentieth century. The

second wave of the 1918 pandemic was much stronger than the first in part because of mutations. The 1918 pandemic, and more recently the 2009 pandemic for which more data exists, have spurred research into how viruses mutate and spread. As a result, more is known about viral weaknesses and mutations, and about the human immune system and how to ready it to combat pathogens.

Human nature has not changed since 1918, but virology and surveillance have, and we are better equipped than we were 100 year ago, or even a decade ago, for an infectious disease threat. In 1918, global troop movements helped spread the virus across continents before it could be detected. A century later we are better able to monitor diseases, to know what viruses are in the world and how they are spreading. This knowledge, if shared and acted upon, could guide effective resource allocation. But COVID, as a novel virus, underscores the need for improved global surveillance. A year before the COVID outbreak, Belsler and Tumpey (2018) highlighted threats from rapidly mutating influenza strains, specifically naming A(H5N1) viruses and A(H7N9) as likely threats to cross species from wild birds to humans. They stressed that modern preparation requires a global commitment to share resources including data about viral isolates and to dedicate resources globally for assessing the pandemic risk of emerging influenza viruses from zoonotic reservoirs. The World Health Organization surveillance system is limited by the few countries that do not participate, hindering detection of rapidly spreading pathogens. Is it possible to improve detection and buy time needed to create vaccines? The historical context for COVID-19 emphasizes the importance of global coordination of public health efforts.

In past health crises, people called for reinventing public health during the crisis and for rethinking social priorities once the crisis subsided. And even as death counts grew, they planned for the uncertain future. Pandemics bring difficult ethical issues into view. At its height in the 1950s, for example, the polio epidemic demanded decisions about who would have access to life-saving therapy through “iron lung” machines, and who would not. Despite recent SARS, MERS, and H1N1 alarms, as well as damage from past epidemics, public health programs have been neglected in the United States. COVID-19 has revealed consequences of this inattention, exposing government failings and social vulnerabilities. Examples include shortages of ventilators and consequent ventilator sharing (Beitler et al. 2020) and shortages of personal protective equipment (PPE) required by healthcare workers (Emanuel et al. 2020; Livingston et al. 2020). According to Cohen and Rogers (2020), shortages can be explained largely by problematic supply chains and distribution preparations: “the federal government failed to maintain and distribute domestic inventories... major disruptions to the PPE global supply chain caused a sharp reduction in PPE exported to the US, which was already highly dependent on globally-sourced PPE. Market and government failures thus led PPE procurement by hospitals, healthcare providers, businesses, individuals, and governments to become competitive and costly in terms of time and money” (p. 1). Will these problems be addressed when the crisis subsides?

Trusted political leadership stands at the heart of good public health. History shows that political leaders who have projected clear NPI instructions at the start of disease crises have been more successful at gaining effective public compliance

than those who have equivocated and delayed. Historically and currently, planning has not equated to preparation. Indeed, planning is useless unless executed. Decisions to execute fall to political leaders to whom emergency management experts report. Historical patterns suggest that one of the greatest challenges to public health and emergency management is to convince leadership to set political considerations aside and make rational public health decisions during a crisis.

COVID-19 has heightened awareness of structural inequalities related to health, a crucial step toward addressing them. Like past epidemics, it is revealing who and what the nation values. Historically, medicine in the United States has focused on acute care more than public health. Federal funding and infrastructure have followed these priorities. The current health crisis has prompted spending for immediate help. The pandemic may also lead to a rethinking of federal allocations for public health to address the needs of underserved and vulnerable populations and regions. History confirms that public memory is short, communities are slow to acknowledge disease threats, and officials are loath to act on evidence that conflicts with political and economic agendas. If Leavitt (1996) is right that pandemics focus public attention, then action must be taken while attention is focused on public health.

Conclusion

What emerges clearly from the historical context of COVID-19 is the importance of sustaining collective memory of the toll taken by unpreparedness, unclear risk communication, and unequal access to healthcare during the disease crisis. History and memory favor local and individual experience over global recollection, which makes collective memory of pandemics hard to retain (Donahue 2020). Historians have chronicled the gravity of past pandemics, yet COVID-19 exposed a profound lack of readiness. How can we better preserve and communicate the collective memory of disease crises? How can we better remember so that we will act sooner and more effectively? After this pandemic, we will have experienced living through a pandemic. We will know more about the challenges and what is needed to fare well, what works and what does not. COVID-19 will have revealed to us where we can do better. If we heed the call to action as an ethical obligation, we might better equip ourselves and our successors for the next crisis.

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