

“Better Off in School”: School Medical Inspection as a Public Health Strategy During the 1918–1919 Influenza Pandemic in the United States

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SYNOPSIS

During the 1918–1919 influenza pandemic in the United States, most cities responded by implementing community mitigation strategies, such as school closure. However, three cities—New York City, Chicago, and New Haven, Connecticut—diverged from the dominant pattern by keeping their public schools open while the pandemic raged. This article situates the experiences of these three cities in the broader context of the Progressive era, when officials and experts put great faith in expanding public programs in health and education. It adds an important dimension to the historical understanding of the 1918–1919 influenza pandemic and offers lessons for public health practitioners and policymakers today who might face difficult decisions about how to respond to the 2009 H1N1 influenza pandemic.

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In the fall of 1918 and winter of 1919, as the influenza pandemic spread across the nation, the majority of urban schools in the United States were closed for weeks if not months. Yet three major cities—New York City, Chicago, and New Haven, Connecticut—diverged from prevailing patterns by keeping their public schools open. Instead of sending students home, they intensified and extended the school inspection programs that city health and school officials had endeavored so sedulously to establish over the past several decades.

These three historical case studies are instructive for public health practitioners, educators, and policymakers in the 21st century, especially given the appearance of a novel strain of H1N1 influenza in spring 2009. Looking toward the 2009–2010 school year, in early August 2009 the Centers for Disease Control and Prevention (CDC) released guidance for public health and school officials for two possible scenarios of a fall wave of H1N1. Based on current information about the severity of the circulating virus, CDC recommends that the primary response of parents should be to keep sick and/or feverish children home, allowing them to return to school 24 hours after the resolution of fever; and the primary response of schools should be to spatially separate ill students and staff and promote extensive hand hygiene and respiratory etiquette. Furthermore, CDC recommends that school districts with high numbers of medically vulnerable students likely to develop severe influenza complications may consider dismissal and suggests that if H1N1 acquires greater severity, school dismissal be considered as a general option by affected schools or school districts.¹

The recent CDC guidance also stresses that the bulk of decision-making about the most appropriate and effective way for a particular school to respond to the threat of H1N1 should occur at the local level, where leaders, parents, and students are familiar with the school populations and their specific characteristics. The guidance reminds “school and health officials” to work “. . . closely to balance the risks of flu in their community with the disruption dismissals will cause in both education and the wider community.”¹

Given this guidance, which seeks to avoid interruption to schools and student learning, contemporary public health practitioners and policymakers could learn a great deal from the experiences of the three cities that went against the grain during the 1918–1919 influenza pandemic and opted not to close the public schools. One important point of departure for understanding the atypical actions of New York City, Chicago, and New Haven is that these three cities viewed keeping schools open not as an abdication of public health responsibility, but as an opportunity to implement the

public health strategies of school medical inspection and intensified disease surveillance. Indeed, the decisions of officials in New York City, Chicago, and New Haven were based not on disinterest but on a substantial commitment to the health of their diverse student bodies. By not mandating school closure, officials set a model that allowed private and parochial schools to remain open if they wished, although the historical record demonstrates that many chose to close.

This article seeks to draw valuable historical lessons from this trio of cities. It begins by contextualizing American schools in 1918 with comparisons to K–12 education institutions today. We then discuss the development of the school hygiene movement, with a focus on the emergence of school medical inspections programs. This historical framework provides the backdrop to explore the unique experiences of New York City, Chicago, and New Haven. In our conclusion, we return to some of the key contemporary concerns related to school closure in the advent of pandemic influenza.

SETTING THE STAGE: AMERICAN SCHOOLS IN 1918

K–12 schools play a very different role in American life today than they did in 1918. First, there are many more kinds of public, religious-based, and private educational institutions, ranging from day care centers that accept infants as young as eight weeks to large urban high schools and private college preparatory schools where students live away from home on campus. Many parents, whether married or single, work full time and children can spend up to 12 hours per day in facilities that become like a second home. Second, even with school enrollment on the rise in the early 20th century, figures pale in absolute and proportional terms when compared to today. In 2006, school enrollment in public and private institutions stood at nearly 80 million children, representing approximately 25% of the total American population.² This heterogeneous constellation of educational institutions has become much more central to society, and high school has become a rite of passage completed by approximately 90% of Americans younger than age 21.

When influenza appeared in the United States in the fall of 1918, the American schooling system was undergoing a series of dramatic physical, social, and pedagogical changes. To begin, public school attendance had increased considerably since the late 19th century, particularly in urban areas, which by 1920 accounted for more than 50% of the U.S. population. From 1870 to 1918, public school enrollment had tri-

pled, with high school enrollment increasing 20-fold.³ In contrast with patterns in earlier decades, a 1920 study of school attendance reported that 64.3% of the 5- to 20-year-old population (21,373,976 of 33,250,870 total) was enrolled in school at some point between September 1, 1919, and January 1, 1920.⁴ In 1918, more than four million children attended first grade in America's public schools, an enrollment figure that diminished substantially as children moved up the grade level. For example, 12th-grade enrollment on a national basis stood at only 290,000 in 1918.⁵

Yet of those enrolled, an increasing number of children attended school consistently, with rates higher than 90% in many cities. For example, Fall River, Massachusetts, reported an attendance rate of 98.7% and the attendance rate was 92.6% in New Haven.⁴ In large part, these changes were the result of the passage of mandatory school attendance laws, enacted first by Massachusetts in 1852 and last by Mississippi in 1918.⁶ Ironically, it was not until 1918 that all states in the union passed compulsory attendance laws, making school closures in the fall of that year a truly original challenge in legal, social, and cultural terms.

As thousands more children crowded into schools across the country, classrooms began to change in significant ways.^{7,8} Graded classrooms with regimented curricular plans were replacing the multi-age one-room classroom. To assign children to graded classrooms, teachers and school board psychologists began to administer intelligence and aptitude tests. The changes reflected the impact of the values of the Progressive era—namely efficiency, science, and rationality—on the school system and related public institutions. At the forefront of the Progressive era was increased attention to the health of schools and their pupils.

THE RISE OF THE SCHOOL HYGIENE MOVEMENT

Many urban schools at the turn of the century conducted classes in poorly lit, under-ventilated basements, corridors, and temporary wooden structures called “portables.” Inadequate plumbing and sewage systems meant that these “halls of learning” were often filled with the stench of poorly working toilets.⁹

Given these conditions, improving the public school facilities and sanitary or health conditions for students became of great concern to the American public. For example, between 1908 and 1909 alone, more than 500 articles on school hygiene appeared in the medical literature and popular periodicals.¹⁰

The development of school hygiene programs was seen as an essential component of modern societies that

sought to cultivate healthy intelligent populations.^{11,12} On one hand, the focus was on schools themselves, as a new cadre of experts determined with mathematical precision how to make classrooms salubrious by installing ventilation and lighting systems, arranging desks and classroom furniture in an organized fashion, and ensuring access to safe drinking water.¹³ At the same time, the spotlight also turned to the children themselves, who could be assessed by a district doctor or school nurse for potentially contagious diseases, such as measles or diphtheria, and examined for a plethora of conditions including physioskeletal deformities, myopia, and rotting teeth, as well as diabetes and other chronic ailments. Before the Progressive era, afflicted children were identified and ejected from school, and little if anything was done to assure the treatment needed for reintroduction into the classroom. Schools lacked the resources for effective follow-up to assure proper treatment for the children, or even assurance that children's families understood the illness or medical condition. Once public health departments and school systems brought on nurses to make routine, systematic contact with all students, both medical inspections to identify communicable diseases and the physical exams to uncover diseases and defects gradually became the norm in hundreds of cities and towns.

Some cities, such as Boston and New York City, established school corps, comprised of medical inspectors who made daily rounds through the public schools to determine the health status of individual children and entire classrooms. For example, in 1893, the City of New York appointed the nation's first medical inspector, Dr. Moreau Morse. The following year, the City of Boston appointed Dr. Samuel Durgin to organize a team of 50 physicians to oversee the health needs of that city's 50 school districts.^{14,15} A decade later, in 1904, 36 cities and towns had such systems. By 1913, when Luther H. Gulick and Leonard P. Ayers reissued their landmark study, *Medical Inspection of Schools*, there were 443 American cities or towns that conducted medical inspections of schools.^{12,16,17} Furthermore, cities such as New York published monthly school health bulletins to inform physicians, nurses, and educators about how to respond to infectious and chronic diseases among their student populations.¹⁸

By the early 20th century, expanding knowledge of bacteriology and the mechanisms of pathogenic disease transmission had convinced many scientific experts that the careful medical monitoring of students in the school setting during an epidemic was the best way to ensure their health and safety. As Alvah H. Doty, the health officer of the Port of New York, wrote in 1911,

“. . . children who remain in school and are subjected to careful surveillance are probably better protected than those who are out of school and about the street, and mixing indiscriminately with others, particularly if the outbreak is widespread.”¹⁹

The earliest school medical inspection programs in New York (1893), Boston (1894), Chicago (1895), and Philadelphia (1898) were centered around medical doctors making prescribed visits to assigned districts to examine the pupils. Most implicit in the motives behind these programs was the surveillance for the many contagious diseases of childhood and, if discovered, their rapid containment in the form of quarantine. In an era framed by the specter of contagious disease, speed in such endeavors was of the essence. Doctors, nurses, social workers, and, on the front lines, schoolteachers worked assiduously to facilitate these methods of disease control.

Still, Progressives' efforts to merge medical science with the burgeoning health hygiene programs in schools didn't always yield positive results. New York, for example, looked to decrease absenteeism by assembling surgical teams consisting of doctors and nurses to remove tonsils and adenoids from afflicted students at public schools. This 1906 project led to riots in several locations when rumors spread that school doctors were cutting children's throats as the first step in a planned massacre of the city's Jews.²⁰ This ill-fated experiment serves to illustrate how earnest were the developers of early 20th-century health hygiene programs to provide infrastructure that helped unhealthy students return to the classroom.

During the Progressive era, public schools became the homes of “Health Leagues,” “100% Hygiene Classes,” and “Little Mother's Clubs,” all promoting the gospel of public health for the children and, by extension, for their parents and families. In keeping with Progressive-era rationality, early health hygiene programs readily embraced the most basic metric for success—lower death rates among infants—and expanded the metrics to school systems where program results demonstrated a decrease in contagious illnesses and a corresponding decrease in school absenteeism.

In parallel with the increased willingness among municipalities and some private schools to fund nurses who carried the gospel of good health to immigrants and others who might benefit, conditions were right for creating a role for public health nurses in education.

The first school nurse program began in 1902 when New York's board of education and its health commissioner asked veteran settlement nursing expert Lillian Wald to design a demonstration program. She tasked Lina Rogers to place nurses in four of the city's schools,

where nurses began routine inspections on 10,000 children, with home visits for any needing follow-up treatment. The program quickly expanded to all of New York's public schools, where absenteeism fell from 65,294 in 1903 to 18,844 in 1905. There were nearly 500,000 students at this time.²⁰

Typically, New York's nurses arrived at school at 9 a.m. and went from class to class, lining up children to examine eyes, hands, throats, and hair, and provided a written report of their findings for the physician, whom they also met regularly to review the status of any children under treatment. The day also included time in an examining room to treat children, change dressings, or provide any other needs of daily care including minor emergencies such as scraped elbows and knees. Home visits focused on diagnosis-specific information and general hygiene education for parents and family. As New York's program developed, Rogers showed that nurses could properly examine and care for about 3,000 children per week and each nurse was assigned between two and five schools.^{12,21}

By the time the second wave of the influenza pandemic struck the U.S. in the fall of 1918, medical inspection of the schools had become more formalized and broader in reach. Many individual schools were staffed with full-time nurses. There were organized plans for the isolation of children suspected of a contagious disease. Vaccinations for smallpox were offered on a routine basis. Vision, hearing, and dental examinations were instituted. Developmental and physical abnormalities began to be addressed by pediatricians of this period as well. Some of the most common concerns were the predicted effects of enlarged tonsils and adenoids on a child's health and development; pediatricians ascribed almost everything from mouth-breathing and apnea to a propensity toward tuberculosis, hyperactivity, enuresis, and feeble-mindedness to the hypertrophied lymphoid tissues.^{22,23} The inspection of school buildings by sanitary engineers and public health workers also became routine during this period. But perhaps the widest-reaching activities of this endeavor revolved around educating children and their parents about personal hygiene and disease prevention. Indeed, these topics eventually became standard elements of most public school curricula, surviving well into the 1950s.

The United States' entrance into World War I heightened the Progressive-era awareness of the health of schoolchildren and the importance of school sanitation. As the U.S. sent millions of men across the Atlantic to fight on the European front, calls for patriotism rang louder and Americans of all ages were urged to carry out the duties and responsibilities of citizenship,

which included proper personal and social hygiene. By September 1918, the battle against foreign enemies came to include campaigns against influenza. Schools across the country responded to influenza using similar tools and theories from modern bacteriology, public health, and school hygiene. Despite this shared armamentarium, from September 1918 to March 1919 American communities and schools approached and experienced school closure policies and implementation in differing ways.²⁴ Diverging from the dominant trend in urban America, three cities—including the country's two largest—decided not to close schools and instead to amplify and extend existing school medical inspection and disease surveillance programs.

NEW YORK CITY

New York City was a unique American urban center given that its health commissioner, Dr. Royal S. Copeland, relied almost exclusively on quarantine and isolation as community mitigation strategies during the 1918–1919 influenza pandemic. Soon after the pandemic arrived in late September 1918, the New York City Board of Health made influenza a “reportable disease.” According to the Sanitary Code of New York City, the body of public health laws that governed municipal health, physicians were required to isolate and home quarantine infected individuals.^{25–27} Copeland's authority in public health matters was especially strong because state law placed the City of New York outside of the state health department's purview.²⁸

Early in the pandemic, Copeland closely monitored school absenteeism for signs of influenza's menace and was interested in instituting school closure if or when it seemed warranted. However, he was soon convinced otherwise by Dr. S. Josephine Baker, director of the Department of Health Bureau of Child Hygiene and a leading Progressive-era reformer and public health advocate. In 1908, Baker took over the newly established Division of Child Hygiene, whose work was previously handled through the health department's division of contagious diseases. Baker directed 192 medical inspectors and 195 nurses in several programs for infants and children and under her astute and dedicated leadership, the department flourished. She made significant improvements in the child hygiene system, including studying and then setting the optimal frequency for medical inspections.²⁰ As Baker persuaded Copeland to keep schools open, she stressed the virtues of weekly medical inspections and the importance of keeping children contained in the safe zone of the school. Baker also wanted to make

sure that pupils received the message to return home quickly after the final bell.

As influenza struck New York, the public school system encompassed nearly a million children, of whom 75% lived in tenements whose crowded and unsanitary conditions were notorious for promoting infectious diseases. For students from the tenement districts, school offered a clean, well-ventilated environment where teachers, nurses, and doctors already practiced—and documented—thorough, routine medical inspections. In October and November 1918, the inspection regimen changed somewhat. Children were not allowed to loiter outside the school as usual, waiting for the bell to ring. Instead, they reported immediately to their teachers for an inspection. Teachers looked for the usual signs of upper respiratory condition: runny noses, red eyes, sneezing, or coughing. Children displaying any of these symptoms were moved to an isolation room for a professional examination. If feverish, they were sent home in the company of someone from the health department who determined on the spot if home conditions were amenable to isolation and care. When homes did not meet standards, children were sent to a hospital. The health department required families of the children recovering at home to either have a family physician or use the services of a public health doctor at no charge.²⁹

Ultimately, Copeland was proud of his maverick decision not to close the public schools. Indeed, he became irate when his son's private school, the Ethical Culture School, closed in the middle of October. Copeland strongly believed this wrong-headed decision, the result of pressure from parents and teachers, led to his son's bout with influenza. Copeland stated that his son's malaise “. . . was evidence that children are better off in school, under supervision, than playing about in the streets.”³⁰ Copeland's decisions helped to make New York City the model for cities around the country whose school boards sought to privilege medical inspection over school dismissal.

New York City functioned fairly smoothly during the pandemic for several reasons. First, there was relative harmony among the various actors working toward influenza mitigation. Efforts were coordinated through three ad hoc bodies that Copeland created: an Emergency Advisory Committee that included leaders from the American Red Cross and the American Public Health Association; the Women's Emergency Advisory Committee, which spearheaded volunteer campaigns on the ground; and a nursing committee led by Lillian Wald to coordinate home care. Second, the city benefited from its distinguished and longstanding public health tradition, national prominence in the

Progressive school hygiene movement, and lessons learned from responses to earlier outbreaks of polio, diphtheria, and cholera. Finally, Copeland's leadership abilities should be acknowledged. The deft touch he exhibited in working with a powerful reformer such as Baker extended to other officials during the fall of 1918. Certainly, his decision to keep schools open was controversial and attracted media attention nationally and not a little criticism at home, but Copeland's public demeanor always projected a sense of calm, reasonable assurance. These abilities served him well throughout his political career. Four years after leading New York City through the pandemic, Copeland was elected U.S. senator from New York, a position he held until his death in 1938.

CHICAGO

Like New York City, Chicago declined to close schools during the fall of 1918, instead relying heavily on school inspections. From the initial appearance of influenza in late September 1918 to the waning weeks of the pandemic in January 1919, the city's health commissioner, John Dill Robertson, remained adamantly opposed to school dismissal. He believed that the city's school hygiene program would be able to identify any probable cases of infected students who should be sent home, while taking excellent care of the healthy pupils who remained in the classroom. During October and November 1918, Robertson worked with representatives from the city's public and parochial schools, and from children's welfare to intensify Chicago's already well-developed school medical inspection program. Robertson and Dr. C. St. Claire Drake, state director of health, conferred regularly, both with each other as well as with the Illinois emergency influenza advisory committee to formulate regulations and plans of action for the city as well as the rest of the state in what appears to have been a harmonious fashion. Finally, school health officers and nurses visited the homes of absentees and instructed family members about proper procedures for isolation and self-care.³¹

Throughout the course of the pandemic, Robertson received daily reports from school inspectors who continued to convince him that school closure was misguided because students were being more than adequately monitored and cared for in the public education system than they would have been at home. These daily reports also contained information about schools with faulty ventilation systems and dismal cleaning methods that infuriated Robertson. He took these matters seriously enough to threaten the city employees responsible for this negligent school

hygiene with the suspension of their paychecks if the identified problems were not fixed immediately.³² After the pandemic had passed, Robertson reflected on his decision against school dismissal in an extensive 1919 report that summarized the city's response: "... with respect to the schools, it was remembered that the sanitation is quite uniformly good and that the hygienic conditions of environment were better than those which would have obtained among the children if classes were discontinued."³¹

One of the most striking aspects of Chicago's experience was that even without school dismissal, many classrooms emptied out significantly due to high rates of absenteeism. These rates hovered around 30% in early to mid October and spiked to nearly 50% by the end of the month. Although Robertson took this phenomenon in stride, he suggested that many students were being unnecessarily sequestered by parents who had developed the lamentable condition of "fluphobia." Furthermore, Robertson had little patience for the many students who perfected the art of coughing, sometimes using snuff or red pepper to induce a reaction, in order to be sent home, or for recovered pupils who took advantage of the situation to avoid returning to the classroom for days if not weeks.³¹

NEW HAVEN

Connecticut's health department officially advocated against school closures, which allowed New Haven officials to keep schools open with little community resistance. The city's health officer of 29 years, Dr. Frank W. Wright, enjoyed widespread respect as did the New Haven Board of Health, and this local amity further bolstered community acceptance. In early October, health and education officials met and agreed that children should remain in school, not only to keep them from congregating elsewhere without supervision, but also to minimize their exposure to infected adults. Officials discussed closing schools several times in coming days but always came around to Wright's view that children would be safer in the well-ventilated schools where physicians and nurses worked full time to identify sick children and send them home for proper care.

Their task was made somewhat lighter as October progressed because of an increasing problem with absenteeism. By the third week in October, when the daily case rate was at its highest, roughly 33% of the city's 29,000 schoolchildren were absent, along with 100 teachers. Superintendent of Schools F.H. Beede acknowledged that many stayed home, not from infection, but from fear of infection. Still, he accepted this as a natural pattern under the circumstances and

looked for a way to shore up the teaching workforce. His solution was to call in retired teachers to work as substitutes, and this met with some but not total success.^{33,34} Fortunately, New Haven's bout with influenza was already on the wane and by late October, the boards of health and education decided the absent children needed certification for reentry into school.³⁵ Wright's plan for medical certification was the wrong one: the inspections were administered by Department of Health physicians on a first-come, first-served basis in poorly equipped quarters, and the turnout was huge. Only after several days and literally thousands of uncomfortable, inconvenienced children and adults was an effective, efficient process worked out. Not surprisingly, this fiasco produced an energetic community outcry against the boards of health and education. However, school attendance quickly returned to normal and the community forgave Dr. Wright without demur.

CONCLUSION

We can draw several lessons from the unique experiences of these three cities during the 1918–1919 influenza pandemic. First, one of the primary reasons why New York City and Chicago, and to a lesser extent New Haven, opted not to close schools during the pandemic was that, as leaders of the Progressive-era school hygiene movement, they hoped to continue the sanitarian and bacteriological campaigns launched in the late 19th century. Rather than implementing the commonplace non-pharmaceutical intervention of school closure, this trio of cities chose to intensify the school inspection programs that their city leaders had developed over the past several decades. Health and municipal leaders in each of these three cities viewed school medical inspection as a public health strategy in its own right, and thus, demonstrated that the non-implementation of school closure certainly should not be equated with a lack of response to the pandemic in the public schools.

Second, school physicians, and above all school nurses, were instrumental in ensuring that medical inspections ran well in the public school system during the pandemic. Due to a significant investment from the city in school medical corps, and the existence of an increasing number of studies and manuals on how to inspect schools and students for acute and chronic diseases, school physicians and nurses were relatively well prepared for the pandemic in the fall of 1918.

Third, medical inspection programs in these cities would not have functioned effectively without the well-designed systems of communication—among teachers,

nurses, physicians, and city health leaders—that were activated in response to pandemic influenza. This was particularly evident in Chicago, where Health Commissioner Robertson scoured daily reports from the city's many schools and worked to recalibrate school inspection goals and procedures in light of this up-to-date information.

Finally, the success of school nurses in conducting medical school inspections in the fall of 1918 in part reflected their broader job portfolio in the early 20th century, which involved surveying the health conditions of students and their families in their own homes, a task that is more problematic today due to legal considerations related to personal privacy, not to mention shrinking revenues for public health nursing.

Today, public health and school officials can look back at their predecessors with some envy, given the substantial investment in infrastructure, personnel, and programs that many cities made in the public health of school systems during the early 20th century. Over the past several decades, financial cutbacks to public education have severely impacted public health programs, reducing the number of school nurses and resources for activities such as physical education. For example, currently, there are 45,000 school nurses in the United States, one for every 1,155 students.^{36,37} In addition, the diseases—such as measles, diphtheria, and tuberculosis—that so concerned the leaders of the school hygiene movement in the early 20th century are no longer major killers in the United States, thanks to improving health indicators and critical interventions and therapies such as vaccines and antibiotics.

The perceived need for school hygiene has diminished over the past 90 years, due to a combination of laudable advances in medicine and health, complacency toward the threat of infectious diseases, and reticence among public officials to implement public health measures that could be interpreted as violating individual rights. Nevertheless, many health officials recognize the need to address this problem, even in a climate of diminishing public revenue, and have participated in studies and programs to expand health services in the schools, particularly for immigrant and underserved communities.³⁸ Most experts agree that while staffing levels for school nurses leave room for improvement, the mechanism to uncover more common contagious diseases in the classroom is in place, though dispersed across a broader band of health personnel and educators. The effectiveness of this process will be the subject of much debate as the novel 2009 H1N1 influenza pandemic unfolds.

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