

**THE SPANISH INFLUENZA EPIDEMIC
IN INDIANAPOLIS IN 1918:
A STUDY OF CIVIC AND COMMUNITY RESPONSES**

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TABLE OF CONTENTS

CHAPTER

1 Influenza and Spanish Flu

Introduction	1
Methodology	2
History of Influenza	5
Public Health and Sanitation in 1918	9
Public Health and Sanitation in Indianapolis: The Indianapolis Health Department	14
Public Health and Sanitation in Indiana: The Indiana State Board of Health	16
Medical Science and the Medical Profession in 1918	18

2 Spanish Influenza in the United States

Development of the Spanish Influenza Pandemic	22
The Spread of the Epidemic in Military Camps and the Country as a Whole	24
The Spread of Influenza in Indianapolis	33
The Spread of Influenza at Indianapolis Military Camps	36

3 Official Responses to the Pandemic

Indianapolis' Response to the Crisis	39
Health Education and Spanish Influenza	43
The Closing Ban and the Masking Order: The Statewide Closing Ban	47
The Closing Ban and the Masking Order: The Indianapolis Closing Ban	49
Mobilization of Health Resources	60
Responses to the Pandemic in Other Indiana Communities	69

4 Putting the Pandemic in Context

Medical Advice and Popular Health Practices	79
Mortality in the United States and Worldwide	88
Social Impact and Personal Loss	91
Conclusion	100

APPENDIX 1	102
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ENDNOTES	103
--------------------	-----

BIBLIOGRAPHY	127
------------------------	-----

CHAPTER 1:

Influenza and Spanish Flu

Introduction

As America struggled against Germany's armies in the fall of 1918, absorbed in churning out a great stream of men and materiel for the Western front, a silent, invisible enemy struck. For the next eight months, belligerent and neutral nations alike would be under siege by the same deadly and implacable foe—the Spanish influenza virus. By the time it was over, the pandemic caused by the virus would kill more civilians and soldiers worldwide than the war itself had done, and it would do so in a much shorter time. Indianapolis fared better than many other cities that autumn, but nonetheless experienced the loss of over one thousand of its residents to influenza and the pneumonia that so often followed it. How the Spanish flu pandemic came to Indiana; what actions doctors, health officials, and others took to stop it; and how the public responded to these actions is the subject of this thesis.¹

The narrative begins with a history of influenza from classical times to the present and then describes how the first wave of Spanish influenza developed into a pandemic that circled the globe between March and August 1918. Chapter 2 takes up the story of the second wave of the disease that began in September in Boston military camps, spread to the civilian population of the Northeast, and quickly reached the Midwest. On its sweep through the heartland, Spanish flu infected civilians in Indianapolis, soldiers at Fort Benjamin Harrison, and trainees at various military detach-

ments established in the city, as well as all other parts of Indiana. Chapter 3 examines in detail the response of public health officials and others to the crisis—the use of health information, a stringent closing ban, the enforced wearing of masks in public, and the mobilization of resources to fight the spread of the disease. Chapter 4 is devoted to placing the pandemic in the context of public health, medicine, and science, and existing health practices and beliefs, and to assessing the utility of prevention and treatment methods used to fight Spanish flu. This chapter also examines the impact of the disease, both in terms of lives lost and the personal and social costs of so sudden and cataclysmic an event.

There have been many other epidemics and pandemics throughout history, most notably the Black Death in medieval and early modern Europe, cholera in nineteenth-century Europe and America, and yellow fever in colonial and early nineteenth-century America. But compared even to these deadly outbreaks of disease, the Spanish influenza pandemic was uniquely devastating because of its rapid spread to virtually every inhabited part of the world, the enormous number of people it infected in a very short time, and the tragic consequences of its propensity for killing young adults.² Without question the Great Pandemic was a major calamity, overshadowed only by the Great War itself.

Methodology

The Spanish influenza epidemic in Indianapolis was not well documented by those who experienced it. A thorough search of local resources revealed no first-person

accounts of the epidemic. The only primary sources of information about Spanish flu in Indianapolis were microfilms of contemporary newspapers, reports of the U.S. Census Bureau and the Indiana State Board of Health, and issues of the Indianapolis Medical Journal. Of these, the most valuable by far were the Indianapolis Star and the Indianapolis News, both of which published many articles about the flu and its victims during this health crisis.

The City-County Council Minutes Book, September-December 1918, and the Marion County Commissioners Record Book for the same period make no mention of the flu epidemic, nor did research in manuscript collections at the Indiana State Library reveal any references to Spanish flu. This was disappointing because multiple sources of primary data would have been preferable to a single one. However, the fact that newspaper articles proved to be the principal resource does offer several advantages over diaries, hospital records, and so on. Newspapers give past events a sense of immediacy because much of their social and cultural context is preserved through advertisements, sports and entertainment sections, classified ads, photographs, and obituaries. Another advantage is that the researcher can gain some understanding of how events might have appeared to people experiencing them. In 1918 when newspapers and magazines were still the sole sources of information about current events available to the general public, they were able to define events and shape the public perception of them much as television news does today. Of course, newspapers are not an exact analogue of television; the two media differ markedly in their respective capabilities to saturate public consciousness. Further, unlike radio and television,

newspapers were directly accessible only to the literate and to those willing to take the time to read their contents.

A disadvantage of so voluminous a primary source is that research and analysis proved quite laborious. The newspaper index at the Indiana State Library listed only a handful of articles about the epidemic that appeared in the Indianapolis Star and the Indianapolis News, so it was necessary to look through the entire microfilm of each day's paper in search of news items about Spanish flu. Indianapolis had two major dailies in 1918, and in order to avoid duplication, research consisted of alternately scanning the News and the Star for one-week periods. The News was not published on Sundays, so the Star is over-represented as a result. By the time the research was finished, hundreds of articles and news items about the Spanish flu shed considerable light on the epidemic and imparted a sense of the social climate that prevailed at the end of World War I.

The Indianapolis newspapers contained a great deal of information about the epidemic's progress at the national, state, and local levels, in the military training camps, and to a lesser extent in foreign countries. The primary sources of news regarding the progress of the epidemic in Indianapolis and Indiana that were available to reporters were the Indiana and Indianapolis boards of health. Otherwise, news of the flu situation in the state probably came from a wire service. Coverage outside Indianapolis was uneven both geographically and chronologically, so it would not be possible to reconstruct the progress of the epidemic elsewhere in the state without resorting to the same process used for Indianapolis, searching through microfilmed copies of newspapers

from other cities in Indiana. Another interesting note regarding coverage is that after late October 1918 the Indianapolis newspapers printed few items about influenza in other regions of the country, and very little at any time about the pandemic in any city or military camp further west than Chicago.

Of Indiana's ninety-two counties, only seventy-seven are mentioned in the editions of the Star and News used for data. Some cities and counties were reported on frequently, while others received scant attention, but the reasons for differences in coverage are not apparent. For example, it might be assumed that the health status of the communities nearest Indianapolis would have been of greatest interest to local readers, but this was not borne out by newspaper coverage. Nearly every county in the state suffered the ravages of Spanish influenza at one time or another between October and December, but very few references to influenza in Boone and Morgan counties appeared in the Star and News, while Shelby County received intense coverage throughout the course of the epidemic, and Hamilton, Hancock, Hendricks, and Johnson counties fell between these two extremes in terms of the number of news items. However, even if they are not a complete and perfect record of the epidemic, the newspapers nonetheless provide an interesting and valuable snapshot of the events in Indianapolis during this time of crisis.

History of Influenza

The disease now called influenza has occurred periodically since ancient times. The term *influenza* was first used in 1504 when a flu outbreak in Italy was attributed by

adherents of the miasma theory of disease to the malevolent *influenza*—in Italian, *influenza*—of heavenly bodies. The term “influenza di freddo,” influence of the cold, was sometimes used as well when referring to this disease. During the eighteenth century, the French began calling the disease *grippe* (from *gripper*, to grip), a term that became popular in America. But the name *influenza*, adopted by the English during a flu epidemic in 1742-43, came to be generally accepted.³

It is sometimes difficult to identify diseases from historical accounts, not only because the diagnostic language of past eras may be quite unintelligible to people living in later times, but also because diseases can disappear if their causative agent becomes extinct. For example, the plague that afflicted the Athenians during the Peloponnesian War has never been identified; the symptoms Thucydides so clearly described match those of no disease known today, so it is possible that the bacteria or virus causing it mutated or died out.⁴ Unlike the Athenian ailment, *influenza* has displayed stable and distinctive characteristics over time and can therefore be easily identified retrospectively. It has typically been described as a mild disease, which has a sudden onset, a fever that usually lasts about three days, a dry cough, headache, backache, and aching legs, followed by weakness and depression lasting a week or more. An epidemic often starts suddenly and spreads throughout an entire country within a month or so, affecting people of all ages and classes. Large numbers of people are infected, but the relatively few who die tend to be the very young, the elderly, or chronically ill persons.⁵

Hippocrates and Livy independently recorded an epidemic, occurring in 412 B.C., which is one of the first that can be identified as flu. Medieval chroniclers

frequently mentioned what appears to have been influenza epidemics, but there is no record of an influenza pandemic—an extremely widespread epidemic—until 1510, when an apparently mild strain spread from Africa to Europe. In 1580 another, more widespread, influenza pandemic moved from Asia to Africa, to Europe, and to America. Virtually everyone in its path became ill, but large numbers of deaths occurred only in certain cities, such as Rome, where 9,000 people died from the malady.⁶

Like the other diseases of the Old World, influenza wreaked havoc among native Americans, who lacked immunity to the microbes that accompanied European explorers and colonists. Influenza appeared among Indian populations at the same time as measles and smallpox and proved equally lethal to them. The conquistadors probably brought influenza to Mexico, where it swept through Aztec territory in 1559 and killed many Indians who had escaped the earlier ravages of typhus and other diseases. Influenza was prevalent along with smallpox in the English colonies in the last years of the seventeenth century. Continent-wide influenza outbreaks occurred in North America in 1761 after a measles epidemic and in the years between 1778 and 1783 in conjunction with smallpox.⁷

In the nineteenth century flu pandemics occurred in 1800-02, 1830-33, 1836-37, 1847-48, 1850-51, 1857-58, 1873-75, and 1889-90. All had high morbidity rates, and some caused considerable mortality. For example, the pandemic of 1847-48 killed more Londoners than the terrible cholera epidemic of 1832, but none rivaled the death record of the Great Pandemic of 1918-19. Three distinct waves of Spanish influenza swept the globe: a mild one in the spring of 1918, an extremely severe one in the

autumn, and a somewhat less severe one early in 1919. All shared the extraordinary tendency of being unusually fatal to young adults; throughout the world, half the people who died from flu and pneumonia were between twenty and forty.⁸

The world did not experience another influenza pandemic after that until 1957-58 when the relatively mild Asian flu appeared; it caused no increase in mortality in the United States, and was fatal for the most part only to persons over sixty-five. The pattern was the same in most countries, but Japan experienced somewhat higher mortality rates, and Finland had rates that were much higher. In 1968-69 there were major epidemics of Hong Kong flu with attack rates of 30 to 40 percent in Europe and the United States, low mortality the first year, but considerable mortality in Europe during the flu season of 1969.⁹ Swine flu, which health officials believed to be closely related to the influenza of 1918, appeared briefly in 1976, but failed to materialize in epidemic form.¹⁰ In the fall of 1993 Beijing flu, the most recent viral candidate with pandemic potential, happily did not live up to its reputation.¹¹

The fearful mortality of the Spanish influenza pandemic stimulated intensive research into the cause of the disease.¹² Gradually researchers isolated three types of influenza viruses—A, which causes serious pandemics such as that of 1918; B, which is more common among children and causes less severe illness; and C, which is quite rare and seems to be milder than A or B.¹³ They also found that the influenza virus is capable of rapid mutation in response to antibodies produced by its hosts. This means that immunity developed after a bout with flu provides protection only against the same

strain and type should it be encountered again later, but not against new ones that may evolve—thus making possible influenza pandemics such as that of 1918.¹⁴

Public Health and Sanitation in 1918

In many ways, the United States in 1918 was better prepared to deal with contagious disease than it had been at any previous time. Earlier epidemics, such as the yellow fever outbreaks of the late eighteenth and early nineteenth centuries, had been met with little effective organized resistance because of the relatively undeveloped state of medical science, and because no agencies or organizations existed that had the authority or knowledge to deal with a public health crisis in coordinated fashion. By contrast, by 1918 considerable progress had been made in both public health and medical science. Some truly significant medical advances had been made in terms of bacteriological disease prevention and cure, and the germ theory of disease, which had been accepted for some years by the medical community, was coming to be understood in a general way by most educated people. This meant that even though no one knew what caused Spanish influenza, the means of its transmission was fairly well understood. As far as treatment was concerned, physicians no longer engaged in the harmful therapies, such as bleeding or the use of mercury, that had characterized medicine in earlier eras.¹⁵ Public health organizations existed at the national, state, and local levels throughout the United States and public sanitation regulations were in place in much of the country.¹⁶ Unfortunately, medical science had not advanced sufficiently to

prevent or cure Spanish influenza and pneumonia, nor were public health officials sufficiently experienced in disease control to be able to cope with so daunting a foe.

The public and personal hygiene movement became firmly established in the latter half of the nineteenth century. This was a time when the greatest threats to life and health were communicable diseases, such as cholera, yellow fever, smallpox, tuberculosis, diphtheria, scarlet fever, whooping cough, enteric disorders, measles, and malaria. Most of these ailments were centuries-old, so common and familiar that people accepted the morbidity and mortality inflicted by them with a certain amount of fatalism. By contrast, cholera—unknown in Europe and America before the nineteenth century—and yellow fever—a mosquito-borne tropical disease—elicited a near-hysterical reaction on the part of the public and the demand for official action.¹⁷

Yellow fever, which had made its first North American appearance in late seventeenth century Boston, plagued Atlantic ports for over a century, caused major epidemics from 1793 to 1805, and then vanished from the Northeast. It flared up in the south Atlantic and Gulf Coast states during the first half of the nineteenth century and peaked in the 1850s. In 1853, Louisiana established the first state health board to deal with its incursions after nine thousand residents of New Orleans died in a single yellow fever epidemic. The disease declined sharply after the Civil War, but remained a threat in southern ports as late as 1878, when a devastating epidemic spread to nearly every large town on the south Atlantic and Gulf coasts and far up the Mississippi Valley. This so aroused the nation that Congress passed the first national quarantine act and created the National Board of Health. Neither survived, but public health consciousness had

been stimulated, and the way had been paved for creation of the U.S. Public Health Service years later.

Asiatic cholera struck the United States in 1832 and returned in 1848-49, killing thousands on both occasions. It too declined in the years following the Civil War, but nowhere posed the continual health threat that yellow fever did in the South. Both diseases had made such indelible impressions upon the public consciousness during their ascendancy that they continued to inspire fear for years afterward. The spread of cholera in Europe in 1873 proved so alarming to Americans that the New York City Health Department began a major effort to clean up some of the city's most unsanitary conditions. The last major cholera scare occurred in 1892 when the disease ravaged Russia. Happily, it did not appear in this country, but as this second wave coincided with the emerging sanitary movement, it had the salubrious effect of spurring frightened American health and municipal authorities in numerous cities to initiate extensive sanitation campaigns. In 1887, fear of cholera led to the establishment in New York City of the first laboratory in the United States for the routine diagnosis of disease. Between 1856 and 1860, conventions of health officials and representatives from medical societies were held regularly in response to the dual threat of yellow fever and cholera. Participants advocated the establishment of national quarantine laws and public health programs, actions that laid the groundwork for the future American Public Health Association.

The European public health movement, upon which the American movement was based, had originated in France in the early nineteenth century. The movement

was spearheaded by Great Britain in the 1840s and 1850s, and several decades later was given fresh impetus when Bismarck fostered public health as a means of strengthening the newly united German state. American cities also followed the lead of their older European counterparts in the matter of sanitary engineering. Similarly, newer American cities in the Midwest and on the West Coast emulated their East Coast predecessors, both in public health and sanitation and in the development of water and sewer systems.¹⁸

City health departments and state boards of health developed in conjunction with each other during the last third of the 19th century. Many large and medium-sized cities had expanded their old sewer and water systems or built new ones and systematized the collection of garbage and refuse. At the same time, city health departments were increasing the scope of their duties in response to the demands of urban life and population growth. However, municipal health officials were frequently unable to secure the cooperation of local government officials in enforcing health regulations and began to lobby for the creation of state health boards with the authority to force the compliance of local communities. The American Public Health Association, established in 1872, strongly advocated state boards and in 1875 submitted to all state governments a model act for a state health board. This model gave state boards some limited powers, but envisioned them primarily as collectors and disseminators of information on health and sanitation. Massachusetts had the first effective state board, created in 1869; it was followed by California in 1870, the District of Columbia in 1871, Minnesota and Virginia in 1872, Michigan in 1873, Maryland in 1874, Alabama in 1875,

Wisconsin in 1876, and Illinois in 1877. By 1900 most states had health boards—Indiana established its board in 1881—but most were weak agencies with annual budgets of less than \$5,000, whose primary function was to license physicians. On the bright side, by 1910 the reporting of communicable diseases was compulsory in most states.¹⁹

By the turn of the century most major cities had health departments. Their effectiveness and quality varied, but nearly all were headed by a physician and included health professionals such as bacteriologists, chemists, sanitary engineers, statisticians, and various inspectors on their staffs. During the early years of the twentieth century, municipal health departments expanded rapidly, with specialized divisions for contagious diseases, food inspection, water purity, and so on replacing the original handful of individual inspectors.²⁰

On the national level, the U.S. Marine Hospital Service slowly expanded its authority during the 1890s, moving into Cuba and Hawaii when they came under American influence. The Service's highly effective work with yellow fever in Cuba and bubonic plague resulted in legislation in 1902 that reorganized it and renamed it the U.S. Public Health and Marine Hospital Service. The same law contained a provision that state and territorial health officers meet annually with the surgeon general, thus legitimizing the supremacy of the federal government in public health affairs. Rupert Blue, an official of the Service who was later to become U.S. Surgeon General, brought under control an outbreak of bubonic plague in San Francisco right after its catastrophic earthquake in 1906. In 1912 Congress changed the agency's name to the U.S. Public Health Service (USPHS) and extended its powers. World War I greatly broad-

ened its powers as the Service took on the problems of controlling venereal disease among American soldiers and sailors and resource mobilization during the Great Pandemic of 1918.²¹

Public Health and Sanitation in Indianapolis: The Indianapolis

Health Department

Indianapolis had a health department as early as 1859, created to deal with malaria and other epidemics that the city had had to contend with from its founding. In 1848 the city council gained the authority to levy a tax to raise funds for smallpox vaccinations and to build a smallpox hospital, but as the disease subsided, resistance to the tax grew and the plan fell through.²²

The Indianapolis Health Department was responsible for prevention and control of disease, and within four years of its founding, had set standards and established sanitary regulations for slaughterhouses, food markets, and food inspection. In addition, there were city ordinances governing the keeping of cows, hogs, and the disposal of dead and diseased animals. In 1871 all hotels, restaurants, boarding houses, saloons, hospitals, and infirmaries were required by law to connect to the newly constructed city sewer system, thereby eliminating the need for large cesspools and privy vaults.

In 1875 the Indianapolis Health Department gained the authority to condemn and confiscate unfit food and in 1889 began regulating the quality of milk and butter in the city. By 1893 its authority extended to the inspection of wells and the condemnation of those unfit for use. In 1904 the city's health department gained the authority to

inspect hotels, restaurants, breweries, and distilleries, and to enforce sanitary regulations governing their operation. Two years later, regulation of the control and disposal of garbage also came under the department's oversight. The cumulative effect of these regulations, however, did little to abate the continual bacterial infections, tuberculosis, and venereal diseases that were rampant in the city in the early years of the twentieth century.

In 1905 state legislation established the Indianapolis Board of Health and Charities, providing for a full-time city health officer who would also serve as full-time superintendent of the city hospital and dispensary (now Wishard Memorial Hospital and its clinics). In 1912 Dr. Herman G. Morgan was appointed to this position, which he held until his death in 1946. During his thirty-three years as Indianapolis' health officer, Morgan devoted considerable effort to lowering the pneumonia death rate and infant mortality rate. He also fought for numerous public health measures, most notably pure food regulations and construction of the city sewage disposal plant. Morgan remained in office through eight city administrations, his dedication and the high quality of his work transcending any partisan considerations.²³

Another vital component of the public health system in Indianapolis during the pandemic was public health nursing. The Flower Mission was the first organization to provide this service to residents in 1879. The Mission had originally been formed by some of the city's affluent women who sought to cheer homebound patients with flowers and friendly conversation. They quickly perceived that the needs of those they visited went much deeper and began working instead to provide them with material assistance,

later expanding the Mission's services to include members of patients' families as well. In 1902 the Flower Mission completed a hospital for patients with incurable tuberculosis and cancer. After studying the needs of families reporting to the city dispensary, the organization's leaders concluded that there was a need for nurses who could go into poor patients' homes and teach family members to care for them. This program led in turn to recognition of the general need for nurses in the community, and the Mission took on this project as well. It expanded so much that it was incorporated as a separate organization, the Public Health Nursing Association. In 1947 its name was changed to Visiting Nurses Association of Indianapolis, and the name Public Health Nurses was used to refer to nurses employed by the city health department.²⁴

Public Health and Sanitation in Indiana: The Indiana State Board of Health

In 1878 the Indiana Medical Association, unable to convince state legislators of the need for a state board of health, formed the State Health Commission, a committee that was to collect and encourage the recording of vital statistics, which was a long-standing goal of the Association. In 1881 the state legislature passed a bill creating the State Board of Health and allowing an annual appropriation of \$5,000 for its budget. The board was charged, in part, with the responsibility to collect and "study the vital statistics of this State and endeavor to make intelligent and profitable use of the collected records of deaths and of sickness among the people [and] make sanitary investigations and inquiries respecting the causes of disease and especially of epidemics."²⁵

The board's first actions were to organize health boards in communities through the state that had none, and to arrange for the routine collection of vital statistics. In the absence of legislation requiring the registration of births and deaths, the latter innovation was routinely ignored. The public and even many physicians did not understand the concept of a health board and its functions, nor the need to register the cause of death. Indiana also lacked a medical practice law, a requirement for physicians to be registered and to have passed some sort of examination or to present proof of adequate qualifications before being allowed to practice in the state. The board functioned for a time as a crude register, having listed the names of the medical schools they considered competent to train physicians, until passage of the Medical Registration law in 1897.²⁶

John N. Hurty became secretary of the State Board of Health in 1896. An Ohio native, Hurty had come to Indianapolis as a pharmacist associated with the Eli Lilly Company. He received his M.D. degree from the Medical College of Indiana in Indianapolis and joined its faculty after graduation, where he served as professor of medicine throughout his career. He became famous as "the Hoosier health officer" during his twenty-six-year tenure at the board. A zealous and indefatigable crusader for the expansion and improvement of public health programs, Hurty wrote a book-length plea on the subject, Life with Health, as well as numerous articles on health and hygiene. Hurty was a highly respected health professional whose dedication and progressive ideas attracted many adherents. He was noted for his directness, acerbic wit, and impatience with what he perceived to be stingy and backward state legislators

who refused for a decade to pass legislation that would allow cities and counties to establish full-time health departments. In fact, after the influenza pandemic was over, Hurty claimed that the number of deaths could have been halved if Indiana had had “efficient all-time health officers.” ²⁷

Medical Science and the Medical Profession in 1918

Throughout the course of the epidemic, health officials at all levels relied heavily on statistics—counts of flu and pneumonia cases and flu and pneumonia deaths—in gauging the strength of the epidemic and determining what course of action to take. The validity of these statistics depended on conscientious reporting by physicians and health officers, but the requirement for making regular reports was a relatively new and not particularly popular one, especially among some older physicians. The Indiana General Assembly had amended the health law in 1899 to provide for the reporting by each county of births, marriages, and contagious diseases on a quarterly basis, and deaths on a monthly basis to the state board; death certificates and burial permits were also to be issued. ²⁸

Hurty worked diligently to enforce this statute, and began publishing the State Board of Health’s Bulletin on a monthly basis to inform the people of Indiana of their state’s health and vital statistics. As a result of the passage of this law in 1899, Indiana joined Michigan, the New England states, New Jersey, and New York in the Bureau of the Census’ Original Death Registration Area. This was something of an honor and one not shared by Illinois or Ohio, which had as yet made no provision for the collection

of mortality statistics on a statewide basis. The registration area changed from year to year until 1933 when it came to encompass the entire United States.

Many physicians saw little reason to determine with any degree of accuracy what their patients had died from, and even less reason to complete the paperwork to report it, when they could be treating patients who were still living. The notion of prevention and the role played by health statistics were still new at this time and were not congruent with the more traditional ideas of healing that were still prevalent in many places. The medical profession in the early years of the twentieth century was still in the throes of a series of changes that had rocked the intellectual world with some regularity since the inception of the scientific revolution.

The traditional, metaphorical way of looking at the human body, which had prevailed for centuries, had been replaced in the latter part of the nineteenth century by an empirical one based on scientific observation and experimentation. The body had been viewed as a system of intake and outgo that had to remain in equilibrium if health was to be maintained. Thus, traditionalists emphasized diet and excretion, perspiration and ventilation. Bleeding and purging were used as means of adjusting the body to seasonal changes, and people routinely resorted to cathartics in order to make sure their bodies remained in equilibrium. Furthermore, medical theory related local to systemic ills, described every part of the body as related to every other, and presented health or disease as general states of the total organism. For example, a distracted mind could curdle the stomach, or a dyspeptic stomach could produce mental

agitation. A lesion might reflect imbalances of nutrients in the blood and might in turn cause systemic ills.²⁹

Prior to the ascendancy of the germ theory of disease, physicians did not believe that specific agents caused illness, nor did they perceive diseases as having a specific cause or going through routinely identifiable stages in the infected organism. In fact, early nineteenth-century hospital records often failed to record a diagnosis because disease was seen as a general state of the human body in relation to its environment, not as a response to a particular agent that would be shared by anyone else afflicted with the same illness. Physicians were expected to draw blood, make the patient perspire, urinate, or defecate—in short, to do something that would seem to restore the body's equilibrium. They could not easily accept the idea that a specific agent could cause disease or that a specific substance could cure it. Quacks had been peddling specific—and useless—cures for centuries, so physicians found the discoveries and claims of the adherents of the germ theory preposterous and scandalously reminiscent of those put forward by such fakirs.

Changes in medicine in antebellum America were inspired largely by developments in the Paris Clinical School. The French school was in the medical avant-garde in the first half of the nineteenth century, having radically departed from traditional views of medicine and the human body. Its proponents saw diseases as specific entities with predictable courses and symptoms that could often be linked with some abnormal physiological manifestation at autopsy. Hence, the autopsy room began to take precedence over the library in medical training, and the data of the senses, aided by

stethoscope and scalpel, eclipsed rationalistic theorizing when dealing with disease and its treatment.³⁰

By the time of the Spanish flu epidemic, the practice of medicine had for the most part assumed a fairly modern face. The training received by the average practitioner had begun to resemble much more closely that of his counterpart in the second half of the twentieth century and less that of a barber or a mechanic. Although the Council on Medical Education of the American Medical Association as late as 1906 still recommended only one year of college for medical school admission, this same period saw a persistent upgrading of the formal medical curriculum. By the end of the 1890s, the teaching of basic science was no longer the domain of practicing physicians—men with no formal training in science per se—and was being taken over by nonmedical doctorates. (This was not the case at all medical schools, however; as noted earlier, Hurty joined the teaching staff of the Indiana Medical College as professor of medicine after his graduation from that institution, although his previous training had consisted solely of a pharmacy course.) The thirteen-week ungraded clinical teaching term had been gradually extended to six-months, and by 1910, practically all medical schools offered four years of graded instruction.³¹

CHAPTER 2:

Spanish Influenza in the United States

Development of the Spanish Influenza Pandemic

The exact point of origin of the Spanish flu pandemic will never be known, but the first wave seems to have begun simultaneously in the United States and the Far East. Localized outbreaks of influenza occurred in March 1918 in some American military camps and may have been carried from there to France by troops joining the American Expeditionary Force. It spread to Spain at the end of April and developed in England in June, where it was christened "Spanish flu." Influenza also appeared in March in the Japanese Navy and in China where it became widespread by May.¹ It had disappeared from the United States and Canada by the end of April, but swept across Europe, North Africa, and India in the spring and summer. It struck New Zealand, the Philippines, and Hawaii by the end of July, thus completely circling the globe in less than five months. The New World was almost entirely untouched by the first wave; except for early eruptions in the United States and Central America, North and South America had remained free of influenza.²

The mild spring wave was not as deadly as the second wave, but observers later noted that this initial round of influenza had been unusual in two respects. First, although there had been few pneumonic complications and deaths associated with the flu outbreak, an unusually large number of those who had died were young adults. Also, the pneumonia cases that did develop involved hemorrhagic and edematous processes

not normally occurring in this disease.³ These disturbing characteristics were to emerge full-blown in the autumn, making the ensuing pandemic particularly fearsome and destructive.

Despite its relative mildness, influenza in the spring and summer infected extremely large numbers of people. Spain, for example, may have earned its eponymous distinction because as a nonbelligerent nation it had no wartime censorship to keep secret from the world the eight million cases that developed there during May and June. Switzerland, another noncombatant nation, suffered 53,000 cases in July alone. So many thousands of soldiers on both sides of the Western Front were stricken that the war effort was temporarily disrupted; flu forced the British to postpone their attack against La Becque in late June, stalled the American Expeditionary Force's only full scale drive of the war, the Meuse-Argonne Offensive, and was given partial blame by General Eric von Ludendorff for halting Germany's last victory drive in July.⁴

The development of new subtypes or variants of influenza and their dissemination were greatly facilitated in 1918 by the movement of large numbers of soldiers from all parts of the world, as well as laborers from China and elsewhere being brought together in Europe. Many of those people were of the ages that proved to be especially susceptible to Spanish influenza; they were often poorly sheltered, and subjected to extremely crowded living conditions.⁵ This combination of circumstances apparently gave rise somehow to a second and much more virulent wave of influenza that began in August in Ashkhabad in southern Russia; Freetown, Sierra Leone; Brest, France; and Boston. How and where it originated will never be known with certainty, but it is

possible that the second wave was caused by a mutation of the first wave's flu virus after it had passed through millions of hosts, or equally possibly, it may have been a completely new flu virus.⁶ Whatever its origin, the "new" virus was on the attack and the stage was set for epidemiological disaster on a grand scale.

The Spread of the Epidemic in Military Camps and the Country as a Whole

When the second and most severe wave of Spanish influenza struck the United States in September 1918, American authorities, like their counterparts in Europe and elsewhere, were ill-prepared to combat this rapidly spreading disease. Some news of the influenza epidemic that had swept across Europe in the summer had filtered through to America past wartime censors, but not enough to fully convey its gravity. What news had gotten through, however, caused the U.S. Public Health Service (USPHS) sufficient concern that on August 16 it instructed quarantine officers in port cities to be on the alert for influenza on vessels coming from Europe. The USPHS ordered them to detain any infection-bearing ships until local health authorities could be notified. (The USPHS did not have the authority to quarantine common, mild illnesses such as flu, which at the time was not a reportable disease for most health departments.) Given the nature of influenza and its ease of transmission, quarantine to be truly useful would have had to be total, an impossibility at so crucial a juncture in the war, even if the USPHS had had the authority to take this step.⁷

Health authorities at Boston, New York, and other ports on the East Coast were already concerned about influenza and were fumigating ships arriving from Spain. After August 12, however, when a Norwegian liner docked at Brooklyn with one hundred passengers ill with influenza, all foreign ships entering the port were fumigated. This was a futile measure because influenza had been reported on American naval vessels at a number of ports around the world. The navy would bear the brunt of the first onslaught of the epidemic; within a short time flu cases appeared among sailors at eastern ports as far south as Florida.⁸

On August 27 influenza struck sailors at Boston's Commonwealth Pier and promptly spread to the First Naval District where 2,000 men were soon infected. On September 3 the first civilian victim of influenza was admitted to Boston City Hospital, on September 4 flu had cropped up at Harvard's Navy Radio School in Cambridge, and on September 8 the first flu case appeared at Camp Devens, near Ayer, in eastern Massachusetts. Authorities quarantined the 41,000 men there, 5,000 of whom developed influenza.⁹

By September 11 flu had developed among navy personnel in Rhode Island, New Hampshire, Connecticut, Pennsylvania, Virginia, South Carolina, Florida, and Illinois. The army had more than 9,000 cases of flu by September 20 and 20,000 cases three days later, having continued to move troops in spite of the Surgeon General's order that men who had been exposed to influenza or who had fallen ill with it should not be transferred from one camp to another.¹⁰

At the same time that the flu pandemic was picking up speed in the United States, the American Expeditionary Force was launching the Meuse-Argonne offensive. Public attention was riveted on the massive effort that aimed to topple the hated Kaiser and end Europe's four-year-long nightmare, so news of the 50,000 flu cases that had broken out among civilians in Massachusetts was largely unheeded.

The USPHS had been created to deal with just such an emergency as the Great Pandemic of 1918, but the Service was still untried and the same was true of the thousands of city and county health departments throughout the country. In theory if a national health crisis arose, the component parts would function as a system; in actuality the planning and organization that would allow them to do so was absent and would be only partially created on an ad hoc basis during the course of the pandemic.

Another handicap with which health authorities had to deal was the war itself. Not only had it been responsible in large part for the spread of the first wave of the pandemic throughout the world, but it had also exacerbated the situation within the United States by moving thousands of young men around the country. This massive movement brought immunologically unexposed youth from small towns and rural areas to overcrowded army and naval training camps that were about to become veritable pesthouses. Further, the unlimited and relentless demands of the war effort monopolized the nation's energy and resources, diverting official attention from the looming health crisis. Even the speedy and unanimous approval by Congress on September 26 of a \$1 million appropriation to fight the flu was motivated in considerable part by concern that the epidemic would knock out industrial and munitions manufacture and

thus impede the war effort.¹¹ This was a realistic concern; by the following week, there were 2,000 flu cases among shipyard workers in New England and the North Atlantic states, a figure that represented 10 percent of the workforce there. Unchecked, the epidemic could have crippled the nation's shipbuilding capacity at a critical time.¹²

One million dollars was a very large sum of money in 1918—fully a third of the entire USPHS budget for the year—but it was only a fraction of the estimated \$6 billion needed to defeat Germany. The Argonne offensive was rapidly draining American coffers, and on October 4, regardless of the advance of Spanish influenza on the domestic front, the federal government launched its Fourth Liberty Loan drive to raise this sum. The drive would entail thousands of contagion-spreading meetings, rallies, and door-to-door solicitations, but the need to win the war outweighed this consideration. Officials in cities and towns all over the country would follow similarly conflicting courses of action—on the one hand, fighting desperately to suppress the epidemic, yet on the other, opening a breach in their epidemiological defenses by allowing the loan drive to take place.¹³

Yet if military considerations often took precedence over the welfare of civilians during the pandemic, army and navy personnel were struck sooner and more severely by the pandemic than the civilian population. Spanish influenza peaked among navy personnel on shore duty in the United States in the last week of September, among army personnel during the week ending October 11, and two weeks later in the civilian population in the eastern part of the country. Frequently the first news of influenza in a city's newspapers referred to military camps and their personnel. (This was certainly

true in Indianapolis, where the first reference to Spanish influenza in the newspaper described its progress among sailors of the First Naval District in Boston.)¹⁴

Because the armed services were in the vanguard of the epidemic, they were to a considerable extent the foci from which the disease emanated to the civilian population. The navy reduced travel between stations in accordance with the Surgeon General's order, but that did not prevent sailors from carrying the disease home with them on furlough to all parts of the country or to other seaports and training detachments. Influenza first appeared on September 11 at Great Lakes Naval Training Station, thirty miles north of Chicago, three days later reached that city's northern suburbs, nearest the station, and rapidly progressed south. (Influenza was brought to Peru, one of the first cities in Indiana to report the disease, by a young sailor home on furlough from Great Lakes.) Similarly, influenza became epidemic in Seattle on September 25, well before other cities in the Pacific region, because infected sailors from the Philadelphia Naval Yard had brought the disease to Puget Sound Naval Yard on September 11.¹⁵

This is not to suggest that military personnel were the only disseminators of influenza. The disease's short incubation period and sudden onset made merchant seamen, railroadmen, and other travelers unwitting carriers, but soldiers were quite numerous and traveled to and from virtually every community in the country. Also, the transmission of influenza was facilitated by the army's policy of cramming troops being transported so closely together on trains that mass infection was assured even if only a few men had been exposed to the virus. However, in a belated attempt to stop the

spread of influenza, the War Department halted this practice in early October, reduced troop shipments to France by 10 percent, and ordered a reduction in the intensity of training at all army camps.

Unfortunately, the War Department's action was too little and too late; prompt action on the part of army leaders at an earlier point might have damped the epidemic in the camps, but by the time Provost Marshal Crowder cancelled draft calls scheduled for October 7 and October 11, there were already 35,000 cases of influenza in army camps. New cases were developing at the rate of 6,000 and 7,000 a day, and only 13 camps had not yet reported flu.¹⁶ The death rate in the camps before the epidemic began had been 4.4 per thousand but swiftly rose to 32.4 per thousand as flu and pneumonia took their toll. By mid-October the number of new cases in army camps was declining, but the epidemic did not completely burn itself out until a month later.¹⁷

The Indianapolis newspapers published items almost solely about the camps nearest Indiana: Camp Grant in Rockford, Illinois; Great Lakes Naval Training Station north of Chicago; Camp Sherman in Chillicothe, Ohio; and Camp Taylor near Louisville, where most of the draftees from Indiana reported in 1917.¹⁸ The situation in these camps was very serious during the epidemic, with obituaries of the many men from Indiana who had died there appearing in the Indianapolis newspapers on a daily basis. As of October 10, over 6,000 of the 36,000 men stationed at Camp Sherman had had flu. One third of those infected developed pneumonia, which had a death rate of 40 percent. Camp Taylor had had over 11,000 flu cases by October 17, and Camps

Grant and Sherman had lost over 1,000 men each to flu and pneumonia by the month's end.¹⁹

In the country as a whole, flu spread from the Northeast to the South, the Midwest, and the West Coast, peaking in the eastern states several weeks before it did in the West.²⁰ Information coming to the USPHS on October 3 showed influenza rapidly spreading among civilians nationwide, having appeared in forty-three states. It was epidemic in New England, tidewater Virginia, South Carolina, and other places, and was prevalent along the Atlantic seaboard and the Gulf Coast. By October 5, the USPHS announced that influenza was epidemic in New Jersey, parts of Pennsylvania, Maine, Delaware, all of Virginia, and Alabama. By October 8 flu had spread throughout the South and eight days later was epidemic in practically every state, with only Massachusetts showing any improvement. Conditions were serious in most of the coastal states from Maine to Florida; cases were increasing in Washington, Oregon, and California, and in Chicago, which had a full closing ban in effect.²¹

Swollen by thousands of war workers, the population of Washington, D.C., proved especially susceptible to the epidemic as a housing shortage forced new arrivals to live in extremely overcrowded conditions. According to the Star, officials in Washington were taking extraordinary precautions to protect from influenza employees of government bureaus vital to the war effort. They ordered all galleries of Congress closed, except for press galleries, and barred all visitors other than attorneys from the chambers of the Supreme Court. Government officials even considered curtailing the steady influx of war workers into the city until the worst of the epidemic passed; there

TABLE 1

New Influenza/Pneumonia Cases

Indianapolis - October-December 1918

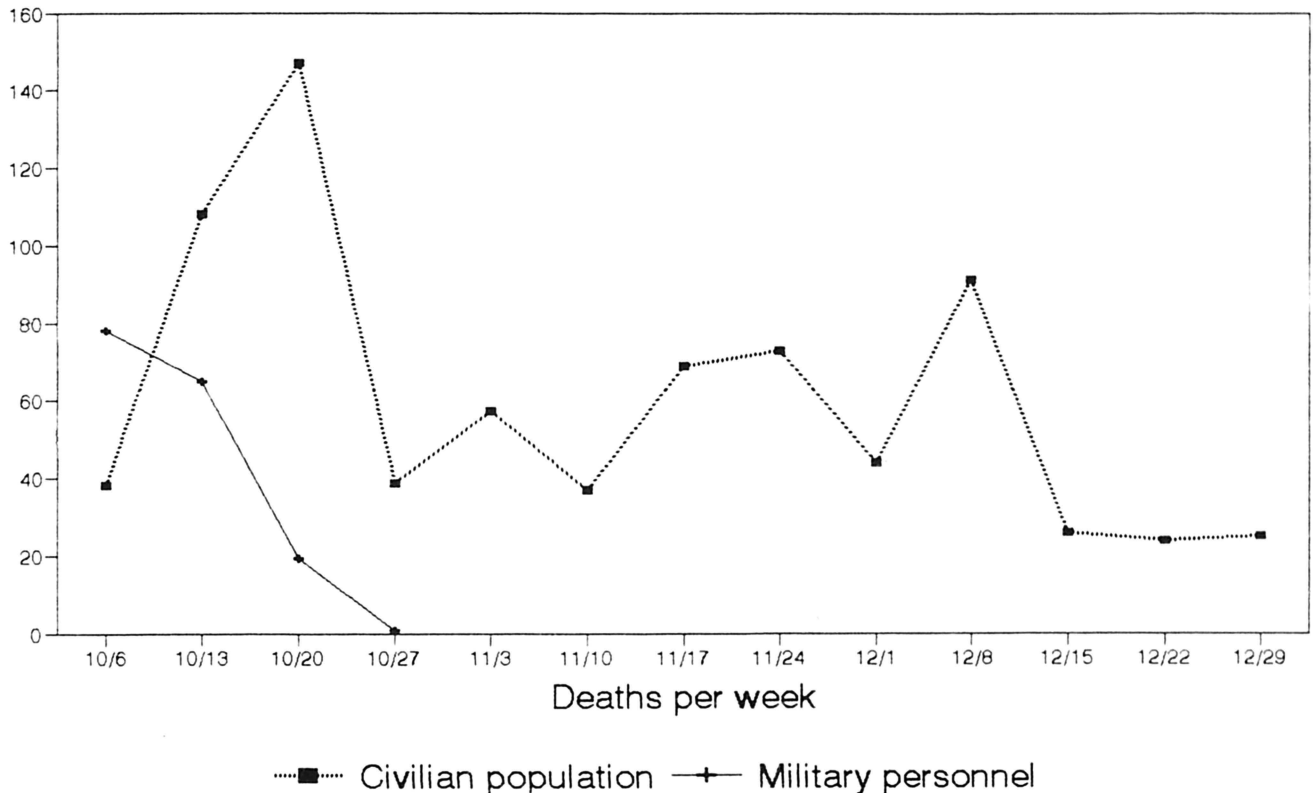


Sources: For the civilian population, Special Tables of Mortality from Influenza and Pneumonia in Indiana, Kansas, and Philadelphia, Pa., September 1 to December 31, 1918, "Mortality from Influenza and Pneumonia," U.S. Department of Commerce, Bureau of the Census, Washington Government Printing Office, 1920, p. 155. For the military population, the Indianapolis Star and the Indianapolis News, 10/9/18 to 1/5/19.

TABLE 2

Influenza and Pneumonia Deaths

Indianapolis, October-December 1918



Sources: For the civilian population, Special Tables of Mortality from Influenza and Pneumonia in Indiana, Kansas, and Philadelphia, Pa., September 1 to December 31, 1918, "Mortality from Influenza and Pneumonia," U.S. Department of Commerce, Bureau of the Census, Washington Government Printing Office, 1920, p. 155. For the military population, the Indianapolis Star and the Indianapolis News, 10/9/18 to 1/5/19.

were no empty hospital beds anywhere in Washington, and influenza was spreading unchecked in boarding houses where three and four people shared a single room. A week later the Departments of the Treasury and the Interior issued orders that no new employees would be brought to the city until further notice; other government agencies, expanding rapidly because of the war, and still in need of clerical help, were expected to follow suit.²²

By October 20, the pandemic was loosening its grip on the eastern part of the country, but was still strong elsewhere. Conditions had improved in the Midwest by the end of the month, but the crest of the epidemic did not strike the West until a week or so later. Even then the crisis was not over as influenza returned to the South, Midwest, and the far West in a second wave of equal severity to the first. The East did not experience the second wave, although there were exceptions, especially Massachusetts whose health authorities warned other regions of the disease's dangerous recurrence.²³

The Spread of Influenza in Indianapolis

The first cases of Spanish influenza among civilians in Marion County occurred in September 1918 at a camp of laborers who worked for a construction company in Beech Grove. Indianapolis Health Department officials suspected that there were another 25 cases among the civilian population, but could not confirm this. (Mayor Charles W. Jewett was among the early cases, but he soon recovered.) By Saturday, October 5, the number of cases had jumped to 123, and 78 more cases were reported Sunday. By Monday, October 7, the civilian death toll from influenza and pneumonia

had reached 20, and a total of 48 soldiers and military trainees had died. By the end of the first 7 days of October, 507 cases of influenza had developed among civilians and 2,171 among military personnel. (Table 1 shows the weekly incidence of new cases of influenza among the civilian population and among military personnel respectively for the period October 1, 1918, through December 31. Table 2 shows the weekly incidence of influenza and pneumonia deaths for both groups during the same time.)²⁴

According to reports of the Indianapolis Health Department that the Star and News published, there were 11,465 cases of influenza in the city during the last three months of 1918. In that 3-month period, the epidemic advanced and retreated in 3 cycles. Among the civilian population of Indianapolis, Spanish influenza spread at a rapid rate from October 10 through the end of the month. It reached official epidemic stage on October 11 when the total number of cases exceeded 5 per 1,000 population.²⁵ Once the flu had gained momentum, the number of new cases reported daily was fairly high, 200 on 10 separate days in October. The number of deaths was correspondingly high: There were 53 deaths on October 22 and 45 on October 25, but most of the time the daily mortality figure hovered in the teens and twenties.

November showed signs of improvement. For the first 8 days of the month, the number of new cases was significantly lower than in October—well below 100 per day, with the exception of November 3 when 121 new cases appeared. Deaths were lower too, 10 or fewer per day except for November 6 when 30 people died from flu and pneumonia. The epidemic flared up again, however, after the crowded celebrations of the false and actual Armistice days; 100 new cases were reported on November 12 and

again on the 15th. Thereafter, new cases returned to the higher levels seen in October and stayed there until November 26. The number of deaths did not follow suit and hovered in the teens. Between November 27 and December 3, new cases were below 100 per day, but rose again in a third, weaker resurgence of influenza during mid-December. During this third wave, the number of deaths per day remained in the lower teens. From December 18 on, the number of new cases declined slowly and reached near-normal levels by the first week in January. On January 5 for the first time since early October, no deaths from influenza or pneumonia were reported to the city health board.²⁶

There were 34 influenza and pneumonia deaths in Indianapolis in September, 430 in October, 303 in November, and 247 in December. Between September 1 and December 31, 1918, out of a population of 289,577, 1,014 people died in the pandemic. This number represents a case mortality of 8.8 percent; this means that 8.8 percent of the 11,465 cases of flu reported to the city health department ended fatally. Spanish influenza typically killed no more than 2 or 3 percent of those it infected, so 8.8 percent seems rather high. It is more probable that flu cases in Indianapolis were underreported, as they were elsewhere in the state. There is no way to know for certain how many cases of flu there actually were in Indianapolis, but it is possible to make a reasonably good guess. In 1919, the U.S. Public Health Service conducted a house-to-house survey of eleven cities and towns across the country to determine what proportion of the population had contracted flu during the pandemic. The results showed that 280 out of every 1,000 persons had been ill with flu. Based on this ratio, an estimated 28

percent of the population of Indianapolis—or 81,081 people—might have had flu. Using this number rather than that officially reported to the health department gives a percentage of fatal cases—1.25—much more in line with the 2-3 percent normally associated with Spanish flu. In other words, for every flu case reported, seven may have gone unreported. Given the highly contagious nature of the disease, it is not impossible to believe that 81,000 people contracted it during the winter of 1918-19. As far as underreporting of cases is concerned, during the pandemic, officials of the State Board of Health frequently voiced their suspicions that they were being notified of only a fraction of flu cases. Doctors were simply too busy fighting Spanish flu to keep up with their paperwork, and there is no reason to believe that doctors in Indianapolis were an exception.²⁷

The Spread of Influenza at Indianapolis Military Camps

As in many other cities in the U.S., the first visitation of Spanish influenza in Indianapolis occurred at a military facility. Indianapolis had a large army post, Fort Benjamin Harrison, nine miles northeast of the city, and three army vocational detachments in its midst. Vocational Detachment No. 1 was quartered at the Metropole Hotel in the city's downtown, Detachment No. 2 at the Indiana School for the Deaf on the city's northside, and Detachment No. 3 at Arsenal Technical High School, a mile east of Monument Circle. Indianapolis was also home to an aviation depot at Speedway, and a Student Army Training Corps (S.A.T.C.) unit at Butler College in Irvington, a suburb five miles east of the city.²⁸

Newly constructed in 1906, Fort Harrison had been selected as one of a series of key mobilization and training sites for specialty functions critical to the overall war effort, and as a result continuously housed large numbers of soldiers.²⁹ In August the War Department changed the Fort's function to that of a hospital for sick and wounded, and on September 21, 1918, General Hospital No. 25, as it was designated, began receiving the first casualties. Just 6 days later 60 mild cases of influenza had cropped up at the Fort.³⁰

When the number of cases grew to 200 within a 2-day period, the Fort's medical officer placed the post under quarantine. By October 6 there were 1,100 cases of flu and 128 cases of pneumonia, an onslaught of disease that overwhelmed the Fort's hospital and its personnel, who were attempting to care for 1,600 patients in a 300-bed facility. The Red Cross committee appealed to the Indianapolis community on the Fort's behalf for nurses, who were desperately needed to staff the wards, and for pajamas, nightshirts, and bed linens for patients with the flu.³¹

Influenza's initial appearance among the vocational detachments was reported on September 28; 150 cases had developed at the Deaf School, which was placed under quarantine by commandant Major J. Dalbey Crawfis. Authorities believed that 3 or 4 cases had developed at the Metropole Hotel, but none had surfaced yet at Tech.³² Within two days, however, the situation had changed drastically. There were 93 cases at the Metropole, 523 at the Deaf School, and 30 at Tech, causing superintendent of schools, E.C. Graff, to postpone the opening of the fall semester at the high school. The Deaf School had originally been intended to house all the soldiers in the vocational

detachments, but first a new building had to be constructed there to accommodate them. In the meantime, 500 soldier trainees were staying in the Metropole Hotel and 50 were at Tech. Construction came to a halt when 104 out of the 150 carpenters at work on the project were felled by influenza. The new building was not completed and ready for use until October 21 when the soldiers at Tech and at the Metropole were transferred to the Deaf School. On October 6 the first flu cases appeared at the Butler S.A.T.C. unit when seventeen men were reported ill. By the next day the number had jumped to forty-five and an emergency hospital for Butler students was established in Irvington.³³ Influenza continued to claim victims at the Fort, the vocational detachments, and the S.A.T.C. unit through the next 2 weeks, but had subsided by the end of the month. There was a total of 3,089 cases of flu and pneumonia at Fort Harrison and 182 deaths; the detachments had suffered over 700 cases and 45 deaths; the Speedway depot had had 18 cases and 2 deaths; and Butler had had 35 cases but no deaths.³⁴

CHAPTER 3:

Official Responses to the Pandemic

Indianapolis' Response to the Crisis

The Spanish influenza pandemic caught health and government officials everywhere off guard, and those in Indianapolis were no exception. In September 1918, before Spanish influenza appeared in Indiana, health officials knew that the Northeast was struggling with a deadly pandemic that severely strained their capacity to deal with it. Large numbers of people fell ill and required medical care at the same time, leading to a shortage of doctors, nurses, hospital beds, and medical supplies. Often entire families were rendered helpless by the flu, too ill to leave their beds to care for one another. Many of those afflicted were in the age group responsible for the maintenance of society. Doctors and nurses fell ill, as did police, firefighters, postal carriers, grave diggers, telephone operators, factory operatives, shipyard workers, soldiers and sailors, and numerous other essential members of the workforce.

Knowing what was happening in Boston, Philadelphia, and New York City, it seems that local officials could have planned in advance for the mobilization and coordination of health resources, and alerted community leaders to the need for a contingency plan so that basic services would not be interrupted if the epidemic was severe. As it was, such planning was not started until the epidemic was well underway, and the crisis had begun to assume alarming proportions.¹

In Indianapolis, the patterns of response varied among groups according to their function and status and were sometimes altered in the course of the epidemic. The groups and organizations whose reactions to the pandemic will be analyzed here are the city and state boards of health, municipal officials, the American Red Cross, the business community, and the general public. The actions of the U.S. Surgeon General and the United States Public Health Service (USPHS) will also be discussed due to the salient role they played throughout the epidemic.

In Indianapolis and much of the state, official responses to this public health threat focused on preventing the spread of influenza and allocation and coordination of resources. Preventive efforts, which began before the epidemic struck Indianapolis and continued for its duration, consisted of health education, stepped-up public sanitation efforts, a closing ban, and the enforced wearing of gauze masks in public. Resource mobilization, on the other hand, did not begin until influenza was widespread and there were simply not enough doctors, nurses, and hospital beds to accommodate the large numbers of people too debilitated by sickness to care for themselves. Nurses were at a premium as it quickly became apparent that in many cases their services were more instrumental than a physician's ministrations in bringing about a patient's recovery. Consequently, nursing care was a resource of especially great value.

As would be expected, health officials took the lead in combating the epidemic, while the role of city officials was primarily to implement the recommendations of the Indianapolis Health Department. The business community and the public for the most part complied with the health board's dictates, although not always cheerfully. This

pattern prevailed from September until mid-November when the closing ban was lifted in the city. At that time relations between the board of health and the rest of the community became strained, as various groups challenged official efforts to combat the resurging epidemic. State health officials publicly expressed their lack of confidence in the ability of local health officers to control the epidemic in their communities, and the Indianapolis newspapers began to report accounts of resistance on the part of the business community and the public to prevention efforts in many parts of the state. This was in marked contrast to the sense of cohesion that characterized the epidemic before the Armistice on November 11.²

While prevention measures were carried out in the public sector, resource mobilization and relief work occurred more in the private domain, primarily under the aegis of the American Red Cross and the Indiana branch of the American War Mothers. Charitable groups, such as the Flower Mission and churches performed relief work, but this was done as the need arose and not as part of any coordinated, larger-scale initiative.

State and local health officials, as well as the U.S. Surgeon General and the USPHS, focused much of their energy on prevention, hoping to avert a national health catastrophe. Health education—disseminating information about Spanish influenza and related health matters—to the general public was the cornerstone of their prevention efforts. Health officers tirelessly advised the public via pamphlets, newspapers, the telephone, and word of mouth regarding the dangers of Spanish influenza. They instructed people how to build resistance to influenza and what to do if the illness struck.

An obvious but unstated function of health advisories and daily updates on the number of new flu cases and deaths was to mobilize public opinion in support of action taken in the course of the epidemic by local boards of health. This support was needed to buttress the authority of the still-fledgling city and state boards in the face of opposition to closing bans and the wearing of flu masks.

In the private sphere, people needed health information so they could act to protect themselves and their families. Action in the public sphere was required to limit the spread of infection by those who could not or would not protect themselves against illness, thereby threatening the general welfare. On the one hand, persons not yet experiencing influenza symptoms might unwittingly act as sources of infection. On the other hand, others who were unwilling to take to their beds at the first sign of illness, might heedlessly spread their germs abroad before the disease struck them down. The only way to limit the harm inflicted by both groups of carriers was to minimize opportunities for widespread personal contact. This meant prohibiting public gatherings such as church services, sporting events, meetings of voluntary associations, business conventions, balls, dances, and parties. Authorities closed schools, theaters, movie houses, and “dry” saloons, although they allowed restaurants, drug stores, and other retail establishments to remain open.³

This prohibition could not be absolutely enforced because workers still had to go to their jobs and people had to purchase food and other necessities. Doing these things required for many residents travel on crowded streetcars in a city that had grown too large to be traversed on foot. Health officials believed that people were especially

vulnerable to flu germs in enclosed spaces, so they requested that streetcars be operated with their windows open. Health officers strongly and repeatedly emphasized the importance of fresh air and proper ventilation, but streetcar conductors and some members of the public did not cooperate in keeping windows open.⁴

The value of wearing gauze masks in public to prevent the spread of influenza by droplet infection was often mentioned by Dr. Herman Morgan, head of the Indianapolis Health Department, but was not put into practice in Indianapolis until after the Armistice on November 11, 1918, when the closing ban had been lifted and the number of new cases and deaths began to climb again. This was a very unpopular measure, although many people did comply.⁵

Health Education and Spanish Influenza

Before the pandemic began in earnest, U.S. Surgeon General Rupert Blue recognized that not only the public but also physicians themselves needed to be educated about influenza. In mid-September, after a telegraphic survey revealed that flu was springing up in a number of ports along the Atlantic and Gulf Coasts, he issued a special bulletin to the medical community describing the disease's symptoms, the way it was transmitted, and recommendations for its prevention and treatment. An earlier influenza pandemic had occurred in 1891-92, and since more than twenty-five years had passed, Dr. Blue expressed concern that many of the physicians practicing in 1918 would be unprepared for the epidemiological onslaught that was almost certainly headed their way.⁶

“The disease is characterized by sudden onset,” Blue told the Associated Press. “People are stricken on the streets, while at work in factories, shipyards, offices or elsewhere. First there is a chill, then fever with temperature from 101 to 103; headache, backache, reddening and running of the eyes, pains and aches all over the body and general prostration.” He advised persons so stricken to go to bed at once and call a physician. Treatment consisted principally of rest in bed, fresh air, abundant food, with Dover’s powder for the relief of pain. “Every case with fever should be regarded as serious, and kept in bed at least until temperature becomes normal. Convalescence requires careful management to avoid serious complications, such as bronchial pneumonia, which not infrequently may have fatal termination. During the present outbreak in foreign countries the salts of quinine and aspirin have been most generally used during the acute attack.” As to prevention, Blue judged quarantine unfeasible in the case of an influenza pandemic, relying instead on “intelligent action on the part of the public.”

Dr. Herman Morgan, head of the Indianapolis Health Department, began his educational efforts on September 24, before the first case of influenza had appeared in Indianapolis. He urged people to “take care of a cold because it might take on an increased virulency and cause pneumonia,” to avoid exposure to colds and pneumonia, isolate pneumonia patients, and seek medical attention when pneumonia or a severe cold developed. Morgan advised the public that resistance to influenza required observing ordinary rules of good health, such as getting adequate rest, fresh air, and outdoor exercise, and eating a plain diet. He also recommended that people keep their

feet warm and dry, bathe regularly, and cover their noses and mouths with a handkerchief when coughing or sneezing.⁷

In response to numerous requests for instructions on how to make masks for those nursing flu patients, Morgan issued a statement to the newspapers: the mask consisted of a piece of surgeon's gauze, folded in four or five layers into an oblong six to eight inches long, which was wide enough to cover the nostrils and mouth, and secured by string or elastic tape fastened to each corner and placed around the head.⁸

Morgan repeated similar advice several times during early October as the incidence of influenza rose to epidemic proportions. He exhorted the public to wear suitable, dry clothing, sleep in well-ventilated rooms, and avoid overeating. Above all, those with colds were to stay indoors and avoid crowds, both for the sake of their own health and that of others whom they might infect. Public sanitation was also essential; all places where people congregated were to be washed and kept clean. Morgan urged citizens to, "report all insanitary conditions and failures to ventilate buildings properly. Every citizen is a health officer in the efforts to prevent an epidemic of influenza."⁹

Morgan repeated the message to school nurses, providing them with a list of anti-flu axioms to pass along to teachers and school children. Persons with colds were to take proper care of themselves, he warned; trying to "wear a cold out" frequently brought on pneumonia. Influenza victims were to call a physician and go to bed and stay there until recuperation was complete. Pneumonia and its often fatal outcome were typically caused by convalescents' premature return to their normal activities without giving their heart muscles the opportunity to repair themselves.¹⁰

In early October, Morgan, like health officials in other cities, requested the citizens of Indianapolis to refrain from burning leaves. The clouds of smoke so produced irritated the nose and throat, he explained, and should be avoided while the city faced an epidemic that spread through those organs. Later in the month as Halloween approached, Dr. John Hurty, secretary of the Indiana State Board of Health, expressed concern that “false faces” would become a means of spreading influenza germs and cautioned merchants not to allow customers with colds to try masks on before purchasing them.¹¹

In mid-October, the State Board of Health printed and mailed to county health commissioners for distribution to the public circulars explaining how to identify and treat influenza, repeating the same advice that Morgan had given. Dr. John Hurty, secretary of the Indiana State Board of Health, urged people to rely on avoiding colds rather than taking the cold remedies that were on the market. Surgeon General Blue was also concerned about the so-called influenza “cures,” both manufactured and home-made, that tempted the gullible with their claims. “The health service,” he warned, “urges the public to remember that there is as yet no specific cure for influenza and that many of the alleged ‘cures’ and remedies now being recommended by neighbors, nostrum vendors and others do more harm than good.”¹²

Health officials repeatedly emphasized the importance of taking proper care of a cold or a case of influenza in order to avoid pneumonia. They wished to underscore the seriousness of influenza, but sometimes overstated their case. Several members of the State Board of Health declared that there was “little or no danger from flu if the

patient goes to bed at the first symptoms. The danger lies in pneumonia which follows an attempt to wear the disease out.” For example, Dr. W. D. Gatch, president of the board, said it was his belief that not more than one case in five hundred would be fatal if the patient went to bed at the first sign of flu. This advice ignored the fact that flu was characterized by sudden onset; often the first sign of infection was collapse, which obviously deprived the victim of an opportunity to “wear the disease out.” ¹³

The Closing Ban and the Masking Order: The Statewide Closing Ban

On September 26, when Spanish influenza began cropping up all over the country, the State Board of Health instructed health officers throughout the state to impose closing bans in their communities as soon as influenza became epidemic locally; that is, when there were 5 to 10 cases of influenza per 1,000 population. ¹⁴

The statewide closing ban went into effect on October 9, 1918, and ended on November 2, 1918. The State Board of Health acted to issue a general closing order only after U.S. Surgeon General Blue sent telegrams to the state health boards on October 6 suggesting that they issue closing orders where the danger of an epidemic existed. Dr. William King, assistant secretary of the state board, immediately telegraphed all county health officers in Indiana to issue closing bans and directed physicians in the state to report all influenza cases to city or county health officers, who were in turn to report them to the state board. ¹⁵

King acted without the formal authority of the State Board of Health when he unilaterally issued a general closing ban, but the board formally approved his action at

its next session on October 9 when it issued the most widespread closing order in its history. The board initially intended the ban to be in effect only through October 21 but voted twice to extend it due to a strong resurgence of influenza in counties where the epidemic had appeared to be abating. The board officially ended the statewide ban at midnight on November 2, 1918.¹⁶

The state order, which was quite similar to that in effect in Indianapolis, prohibited all public gatherings in Indiana. That included schools of all types, reading rooms of public libraries, funerals, churches, and theaters and other places of public amusement. Local health officers could also close poolrooms, bowling alleys, clubs, and dry beer saloons if they saw fit. Court sessions were exempt from the ban, but judges were asked not to permit crowds in the courtrooms. Hurty encouraged local health officers to interpret the order more stringently if they saw fit, and ban any gathering they deemed a threat to public health, except for essential war activities of Red Cross units and conferences of Liberty Loan workers.¹⁷

Some stipulations of the closing ban applied to public transportation. Street-cars, interurban cars, and railway passenger cars were to be thoroughly cleaned after each service trip and public conveyances were to leave their ventilators open in all weather. Their windows could be shut only during rainstorms or in temperatures below 56 degrees. The order also prohibited public spitting as well as coughing and sneezing without holding a cloth or paper handkerchief over the nose and mouth. Anyone violating the closing order was subject to fines ranging from \$5 to \$50.

Physicians were to report promptly to the local health officer all cases of influenza coming under their care; city and town health officers were to report this information to county health commissioners, and they in turn, were to make a daily influenza report to the State Board of Health.

The Closing Ban and the Masking Order: The Indianapolis Closing Ban

During the epidemic, there were two separate bans in effect simultaneously in Indiana communities: The general closing order issued by the State Board of Health and concurrent bans issued by the local health officers. The chief health officer in a locality had the authority to order a closing ban before the state board issued one and make it more restrictive than the state ban. However, once the state ban was in place, he could not lift the ban he had issued without permission from the state board, nor could he make it less restrictive than the state ban. The Indianapolis Health Department issued a closing order on October 7, 1918, and repealed it October 30, 1918, one day ahead of the rescinding of the statewide ban.¹⁸

On September 28, 1918, with the first cases of influenza having already broken out in the city, Morgan instructed theater managers to refuse admission to patrons suffering from coughs and colds and told school personnel to send home pupils who had symptoms of colds or flu. He expressed the hope that less drastic measures than issuing a closing ban could forestall a flu epidemic. Local theater managers, anxious to keep their businesses open, promised to cooperate fully.¹⁹

In the belief that the Spanish influenza “germ” was more likely to thrive in dirty places, officials of the city health department turned their attention to public sanitation. Morgan had previously ordered that the owners and proprietors of all public places, such as theaters, railway stations, streetcars, and hotel lobbies to have them thoroughly cleaned. Now with an epidemic looming, he assigned inspectors to ride the streetcars to make sure that they were kept clean and that no one spit in them. Soon after, he ordered streetcars to be operated only with their windows open so that influenza would not be spread among the passengers.²⁰

Mayor Charles W. Jewett showed his support of Morgan and the Indianapolis Health Department by directing the chief of police to enforce vigorously the city’s anti-spitting ordinance. Jewett also ordered the fire department to flush the downtown streets, a completely ineffective prevention effort, but nonetheless one of the few municipal initiatives displayed during the epidemic.²¹

By October 7, as influenza began spreading rapidly through the civilian population, Morgan instituted a strict closing order in the city. The ban, which prohibited all public gatherings of five or more persons, applied to theaters, motion picture houses, churches, city schools, parochial schools, business schools, colleges, and all meetings except those of Liberty Loan committees. Businesses and factories were not affected. Morgan discouraged people from visiting each other in their homes and warned that funerals should be attended only by relatives and close friends to lessen the spread of infection.²²

The next day, he expanded the order to include poolrooms, bowling alleys, and skating rinks; dry beer saloons were allowed to remain open, but only if customers were prevented from congregating in them. The ban did not include court sessions, but Morgan recommended that courts adjourn during the epidemic, especially in cases that would require a jury to deliberate in the courthouse's cramped, unventilated jury room.²³

Even though 1918 was a congressional election year, political rallies and meetings were not exempted from the closing ban. Speakers scheduled for the week before the election had included such prominent figures as Warren G. Harding, Albert Beveridge, and Senators Harry New and James Watson, but local party leaders dutifully cancelled their engagements, forcing candidates to fall back on advertising instead of oratory to stimulate the voting public.²⁴

The closing order quickly made apparent the social role played by the schools in keeping rowdy juveniles off the streets and out of trouble. As soon as the schools closed, the police began receiving complaints of business windows being soaped, fences torn down, and other property being destroyed. Authorities in some communities ordered children and youth to stay in their homes or at least in their own yards in order to avoid contagion, but Indianapolis officials did not resort to this restriction. Instead police patrolmen were ordered to disperse any crowds of boys found congregating on street corners and to arrest those carrying sling shots.²⁵

On October 11, with indications that flu and pneumonia would reach epidemic stage in Indianapolis within the next few days, Morgan extended the closing ban again.

He promptly closed dry beer saloons after their proprietors had allowed crowds to congregate. He forbade hour bargain sales in department stores, warned the managers of 5-and-10-cent stores to disperse crowds of shoppers, and requested all store owners to make certain that elevators were not crowded and that employees with colds were sent home.²⁶ After meeting with representatives of the Merchants' Association the following day, Morgan expanded the closing ban by altering the opening and closing hours for downtown businesses. All retail stores, except drugstores and groceries, were to open at 9:45 a.m. and close at 6:15 p.m. in order to prevent crowding on streetcars.²⁷

Members of the Indianapolis Church Federation complied with the closing ban by cancelling Sunday services. The Indianapolis Star sought to fill the spiritual void by publishing on Sundays a special feature called "Worship with the Star." It was "a complete program of religious exercises for home use," consisting of hymns, scripture lessons, prayers, and sermons by prominent Catholic, Protestant, and Jewish religious leaders.²⁸

In view of the chilling effect the closing ban had on the commercial and social climate of the city, it is surprising that the order met with little resistance or complaint. The forced closings undoubtedly caused considerable hardship for small and marginal businesses; the closing of places of amusement meant people had less reason to go downtown, thereby reducing the volume of business at those establishments that remained open. Theater owners lost a great deal of money during the ban, and theater people—the traveling vaudevillians and actors in the touring stage productions that were public entertainment before the age of movies and radio—were especially eco-

nomically vulnerable. Often low on money when they arrived in the city, and dependent on the engagement they were about to play for fare to their next destination, many were stranded wherever they happened to be when the closing ban fell.²⁹

The newspapers reported little dissent, except for the owners of the dry beer saloons, who objected vehemently to being closed down while restaurants and soda parlors remained open. Morgan responded that the other establishments were well-ventilated and that their patrons did not tend to congregate in them; by contrast, the atmosphere of saloons was “conducive to the transmission of disease germs” because men assembled there “to play cards and to loaf.”³⁰

The closing ban remained in place until October 30 when the Indianapolis Health Department voted, independently of the State Board of Health, to lift the ban on public gatherings effective the next morning. Hurty voiced a note of caution to officials in communities that had recently been severely affected by the epidemic; Massachusetts had advised other states not to follow its example and lift their bans too soon. People in Massachusetts had been anxious to lift the ban for “business reasons;” the consequent resurgence of influenza in some areas was “five times more fatal than the original.”³¹

Schools reopened Monday, November 4, and business returned to normal with the exception that, as before the closing ban was instituted, people with coughs or colds were not to be admitted to theaters, and streetcar windows were to remain open. Downtown was usually thronged with merrymakers on Halloween, but Morgan urged the public to stay home even though the ban was lifted and continue to observe

precautions against catching influenza. Apparently people heeded his warnings, and the holiday passed with scant celebration.³²

City health officials commented on the “splendid manner” in which people had complied with the closing order and credited most members of the business community for their spirit of cooperation. Like the saloons, the Indianapolis Traction and Terminal Company was an exception. The company’s owners voiced no complaints against the health department’s actions, but its conductors were not keeping the streetcar windows open and were not heating the cars. Passengers reported these violations to the city health department, prompting Morgan to remind John Mahoney, superintendent of the streetcar company, that ventilation was required.

Morgan predicted that there would be a temporary increase in the number of new cases of influenza because of the Armistice Day celebrations on Monday, November 11. Case numbers were indeed on the rise by Saturday and continued their upward trend Sunday and Monday. On November 19 the Indianapolis Health Department issued an order requiring the wearing of protective masks in public. They were to be worn by all citizens while in any store, office, factory, public building, theater, church, streetcar, or any public gathering place. Masks did not have to be worn in private homes, on the street, or while eating in public. Store employees were to wear masks while working, and patrons were to put their masks over their faces immediately upon entering a store. Barbers and dentists, waiters and food dispensers were to be masked, as were elevator operators and streetcar conductors. Actors, ministers, and public speakers could remove their masks while speaking, but were to replace them when

done. In order to discourage profiteering, health officials declared that a ready-made mask should cost no more than a dime, and the price of material for five or six masks should be about twenty-five cents.³³

Later in the week, the city board of health ruled that people did not have to wear masks in well-ventilated places and where there were no crowds. The board also closed the public schools for an indefinite period of time and discouraged all public meetings that were not of vital importance. John Loucks, chief of the fire department, sent notices to all fire engine houses instructing that the loafing of outsiders at the engine houses should be discouraged. The public library and its branches were closed too, primarily because staff attrition due to illness precluded enforcement of the masking order among patrons. No business establishment would be closed unless its operators permitted violations of the masking order, Morgan said. The city health department had considered reinstituting the closing ban, but decided against it because of the disastrous consequences it would have for business during the Christmas shopping season.³⁴

The Indianapolis Health Department decided to close the elementary schools because officials thought it would be difficult to keep masks on young children. Although high school students would probably have cooperated in wearing masks, the board decided to close secondary schools as well due to the belief of medical authorities at that point in the epidemic that adolescents were especially susceptible to influenza. Overall, schools were closed by influenza longer than any other type of facility. They had not been closed due to an epidemic since a diphtheria outbreak in 1910, but in 1918

lost virtually the entire fall term. School officials ultimately resigned themselves to the closings but were concerned about how to make up so much instructional time. Herbert Foltz, president of the Indianapolis Board of School Commissioners, feared that some high school students, especially those attending Tech, might not return, “having found employment at good wages.” It appears, however, that school closings were a prudent move; during the statewide resurgence of influenza, the state board found that children were affected to a greater extent than in the October outbreak when they represented no more than 10 percent of the cases. Some school board members, however, felt that allowing theaters to remain open while schools were closed was discriminatory. Indianapolis health officials were not swayed by this argument and denied Foltz’s request to re-open the city’s three high schools.³⁵

Morgan instructed the public not to throw away used masks in public buildings or on the streets, but to wrap them in paper and take them home for sterilization. Masks could be used repeatedly if they were boiled for a half-hour, rinsed, and dried. He advised people to carry an extra supply of masks with them and change their masks three or four times each day, taking care to ensure that the same side of the mask was worn next to the mouth each time it was used.³⁶

There was controversy regarding the efficacy of masks in preventing the spread of influenza. A special committee of the Columbus, Indiana, chapter of the American Red Cross charged that flu masks did more harm than good because they acted as germ collectors. Morgan refuted this claim by explaining that the masks actually performed two functions: they kept the wearer’s germs to himself and also prevented germs that

might be in the air from entering his nose and mouth. Germs traveled on particles of dust or mucus that were nearly always large enough to be intercepted by the masks. Army health officials, he asserted, recommended the wearing of masks that had been used “with great success in other cities in forestalling the spread of the disease.” Also, experiments reported in the Journal of the American Medical Association showed that the radius in which a person with a respiratory infection spread bacilli was about three feet; violent coughing increased that distance to ten feet. A mask lowered these radii to a negligible distance and eighteen inches respectively.³⁷

As might be expected, the masking order was not met with the same spirit of cooperation as the closing order. The closing ban directly affected business owners and the workers they laid off, but was a much less serious inconvenience to most residents of Indianapolis. However, although the masking order was a trivial matter compared to the economic hardship caused by the closing ban, it directly affected many more people. Virtually everyone who went out in public had to purchase masks or the material to make them and also had to wear a bizarre-looking and awkward item of apparel that covered the nose and mouth. Perhaps if masking had been required before the war ended, it would have met with less resistance. While the war ground on, it was easy for health officials to link the struggle against the influenza epidemic on the home front with the war against the Huns on the Western front and make people feel that they were part of a united effort. The closing ban was just one more burden placed on a population that had already accepted food and gasoline restrictions, Liberty Bond drives, peach pit recycling, and much more. But, once the ban had been lifted and the

war was over, people were anxious to put the flu epidemic and the grim month of October behind them and resume a normal existence. The news that the epidemic was not over and that masks would have to be worn until it was must have struck the same chord of dismay as would an announcement that the war had been re-started. Health authorities could no longer appeal successfully to the sense of community solidarity that had sustained the war effort and that had deputized every citizen in the battle against influenza. Freed from the strain of constantly having to demonstrate their loyalty and devotion to the common cause, people were restive and prone to be critical of this fresh imposition of the health department's authority.

Compliance with the masking order was half-hearted. Most people did wear masks at least part of the time, but some refused outright to do so. Three men were arrested on November 22 for being maskless, but the newspapers reported no other incidents of this kind. An indication of the confused state of affairs at this point in the epidemic is the fact that when the State Board of Health met in Indianapolis on November 22 neither board members nor their office assistants wore masks. When reporters asked Hurty about this, he replied that he refused comment. Streetcar conductors were not keeping windows open, requiring Morgan to send inspectors to ride the cars and report all violations of the ventilation order. Conductors said they had received no definite orders to enforce the wearing of masks and to keep windows open and were not sure what was expected of them, in spite of assurances from John Mahoney, superintendent of the traction company, that his company was cooperating.³⁸

As Thanksgiving approached and influenza cases continued to mount, the city health department met to consider what steps to take next. They decided to keep the schools closed until after the holiday and dismissed the suggestion of quarantine because no one knew how long those with flu remained capable of transmitting the disease to others. The board also considered reinstating the closing ban, but Mayor Jewett was opposed because of the adverse effect it would have on business. During the meeting, Jewett telephoned Hurty to ask for advice and was told that it was too late for preventive measures and that attention should be directed instead to caring for the sick. Hurty expressed the belief that the epidemic would not subside until virtually every susceptible person had been infected.³⁹

The Indianapolis Health Department allowed the public libraries to reopen on November 29 and the schools to do so on December 2. Large numbers of teachers and pupils were absent during the first half of December, and Charles E. Rush, city librarian, reported that illness had made it difficult to keep all the branch libraries open. Nonetheless, the city gradually returned to normal when the epidemic came to an end in early January 1919.⁴⁰ After all the furor the masking order had caused, the newspapers reported nothing further on the matter after late November. Given the general ambivalence regarding the efficacy of flu masks, it is probable that people simply stopped wearing them and Morgan saw the futility of trying to force them to do so. There was not even any mention of the Indianapolis Health Department repealing the order, possibly because lack of public compliance had already effectively rescinded it.

Mobilization of Health Resources

Mobilization efforts in Indianapolis and in the state as a whole were ill-planned, sporadic in nature, and generally inadequate to meet the challenge that the Spanish flu epidemic represented. Indiana performed no better or worse than other states in this regard; officials tried to prepare for the epidemic but were overwhelmed by the speed with which influenza spread and the deadliness of the pneumonia that accompanied it.

The resource that was in greatest demand during the epidemic was medical personnel, especially nurses. This became clear very early when Lieutenant Governor Calvin Coolidge of Massachusetts appealed to President Woodrow Wilson, the governors of nearby states that were not in the throes of the epidemic, and even to the mayor of Toronto for doctors and nurses to help care for victims of flu. The USPHS itself could not provide doctors and nurses, but began at once to recruit them throughout the country to go as volunteers to the Northeast. Unfortunately, medical personnel were in short supply everywhere in the United States; many had joined the American Expeditionary Force in Europe, leaving behind mostly retired doctors and those past the age for military service.⁴¹

Nurses and doctors from Indiana responded to the emergency at once. Ten nurses from Fort Harrison volunteered on September 27, and seventeen of the attendees at the meeting of the Indiana State Medical Association being held in Indianapolis volunteered the following day. The nurses were sent to Camp Devens, where more than 2,000 cases were under treatment, and the physicians were sent there and to other camps in New England as well. The volunteer physicians served without rank in the

USPHS, but wore the insignia of the Service. Their pay consisted of a monthly stipend of \$200 and a \$4 daily travel expense. By contrast, graduate nurses who volunteered in Massachusetts were paid \$28 a week plus expenses by the state health department.⁴²

On October 9 the Cleveland-based Lake Division of the American Red Cross, of which Indiana was a part, ordered the Indianapolis chapter to begin a registry of all nurses working during the epidemic in order to facilitate the recruitment of nurses for foreign service. Although there were adequate numbers of trained nurses on duty to care for influenza patients at Fort Harrison and the training detachments, William Fortune, president of the New Telephone Company and head of the local Red Cross chapter, urged the registration of any trained nurses who would be available to assist should those on duty become ill or the epidemic worsen. Eliza Browning, assistant librarian at the Indianapolis Public Library, who chaired the educational committee of the Indianapolis Red Cross, volunteered her committee to oversee the registry. Indianapolis women who were not trained nurses had rallied to the Red Cross's call by volunteering to make 7,500 gauze masks for flu patients.⁴³

The earliest step taken by officials at the city or state to prepare for the epidemic was a meeting held by the Indiana State Board after U.S. Surgeon General Blue suggested that state health boards coordinate relief efforts. The board began planning to mobilize doctors and nurses who would be organized into "flying squadrons," which could be promptly dispatched where needed. The board also planned to arrange a conference of Red Cross officials and representatives from the Indianapolis Health Department, state medical societies, State Nurses Association, Public Health Nursing

Association, Federated Women's Clubs, Indiana Manufacturers Association, Indianapolis Merchants Association, Indianapolis Chamber of Commerce, and other organizations. The following day, however, King withdrew the plan because the Red Cross was already actively mobilizing relief in the state. ⁴⁴

Despite the fact that influenza was expected to reach official epidemic stage in Indianapolis within a day or two, and that the state board had received requests for medical assistance from already beleaguered communities, health officials lacked any sort of contingency plan. There was no apparent reason to believe that Indianapolis or Indiana would escape a health crisis of some magnitude. In fact, the crisis had already begun, yet there was no plan in place as late as the second week of October. It is true, of course, that health boards were only part-time agencies with small budgets, but Hurty was generally something of a health zealot regardless of these constraints, and Morgan also had a strong sense of mission as a public health professional. It seems that they underestimated the seriousness of the pandemic, as did officials in other cities. For example, San Francisco had had even more advance warning of the epidemic than Indianapolis, but was no better prepared than cities in the East or Midwest. ⁴⁵

There was a serious lack of coordination insofar as recruitment of volunteer doctors and nurses was concerned. Dr. Charles P. Emerson, chairman of the medical section, State Council of Defense, reported to the Council on October 15 that separate appeals for physicians had been made by U.S. Surgeon General Blue, the Volunteer Medical Service Corps, the National Defense Council, and the Red Cross. Indiana had already contributed thirty doctors to combat flu in Massachusetts, and had thereby done

its duty in Emerson's opinion, especially in view of the fact that the epidemic was still raging in the state. Some counties did not have enough doctors to care for the sick, so it was important to keep all of Indiana's physicians at home where they were needed. On the night of the 15th, representatives of the medical and relief organizations mentioned above met with Emerson and several Indianapolis physicians to coordinate their individual relief plans and eliminate duplication of effort. The attendees agreed that the State Board of Health would act as a clearing house for the listing of doctors for flying squadrons. Prior to the meeting, the state board had requested all county health commissioners to obtain the names of physicians who would volunteer to give up their practices for a short time and serve where they were needed. The federal government would disburse the funds to pay their salaries through the Red Cross.⁴⁶

The Red Cross played an active role in helping to manage the health crisis. In addition to being the major provider of relief services in numerous Indiana communities, it also coordinated local relief efforts. During the pandemic, the Indiana Red Cross spent \$70,000 providing care for flu patients and their families and established 23 emergency hospitals throughout the state. In Indianapolis, under the leadership of Eliza Browning, the Red Cross emergency committee vigorously recruited nurses for service throughout the state. The committee also worked to prevent the spread of influenza, deploying members of Parent-Teacher Association chapters to canvass their neighborhoods in search of new cases. Further, the Red Cross provided support services for the military by assuming responsibility for the Women's Motor Corps of Indiana—which formerly had been under the direction of the State Council of De-

fense—and transporting sick and convalescent soldiers between the vocational detachments and the hospital at Fort Harrison. Also, the Red Cross canteen erected a tent inside Union Station in downtown Indianapolis to care for troops who became ill from influenza while passing through the city.⁴⁷

By October 22 the epidemic had declined in the northeastern part of Indiana, but it remained unchanged in the central part and was spreading rapidly in the state's southern counties. Medical facilities in some places were completely overwhelmed by the sheer number of sick people, prompting desperate officials to issue emergency appeals for help to the state board. Ironically, it turned out that the crisis was exacerbated, not so much by the lack of doctors that had been such cause for concern the week before, but a shortage of nurses. Given the state of medicine available at the time, doctors could do very little to save the lives of victims of influenza and pneumonia. By contrast, good nursing care was essential to survival; patients had to be kept warm, clean, dry, hydrated, and nourished. Their fevers had to be brought under control, but failing this, someone needed to keep them in bed and safe from harm if they became delirious. This was a time-consuming and laborious task as influenza victims were often ill for several weeks at a time, and were often in a critical condition for a period of days during which time they required care around the clock. Frequently, entire households were stricken simultaneously, making the need for nursing even more desperate.⁴⁸

Dr. Edward P. Davis, president of the Volunteer Medical Service Corps of the Council of National Defense, urged doctors to conserve medical resources carefully during the epidemic and refrain from performing surgical operations unless absolutely

necessary. Also, the Council and state board asked that nurses on private duty be released for relief work, especially to establish headquarters in various counties and direct nursing activities. The next day, the Lake Division of the American Red Cross announced that it would immediately establish emergency bureaus at Columbus, Ohio, Indianapolis, and Louisville to assist state health boards in combating the epidemic. The bureaus would search out every agency through which nurses who could be released from other duties could be located. They would use every means at their disposal to convince these nurses to “make a sacrifice, if necessary, in order to assist in the fight” against influenza. Recruiters were to emphasize that nursing civilians was just as patriotic as nursing soldiers and sailors.⁴⁹

The need for nurses was undiminished throughout the epidemic, with the Red Cross working continuously to recruit every woman who could possibly perform nursing duties. In some communities school teachers idled by the closing ban volunteered to nurse flu patients. In fact, Dr. William King, assistant secretary of the state board, called for all Hoosier school teachers to offer their services to doctors, Red Cross bureaus, and community flu committees and to do clerical work or whatever was needed to help the situation, which “has approached a state of calamity.” “The teachers are receiving pay while their schools are not in session and it is no more than right that they should offer their services to the state,” he asserted.⁵⁰

It was not always clear how best to utilize nursing resources: a nurse’s efforts could go farther if all her patients were in one place, but in some cities the crowded hospitals became epidemic sites themselves. There were so many influenza patients

that it was often not possible to isolate them in separate wards, thus exposing to infection patients who were in the hospital because of some other illness. To prevent overcrowding of hospitals, Morgan asked that people who contracted flu arrange to be cared for in their homes, a strategy that would tie up nurses or cause them to waste time in travel that could have been spent caring for patients. With the opening of the emergency bureau, however, it would be possible to send nurses to private homes when needed.⁵¹

As October came to an end, the Indiana State Board of Health lifted its closing ban, leaving to the discretion of local health officers whether to continue the prohibition of public gatherings in their communities. It appeared that the worst was over and that it was time to assess the damage. Amos W. Butler, secretary of the Board of State Charities, informed Red Cross chapters throughout Indiana of the social agencies that could assist families whose resources had been severely strained by the influenza epidemic. There was little in the way of public assistance—no Aid to Families with Dependent Children, Food Stamps, Social Security Disability or Survivors' benefits, no Veterans Benefits or unemployment compensation, no Medicaid to cover the cost of treatment for the chronic health problems that influenza left in its wake. There was no Energy Assistance Project to buy coal and kerosene for the indigent and newly poor as winter approached and no FEMA vouchers for disaster victims. In some communities influenza had been a natural disaster, but one that left the physical infrastructure intact. The only aid available was township trustee assistance, or poor relief, and whatever limited largesse might be dispensed by the city's private eleemosynary organizations.

The more fortunate survivors had life insurance proceeds to fall back on, but many widows and orphans faced a grim future.⁵²

By mid-November, the epidemic flared up again and the number of new cases and deaths reached the levels seen in October. Hurty declared that health boards throughout the state, with the exception of the Indianapolis Health Department, were inefficient and unable to cope with the epidemic. It was not like Hurty to give in to despair, but he may have been exhausted by the epidemic and frustrated by his own and everyone else's inability to bring it to an end. At a special meeting held at the State House, the state board called upon Governor James P. Goodrich for relief, having determined that the epidemic in Indiana had passed the preventive stage. Little hope existed of checking the malady until all susceptible persons had contracted the disease. Therefore, it was imperative that all sick persons be given medical attention to prevent pneumonia. Up to that point, money for paying volunteer physicians had come from the USPHS, but that money was nearly gone and would have to be replaced by state funds. Numerous communities lacked doctors and had appealed for help to the state board, but it had no money to send doctors to stricken areas. At the time the USPHS was employing only five physicians in Indiana, and they were in the mining districts that were severely affected by the second round of influenza.⁵³

King said that he was not criticizing county or city health officers; most had done everything in their power to fight the epidemic and some had "gone bravely to their deaths." It was the system that was wrong; health officials were only part-time employees, some of whom received only \$25 per year, who had to attend to their own medical

practices and could not be expected to devote much time to their duties as health officials. Often they were influenced by citizens opposed to their measures and could not resist the pressure brought to bear on them. For example, when New Castle's health officer ordered residents to wear masks, they refused to do so because Muncie, a competing city, had no such order; without community support, the health officer had no choice but to rescind the order. As this incident demonstrated, health officials simply did not have the authority to fight the epidemic without the wholehearted cooperation of political and business leaders, who in some cases, King charged, were more concerned with the well-being of their enterprises than of their fellow citizens.

In an attempt to rectify the situation, the State Board of Health recommended that the commissions be formed in the larger cities and in all counties in Indiana to act as liaisons between the state board and local health officials. The commissions were to be composed of the chairman of the county Red Cross chapter, the mayor, members of the Chamber of Commerce, the school superintendent, ministers, and representatives of women's clubs. The governor promised to support the board's initiative and vowed that money would be raised for relief.

The Red Cross had done well in coordinating the relief effort up to that point, but the board's new proposal seemed to be a tacit admission of the fact that a more intensive effort was necessary to combat a full-scale epidemic. Specifically, broad-based community support was essential if the epidemic was to be brought under control, but it was not the function of the Red Cross to obtain that support. It was instead the responsibility of the state board whose failure to do so had undermined the weak

authority and limited powers of local health officers. A more experienced organization would probably not have made such a strategic error, but by mid-November it was simply too late to undo the damage. As it turned out, only fourteen communities actually formed local councils; elsewhere, factional fighting interfered with the process. Like flu masks, local councils had come to naught and they soon vanished from the pages of the Star and News.⁵⁴

Even the American Public Health Association at its national conference in December could not come up with a definite plan for fighting flu because of its members' divergent views. When its four-day conference ended, the Association simply distributed copies of all the medical and scientific data that members had presented, leaving it up to participants to decide for themselves what methods would work best in their own communities. This ad hoc, haphazard approach fairly well sums up the public health experience during the Spanish flu epidemic in Indiana—and elsewhere.⁵⁵

Responses to the Pandemic in Other Indiana Communities

The Indianapolis newspapers began printing stories about influenza in other cities in Indiana in late September. As was the case throughout the United States, the seeds of the epidemic were sown among Indiana's civilian population by soldiers and sailors home on leave. Most inductees from Indiana were trained at Great Lakes Naval Training Station and Camps Taylor, Sherman, and Grant, all of which were in the throes of the epidemic by late September, thus guaranteeing that the influenza virus would

soon be widely dispersed. For example, a news item dated September 24, 1918, reported six cases of flu in Peru, brought there by a young sailor on furlough from Great Lakes Naval Training Station who fell ill after arriving home and infected three other members of his family. A story the following day reported a dozen cases near Bedford, attributed by local authorities to soldiers home on leave from training camps. Similarly, the first patient in Anderson was a soldier on furlough from Camp Taylor, stricken soon after his arrival home.⁵⁶

By the end of the first week of October, flu had developed in Elkhart, Henry, Knox, Marion, Marshall, Monroe, Shelby, and Tippecanoe counties. DeKalb, Franklin, Lake, Pulaski, St. Joseph, and Wabash counties reported their first fatalities. It is not possible to trace the exact pattern of the spread of flu throughout Indiana because the State Board of Health's records of the epidemic no longer exist, but state health officials later observed that the epidemic had struck northern and central Indiana first—influenza first reached the epidemic stage in Benton County in north-central Indiana—and as cases began to diminish there, spread through the southern part of the state. In fact, the development of influenza referred to above does reflect such a chronological sequence: of the thirteen counties cited, seven are in the northern part of the state, six are in the central part, and one is in southern Indiana.⁵⁷

These generalizations notwithstanding, flu had cropped up virtually everywhere in Indiana by early October; however, it did not immediately become epidemic in all places, nor did it always manifest itself in virulent form. Sometimes the number of cases would remain quite low for a week or so, leading authorities to believe that closing the

schools or poolrooms or banning leaf burning had in fact prevented an epidemic. Very often, however, flu cases would multiply without warning and a full-blown health crisis would have emerged. In many places, flu struck first in October, died down toward the end of the month, resurged from mid-November through December, diminished by the first half of January, with influenza remaining prevalent through April. Another epidemiological pattern that developed in Indiana and other parts of the country was the delayed spread of flu from cities and towns into their hinterlands.

Cities throughout Indiana followed the same preventive measures as those put into effect in Indianapolis. As the epidemic extended into the Christmas season, public holiday entertainments were cancelled in Rochester, Fulton County, and in Fort Wayne, where special police patrolled the business district to prevent crowding in stores. Earlier, influenza had put a damper on Halloween festivities as authorities in most communities had strongly discouraged or forbidden parties and gatherings in celebration of the holiday. Officials in Muncie forbade the sale of Halloween masks, anxious lest flu germs be transmitted when the masks were tried on. A number of cities had taken the initiative of issuing closing bans in advance of the State Board of Health's order: Terre Haute, Martinsville, Brookville, Lafayette, and others took action to close schools and prohibit public gatherings in the first week of October. When the state board sounded the all clear in late October, many cities and towns lifted their bans, but others kept them in place or reinstated them after the second round of influenza struck.⁵⁸

Despite their ubiquity, closing orders were a source of controversy in some places. For instance, the Kokomo board of health issued a very restrictive closing order that would have shut down all places of business except drug stores, groceries, and restaurants; only a strong protest by local merchants brought about a less drastic measure that was more in line with those in effect in other cities in Indiana. In another incident, the Bicknell, Knox County, health commissioner resigned because the community would not support his efforts to combat the epidemic. The Vincennes health officer resigned after the mayor, himself a physician, exempted theaters, movie houses, and churches from the reinstated closing ban. Theater managers in Indianapolis were a long-suffering lot who patiently endured the closing ban, but those in Terre Haute were not; on Thanksgiving Day, fifteen theater managers and motion picture projectionists in that city defied a temporary ban which had been prompted by a sudden increase in the number of new influenza cases. All refused to plead guilty and asked for a jury trial. Even men of the cloth chafed under the ban. When the South Bend Health Department decided to keep the closing ban in place after the end of the statewide ban, Rev. P. J. Carroll of St. Joseph Church denounced the health department through the local press after being refused permission to hold services. Police arrested another priest, Rev. John Kublacki, after he refused to conform to the closing order.⁵⁹

Health authorities in a number of counties resorted to the wearing of gauze masks at various times during the epidemic—usually as a last resort. A masking order went into effect in Richmond on November 21, in New Castle on November 22, in Lawrenceburg on November 29, in Madison on November 28, and in Huntington on

December 10. Lawrence County had required the wearing of masks in October, and authorities there attributed the decline of influenza in early November to this measure. Health officials in Brazil had issued a masking order on November 21, but cancelled it six days later after the number of cases dropped. When influenza resurged soon after, a quarantine was established instead. Authorities in Fort Wayne issued a masking order on December 3, but rescinded it a week later because of the questionable utility of masks, and also because the board of health had no statutory power to enforce the unpopular measure. On December 9, the Grant County health officer cancelled the masking order in effect there—which had largely been ignored—because he thought flu masks were useless.⁶⁰

Another common and less controversial preventive measure was the prohibition of leaf burning. During October, Brazil, Greensburg, Anderson, and Shelbyville banned the outdoor burning of leaves and authorities in South Bend forbade the burning of paper, refuse, and rubbish in the belief that all smoke was injurious to the nose and throat and that ashes contributed to dust-borne infection.⁶¹

In 1918, Spanish influenza was most deadly in the overcrowded military camps; it proved nearly as disruptive, if not as virulent, in civilian institutional settings. College and university dormitories, orphanages, tuberculosis sanatoria, and homes for the elderly and the “feeble-minded” were especially vulnerable to the threat of epidemic influenza because their residents lived in close proximity to one another. Not even medical facilities were immune from the pandemic. In fact, most hospitals in Muncie refused to admit influenza patients because of the fear of contagion, and Fort Wayne’s

Lutheran Hospital was forced to shut down temporarily by influenza. The state Masonic home placed itself under a strict, but completely successful, three-month quarantine during which residents and employees did not leave the grounds and no visitors entered.⁶²

Classes at Franklin College, Indiana University, Earlham College, Hanover College, DePauw University, Wabash College, Indiana State Normal School, and Union Christian College were suspended at various times due to the epidemic. Typically, a school would close for what was expected to be a brief time, only to be forced to remain closed, or to re-open and close again quite soon—its students kept busy traveling from home to campus and back again. Most schools sent female students home and kept their S.A.T.C. units intact, usually under some degree of quarantine. Indiana University closed on October 10, but kept its S.A.T.C. men on campus. Assembly Hall was turned into an emergency hospital and President William Lowe Bryan donned a mask like the other nurses who cared for the nearly one hundred students ill with Spanish influenza. Fortunately, most cases of influenza among college and university students were mild ones and consequently the number of deaths was quite low.⁶³ Influenza was more serious at the Boys Correctional School in Plainfield and the Indiana Reformatory at Jeffersonville, but few deaths resulted at either facility. Flu also struck the Catholic Orphans' Home in Fort Wayne, and infected 70 percent of the children at the Sailors and Soldiers Orphans Home near Knightstown.⁶⁴

In view of the large numbers of people suddenly ill and unable to care for themselves, it is not surprising that existing medical resources were quickly outstripped.

In many communities facilities such as Elks lodges (Princeton, Madison, Boonville), the local aerie of Eagles (Bicknell), and the Phoenix Club, “a fashionable Jewish club” in Terre Haute, were rapidly converted into emergency hospitals where flu victims could be nursed back to health. Brown County had only four physicians, few nurses, and no hospitals. Two nurses were sent from Indianapolis, many reports being made of entire families ill with no one to care for them.⁶⁵ Even if there had been adequate numbers of doctors and nurses, it would have been difficult for them to reach people living in remote parts of a largely rural, hilly, heavily wooded county. As it was, it is surprising that no one in Indiana was reported to have died from cold or hunger because they were too weak to cook—in an era when food preparation and staying warm was real work—or unable to chop firewood, stoke a coal fire, or keep a fire going in the fireplace. In recognition of this fact, officials in Muncie considered establishing neighborhood food stations to feed stricken families with meals prepared in school kitchens.⁶⁶

Everyday life was disrupted by the epidemic in many unexpected ways. The John Robinson Circus was forced to return to its winter quarters in Peru a month early due to the epidemic. Because of the large number of flu deaths throughout the country, there was a “famine” of natural cut flowers in Muncie, with florists refusing to sell flowers for any occasion other than funerals.⁶⁷ Caskets were at a premium in the eastern part of the country. Working on a rush order for the government for flu victims in Washington, D.C., the Richmond Casket Company began turning out caskets at the rate of one every four minutes. Several days later three casket companies in Richmond were swamped with government orders for caskets for influenza victims in the East and

requested volunteers to assist in their manufacture. The Indianapolis Casket Company received instructions from the War Board to restrict production to none but the simplest models in order to prevent a casket shortage in the parts of the country severely affected by influenza.⁶⁸

An incident in Elkhart evokes one of the most fearsome images of epidemics—corpses of plague victims accumulating too rapidly for the living to give them a decent burial. Although the situation never became so desperate in the United States as it did in some other parts of the world, the epidemic did strain some very critical resources to the limit. An average of four people were dying in Elkhart each day; the city's old cemetery was full and long-deferred improvements at the newer cemetery made burials there impossible. The hearse in one funeral procession sank in deep mud, requiring the pallbearers and mourners to carry the casket several blocks to the grave.⁶⁹

Coal output was seriously affected in the mines of southwestern Indiana as well as in other parts of the nation. During the last week of October, coal production had declined significantly due to absenteeism caused by influenza—a matter of concern to the federal government and to virtually everyone else in a time when coal was the primary fuel.⁷⁰

The epidemic also interfered with the sale of War Savings stamps and the redemption of pledges made during earlier drives. This was due in part to wages lost to illness and underemployment because of the closing ban. More significant, however, was the closing of schools, that prevented the sales efforts of the “school children salesmen of the War Savings Thrift Army.”⁷¹

The Shelby County draft board was forced to stop work on October 18 because rampant influenza left no physicians free to examine inductees. The Elkhart County draft board in Goshen refused to conduct any physical exams while flu was epidemic; board members reasoned that the disease was being spread by men from various parts of the county assembling in large numbers. Elkhart County is Mennonite country, so the board's decision may have been influenced by that group's pacifistic beliefs, but many servicemen not only carried the infection wherever they went but also frequently became ill themselves while traveling from one post to another. Twenty-two soldiers who fell ill while en route from Fort Sill, Oklahoma, to an eastern camp were removed from the troop train at Marion and taken to a barracks at the Soldiers' Home for nursing.⁷²

Appendix 1 shows the total number of influenza and pneumonia deaths in Indiana cities of the first through the fifth classes for the period September 1 through December 31, 1918. (Cities of the first class were those with a population of 100,000 or more; cities of the fifth class had populations between 5,000 and 10,000.) The cities most severely affected by the pandemic were Gary, with a death rate of 11.4 per thousand; Hammond, 8.4; Connersville, 7.5; and East Chicago, 7.4. Those with the lowest death rates were Kendallville and Hartford City, both of which lost fewer than one person per thousand to Spanish influenza. Indianapolis ranked in the middle, with a death rate of 3.5, slightly below the overall statewide average for cities of 3.9. There was not necessarily an association between the number of cases and the number of

deaths; the mortality caused by flu and pneumonia in Indiana differed from place to place for no apparent reason just as it did elsewhere.⁷³

CHAPTER 4:

Putting the Pandemic in Context

Medical Advice and Popular Health Practices

Even with the benefit of hindsight and seventy-five years of medical and scientific advances, it is still not possible to determine with certainty the effectiveness of the preventive techniques in use during the pandemic. The lack of consensus among doctors and health officials at the time is evident from the proceedings of the convention of the American Public Health Association, dedicated to the Spanish influenza epidemic, which was held in December 1918. After lengthy and inconclusive debates on the efficacy of gauze masks and closing bans, a panel of five conferees was appointed to sift through the reports and evidence presented and come up with recommendations before the conference adjourned.¹ After due deliberation, the panel reported their findings: Generally, attendees from the Southeast strongly favored strict quarantine measures, those from smaller cities were somewhat in favor of quarantine and masks, and those from larger cities opposed both masks and quarantine and placed great reliance on vaccine. Panel members were unable to agree on anything further, however, and the convention ended on a somewhat disheartening note with participants returning to their communities no better armed to fight influenza than before.²

Before the Great Pandemic, medical practitioners had been secure in their belief that the cause of influenza was known. In the early 1890s, during the previous flu pandemic, Richard Pfeiffer, head of the research department of Berlin's Institute

for Infectious Diseases, had isolated a bacillus found in the sputum of flu patients that he thought was the cause of influenza. He was never able to conclusively prove this and never claimed to have done so, yet the scientific community came to believe that Pfeiffer's bacillus did indeed cause influenza.³ Their belief was eroded, however, as the epidemic of 1918 progressed. Bacteriologists did indeed find large numbers of Pfeiffer's bacillus in the throats of flu patients, but attempts to induce cases of influenza in human volunteers by inoculating them with cultures made from these bacteria were unsuccessful.⁴

Medical researchers knew by 1918 that some diseases were caused by microbes much smaller than bacteria. These microorganisms were referred to as "filtrable viruses" because they could pass through filters that trapped bacteria, or "ultra-visible" viruses because they could not be seen with ordinary microscopes, but no one had been able to isolate one. Viruses were not cultivated until 1935 when Wilson Smith, one of a team of British researchers working on viruses at the National Institute for Medical Research in London, found that the influenza virus could be grown in live chick embryos. Most bacteria are able to reproduce in chemically defined growth media such as agar and sugar, but viruses can do so only by invading and preempting the metabolic processes of another living organism's cells. As it happens, the influenza virus was relatively easy to work with in the laboratory, so once it was isolated, researchers were able to learn more about it than many of the other viruses that affect humans.

During the pandemic, bacteriologists feverishly sought the cure for Spanish influenza, performing many experiments to determine whether a virus was its etiolog-

ical agent. However, their efforts were doomed to failure by reason of the crude and inadequate technical methods available at the time.⁵ Equally futile efforts were made to develop an effective influenza vaccine. Doctors in Philadelphia, Boston, and New York City produced vaccines with which large numbers of people were inoculated, but their only function was to help calm people's nerves and demonstrate that medical science was actively doing something to combat the epidemic.⁶

Although health authorities did not know what caused influenza, they knew quite a bit about other aspects of the disease. They knew its long history and that its name actually had nothing to do with its origins either in the case of the current pandemic or in those that had occurred in the past. They also understood its mode of transmission via droplet infection, which was one reason for the frequent and vehement denunciation of public coughers and spitters.⁷ Thousands of droplets of mucous or saliva are blown into the air when a person coughs or sneezes and can be inhaled by anyone nearby. Most quickly dry out and become "droplet nuclei" that contain the viruses or bacteria present in the mouth or respiratory tract of the person emitting them. Authorities understood this, but did not realize that the droplet nuclei could float about in the air for hours, and the influenza virus on them could survive just as long unless exposed to sunlight.⁸

Dr. Hurty and Dr. Morgan often spoke of the virtues of fresh air, and the importance of keeping homes, public buildings, and streetcars and other public conveyances well ventilated. They believed that the presence of fresh, cold air in and of itself was somehow healthier than heated, "used" air that had been breathed by other

people. This is partly true, but the crucial point is that air without droplet nuclei in it—whether from outdoors or simply from another part of a building—should be kept circulating through air that does contain infectious agents, in essence diluting the “used” air. Dr. Morgan warned the public that an “overheated house is conducive to the development of organisms which cause respiratory infections.”⁹ That was half-true; the crucial factor was the purity of the air rather than its temperature.

Hurty referred to colds and influenza as “house diseases” and Morgan encouraged people to air their houses frequently in order to make them “uninviting” to cold and pneumonia germs, implying that these organisms were lurking indoors waiting to infect the unwary.¹⁰ It is known now, of course, that viruses cannot survive for long outside a living host, and cannot therefore be found in cracks and corners, even very dirty ones. Rather they are present in some human respiratory systems year-round, and are much more easily transmitted from person to person during the winter when the arrival of cold weather drives people indoors and causes them to spend more time in unventilated areas in closer proximity to others.¹¹

Another aspect of influenza not completely understood at the time of the Great Pandemic was the length of transmission time. Authorities knew that people could be infected before they showed symptoms and that the length of the incubation period was one to four days, but did not know how long patients remained capable of transmitting influenza during and after their episode of illness. Research has since demonstrated that the rapidity with which influenza spreads is due to a very short incubation period of one to three days; the virus multiplies in the surface membranes of the respiratory

tract from which it is readily shed into the air. Shedding, which occurs two to five days before symptoms appear, starts about twenty-four hours after exposure to infection and continues for only about a week, so the virus must spread quickly or it will die out.¹²

Returning to the question of the utility of masks, health authorities still are not in complete agreement. Alfred Crosby, Professor of American Studies at the University of Texas at Austin, whose work on the Spanish influenza pandemic in the United States is the most recent and comprehensive historical study available, summarizes the situation as follows:

People could and did honestly believe that a few layers of gauze would keep out flu bugs, just as screens kept the flies off the front porch. The influenza virus itself is, of course, so infinitely tiny that it can pass through any cloth, no matter how tightly woven, but a mask can catch some of the motes of dust and droplettes of water on which the virus may be riding. However, to be even slightly effective during a flu epidemic masks must be worn at all times when people are together, at home and at work and in between, must be of a proper and probably uncomfortable thickness, must be tied firmly, and must be washed and dried at least once daily. Enforcement of such conditions is impossible and so the communities where masking was compulsory almost always had health records the same as adjacent communities without masking.¹³

A group interview with Julia Butwin, Chief Nurse Consultant, Acute Disease Division; Donnell P. Ewert, M.P.H., Epidemiologist, Communicable Disease; and Chun Zhou, DVM, MS, Dr.PH, Veterinary Epidemiologist, Acute Division—all of the Indiana State Board of Health, helped shed light on this and other questions. So too did a separate interview with Martha Bennington, senior nurse epidemiologist in communicable disease investigation with the Marion County Health Department. Dr.

Ewert's opinion was that masking an infected person would possibly cut down on flu transmission to some extent, but he was concerned by "what might be growing in a mask after coughing and sneezing into it." Also, because most transmission occurs indoors, wearing a mask outdoors would be of little benefit. Ms. Bennington agreed that masking patients was of some use in limiting salivary emissions, but as far as uninfected wearers were concerned, did nothing other than give them a false sense of security. She explained: "In order for something to get down into the alveoli of your lungs, it has got to be one to five microns in size; that's incredibly small." Unlike the loose-fitting gauze masks worn in 1918, the particulate respirators and hepa filter masks available now can provide this level of protection, but only if they fit very tightly.

Regarding the closing ban, the interviewees from the State Board of Health were skeptical of the utility of this method of preventing disease. Furthermore, they doubted that the public would accept its imposition nowadays. Ms. Bennington was more in favor of the prohibition on public gatherings, especially in view of the fact that flu can be transmitted before people are aware they are infected.

Other advice given the public by health authorities during the pandemic of 1918 has stood the test of time. Dr. Morgan warned against shaking hands with someone who had smothered a cough or sneeze without a handkerchief because contagion could occur in this way. Health advice appearing November 15, 1993, in "Ask Dr. Lamb," a column syndicated daily in the Indianapolis Star differs little from that disseminated by Morgan in 1918. Dr. Lamb cautioned that the viruses causing influenza can survive several hours on hands or inanimate surfaces, and contaminated fingers can inoculate

the nose or mouth, so it is advisable to wear gloves when out in public and to wash one's hands after returning home. He also noted that those who are exposed to the greatest number of people are most likely to become infected with a cold or influenza; this suggests that closing bans derived their effectiveness, not only from the prevention of the multiple, concentrated contacts that occur in a crowd setting, but also from limiting the total number of single contacts individuals had. ¹⁴

As far as treatment is concerned, nothing was available in 1918. At the start of the epidemic, doctors in Boston immediately noticed that many of their Spanish influenza patients developed pneumonia. Even today, there is no cure for influenza, although Ripoviran, an antiviral agent, and two other drugs, Amantadine and Romantadine, are sometimes administered to high risk patients to prevent serious illness from developing. Viral infection is dangerous because it depletes the immune system, leaving patients vulnerable to bacterial infections that can have fatal consequences. Fortunately, antibiotics are available today to cure bacterial infections, but they were not in 1918, so many deaths resulted from the pneumonia that followed Spanish flu. ¹⁵

One aspect of the health advice offered in 1918 that is no longer emphasized today is the concern with bodily excretions. Morgan stated that "elimination is absolutely necessary for perfect health." A circular distributed by the State Board of Health encouraged people to "take medicine to open the bowels freely." The Chicago Health Department instructed marchers in a huge Liberty Loan parade "to go home right after, remove all clothing, rub the body dry, and take a laxative" to minimize their chances of

contracting influenza. The patent medicine ads, which appeared on most pages of the newspaper, touted a plethora of remedies for constipation and numerous other physical ills.¹⁶

The advertising copy describing these patent medicines was couched in terms reminiscent of traditional medicine, attributing a wide variety of ailments and symptoms to constipation and other accumulations of unexcreted “poisons.” Physicians treated patients by doing things believed to help the body regain its customary equilibrium; they were expected to extract blood, make the patient perspire copiously, or administer diuretics, laxatives, and emetics. Bleeding had fallen into disfavor by the last part of the nineteenth century and diuretics and emetics were no longer used as a matter of course, but as the number of laxatives on the market indicate, purging the bowels was still widely accepted as a beneficial practice capable of remedying a host of complaints.¹⁷ For example, Carter’s Little Liver Pills for Constipation claimed to be “wonderfully quick to banish biliousness, headache, indigestion and to clear up a bad complexion.” Dr. Caldwell’s Syrup Pepsin, “a mild, effective remedy for constipation,” was “peculiarly adapted to the needs of elderly people, women and children,” and Cascarets tablets boasted of being able to “Gently Clean the Liver and Bowels, and Stop Headache, Colds, Sour Stomach, Bad Breath.”¹⁸

Some remedies claimed to prevent or cure Spanish influenza in addition to restoring regularity. For example, Father John’s Medicine, an “old-fashioned, wholesome body builder” had a “gentle laxative effect” guaranteed to drive out “impurities” even while it fought the flu. Many advertisements were written in a bland, amateurish

style, but the maker of “Dr. Pierce’s” patent medicines adopted a tone much more in keeping with the times: “How to Fight Spanish Influenza. Avoid crowds, coughs and cowards, but fear neither germs or Germans! To keep the liver and bowels regular and to carry away the poisons within—Dr. Pierce’s Pleasant Pellets. If there is a cold—Anuric tablets to flush the bladder and kidneys and carry off poisonous matter.”¹⁹

The therapeutic vacuum left by medical science was filled by a wide variety of nostrums with putative antiseptic properties that claimed to prevent or cure influenza. Nostriola, which came in “balm, liquid, or Nostiola Outfit form,” was an “antiseptic, cleansing” substance that “Opens Air Passages, and Prevents Disease of Nose, Throat and Bronchial Tubes.” Vick’s VapoRub made similar claims and urged people infected with flu to, among other things, “Go to Bed and Stay Quiet—Take a Laxative.” Ads for Kondon’s Catarrhal Jelly informed “those who fear Spanish Influenza” that “many doctors are urging the use” of this “soothing antiseptic for inside the nose and head.”²⁰

As the epidemic gained strength, the manufacturers of popular tonics touted their products’ usefulness in fighting off an attack of influenza. The makers of Peruna Tonic recommended it for “Catarrh of Every Description” because of its ability to restore and maintain all mucous membranes, which made it “the greatest disease preventive known to science.” Another product, Miller’s Antiseptic Oil, which was also “known as Snake Oil,” was making it possible for “many thousands” to find relief from influenza and perhaps prevent pneumonia.²¹

As the epidemic waned, advertisers began to focus on the aftermath of an attack of influenza and boasted of their product’s restorative powers. Scott’s Emulsion, “a

pure, wholesome tonic-food,” would aid in “recuperation of the vital forces of the body, depleted in the struggle with acute disease.” Borden’s Malted Milk and Horlick’s Malted Milk both claimed to have special nutritional value, and another familiar product, Lysol Disinfectant, urged the homemaker to “Fight Spanish Influenza with Daily Disinfection.”²²

It is difficult to determine what proportion of the public took these and the many other nostrums advertised seriously or purchased them for prophylactic use. If they had not been fairly popular, the U.S. Surgeon General probably would not have felt it necessary to warn the public against them.²³ The patent medicines and their claims are easy targets for ridicule now, but at the time they offered protection from a frightening illness when conventional medicine, with its failed vaccines, could not.

Mortality in the United States and Worldwide

Spanish flu was deadly because it spread so quickly and widely and infected so many people and not because it was particularly lethal. In fact, despite the large numbers of people who died from it, Spanish flu had a fairly low case mortality; that is, it rarely killed more than 2 percent to 3 percent of those infected. By conservative estimate, 20 percent of the world’s population was infected, and serologic evidence suggests that the vast majority of those who did not become ill from flu had subclinical cases of it.²⁴

The total mortality worldwide can only be estimated because of the lack of death records in some parts of Asia and Africa, but in 1927 noted American epidemiologist

Edwin Oakes Jordan computed the number of deaths to have been 21.6 million: more than 1.4 million in the Americas, 2.2 million in Europe, 15.8 million in Asia, just under 1 million in Australia and Oceania, and 1.3 million in Africa and Madagascar. Russia lost 450,000 people; Italy and Japan, much smaller countries, lost 375,000 and 257,000 people respectively. The pandemic killed over 12 million in India, manifesting itself with especial brutality in the Punjab. People died in that region so rapidly and in such numbers that corpses littered the streets and trains had to be cleared of dead and dying passengers at each station.²⁵

Geographically isolated groups, who had developed little immunity to diseases, were terribly vulnerable. Nearly 25 percent of Samoans died, and some Alaskan Eskimo villages lost all their adult members to influenza, while others were completely depopulated—stunning levels of fatality comparable to those suffered by native American populations during their initial contacts with Europeans and exposure to the diseases of the Old World. American Indians were, in fact, severely stricken by Spanish influenza; 24 percent of those living on reservations became ill and 9 percent of these flu victims died—a case mortality rate four times greater than that in large American cities. Two percent of all American Indians died in the epidemic.²⁶

Accurate estimates of total mortality in the United States are not available, primarily because the Census Bureau's Mortality Statistics did not include all 48 states at the time. Except for certain of their cities, 17 western and southern states where 22 percent of the nation's population resided, were omitted from the United States Death Registration Area.²⁷ The USPHS made house-to-house surveys in eleven American

cities and towns across the nation in 1919 and discovered that 280 out of every 1,000 persons in these communities had had flu during the pandemic. This figure is similar to others derived from similar surveys in the United States and elsewhere in the world. Extrapolating to the country as a whole, this finding indicates that over one-fourth of the total population, or 25 million people, had been infected with Spanish influenza. The total number of Americans who died from flu between September 1918 and June 1919 is estimated to be 675,000. This is a fairly conservative estimate, given that the census Registration Area showed 549,000 deaths. (By comparison, the combined battle deaths of U.S. Armed Forces personnel in World Wars I and II, Korea, and Vietnam were 423,000.)²⁸

Death rates among the military were higher than in the civilian population. The U.S. Navy estimated that 40 percent of naval personnel had contracted flu in 1918. Although a lower proportion of soldiers than sailors caught the flu in 1918—16 percent of those involved in the war—infection rates differed between soldiers abroad and those who never made it to Europe: 167 out of every 1,000 members of the American Expeditionary Force were officially admitted to treatment as flu patients compared to 361 out of every 1,000 trainees based in the United States. The combined total of American soldiers and sailors who died of flu is 43,000, a figure equal to 80 percent of American battle deaths in the war, which took place during a much longer period of time.

Social Impact and Personal Loss

The Great Pandemic of 1918 was over in a few months. It materialized suddenly, cut a swath through the land, and was gone. Unlike the United State's involvement in the war, which lasted a year and a half and made an indelible impression on the fabric of American life, the epidemic was a significant factor for people in this country only from September through December 1918 and had little enduring impact. But, however brief its duration, the epidemic nonetheless did immeasurable harm on the personal level and caused an incalculable amount of human suffering. It is the contemplation of the tragic events that befell so many people during the epidemic and the feelings of commiseration and pity they arouse in us that give the pandemic and other natural disasters a certain fascination. Unlike the Holocaust, the Gulag, and other appalling products of human villainy, the occurrence of natural disasters does not call into question the basic nature of humankind or divide the species into victims and victimizers. Instead, epidemics and earthquakes, shipwrecks and airplane crashes serve as clear reminders that all of us are subject to good and bad fortune and the odd twist of fate.

The Spanish influenza epidemic, like any natural disaster, caught people by surprise. First, it killed many recruits who would have been more reasonably expected to die from enemy fire. Some towns lost five, ten, or more of their young men to influenza before they ever got to the war. For example, Oscar A. Dannenberg, 24, who died October 14, 1918, at Camp Custer, was the fourteenth soldier from Evansville to

die of influenza; Walter Morgan, 23, who died at Camp Sherman, was the seventh boy from Greensburg to die of pneumonia in a military camp.²⁹

Influenza took others by surprise as they sought to bring solace to their sick relatives. The newspapers published frequent accounts of wives and mothers becoming infected with the Spanish flu virus while visiting or nursing husbands or sons at military camps. When this happened at Camp Dix, New Jersey, the women were cared for at the camp's Red Cross hospital. The danger of contagion did not deter the mothers of stricken soldiers from flocking to Camp Sherman, but camp officials required them to wear influenza masks while they visited their sons in the hospital wards. One woman, Mrs. Morris Miller, a Goshen resident, became ill with influenza after going to Camp Taylor to be with her dying brother, Otis Witmer. Private Witmer had been in the army less than six weeks before his fatal illness.³⁰

Parents with children away at college faced the same hazards as those with sons in military camps. Several mothers who came to Miami University in Ohio to be with sick sons or daughters succumbed to the disease, and at least one died. Another parent, Edward Carman, fought influenza on two fronts. While caring for his wife and four younger children who were ill with influenza at their home in Burney, Indiana, Carman commuted daily by automobile to Franklin College, forty miles away, to visit his son, Harry, who was fatally ill with pneumonia at the S.A.T.C. unit there.³¹

Some flu victims, such as John Abels of Shoals, Indiana, contracted their fatal case of flu while attending the funeral of a relative who had died from the disease or when bringing a relative's body home from a military camp. The government paid for

transportation home for relatives who came to accompany the bodies of men who had died from influenza in military camps, a policy that may have inadvertently helped spread influenza a little faster.³²

One especially surprising aspect of Spanish influenza was the rapidity with which it spread and prostrated its victims, and the stunning swiftness with which it progressed to pneumonia. Joseph Risenbeck, a thirty-eight-year-old druggist from the southside of Indianapolis, died at St. Francis Hospital on the afternoon of October 9; he had been taken to the hospital after collapsing at his drug store and died only a few hours later from pneumonia. Helen Stout, a teenager from Woodruff Place, thought to be recovering from influenza after an illness of less than a week, died suddenly from heart failure and bronchial pneumonia. John Richardson, a twenty-nine-year-old Indianapolis man working at the army headquarters depot in Jeffersonville, Indiana, collapsed without warning and died of bronchial pneumonia before the physician who had been summoned could get to his home.³³

The precipitous decline of flu victims often meant that family members could not reach their deathbeds in time to bid them farewell. Trains and telegrams could not keep pace with the angel of death, a fact which gave a special touch of pathos to the loss of a spouse or a child. The newspapers frequently described the scenario of travelers narrowly missing the telegram that would have spared them a futile journey or of others who received the dreaded announcement as they waited at the depot. The family of Jesse Felts, a young sailor gravely ill from pneumonia at Great Lakes Naval Training Station, had such an experience. Soon after his bride of three weeks, his

mother, and brother had left Indianapolis for Chicago early on September 21, 1918, to be by his side, his sister received the telegram that announced his death. Just as Mrs. G. E. Walters was boarding a train at the Pennsylvania railroad station in Logansport to go to the bedside of her son, Private Warren Walters, 21, stationed at an army camp at Green Bay, Wisconsin, she received a telegram advising of his death. The father of Goshen, Indiana, recruit Private Harold Densmore, stricken with influenza at the Columbus army barracks, was about to board the train that would take him there when word came that his son had already died. Mrs. Jack Matheson was in the telegraph office in Bedford, Indiana, about to send a message to her husband, a stonecutter who had been at the Hog Island, Philadelphia, shipyard only ten days, when the telegram announcing his death came in.³⁴

The highly contagious nature of influenza meant that entire families were stricken with the illness at the same time. Several such cases were reported in the Indianapolis newspapers. On October 18, 1918, two bicycle policemen discovered twelve people seriously ill with influenza in a small house on Indianapolis' near-southside. The two families sharing the house had each lost an infant to influenza several hours before they were found. Their meager savings had been depleted when both fathers became too ill to work, and they had no money for food or medicine. All were too ill to help any of the others or summon aid from neighbors. A family living near Nashville, Indiana, suffered a similar ordeal: Paul Ringer, whose home had no telephone and was a mile from the public road or the nearest neighbor, crawled on his hand and knees to the highway to get help for himself, his wife, and four small children,

all severely stricken with influenza. After reaching the lightly traveled highway, he waited for over an hour until the first passerby appeared to summon aid.³⁵

A particularly tragic result of the spread of influenza within families was the not infrequent occurrence of the death of both parents, often within a fairly short period of time. Harold Wallace of Hammond and his wife Ruth, twenty, died of Spanish influenza on October 10, 1918, within a few minutes of each other. Edward, thirty, and Nancy Meldrum, twenty-six, residents of near-eastside Indianapolis, died of pneumonia within two days of each other, leaving two young children, both of whom were ill with influenza. In New Albany, Indiana, William Dierking, thirty-four, died of influenza on October 19; his wife had died three days before. They were survived by three small children. Edna Harmon, twenty-two, died of pneumonia in Brazil, Indiana, twenty-four hours after her husband had died of the same disease. Her brother and sister were critically ill as well. She was survived by two children.³⁶

As these examples indicate, influenza was responsible for the break-up of a large number of families, not only in Indiana but all over the world. Spanish influenza notwithstanding, dissolution of the family unit due to the death of one or both parents was not an uncommon event in the early twentieth century. Among other factors, lower life expectancies resulting from the relatively undeveloped state of medicine and public sanitation meant that the loss of a parent would be experienced by a larger proportion of children and youth than is the case today. However, even though the phenomenon of children with no one to care for them was a normal part of life, the pandemic burdened social institutions because it produced so many orphans within so short a

time. Of course, the war contributed to the disruption of families by depriving children of their fathers, sometimes forever, but the flu epidemic was doubly cruel because it not infrequently took both parents.

According to the estimates of the State Board of Health, the influenza epidemic orphaned an estimated 5,500 children in Indiana between September 1 and November 30, 1918. During that time, the deaths of 2,773 married persons from influenza and pneumonia were reported to the State Board; based on the assumption that each was the parent of an average of two children, 5,546 orphans would have resulted from the epidemic. The tragic effect of the epidemic elsewhere in the country was reflected in a large photograph of 25 little girls, between 3 and 5 years of age, that appeared on the front page of the Star on December 13, 1918. The youngsters, who had been orphaned by the pandemic, were being sent from the New York Foundling Asylum to adoptive homes in the western United States. One cannot help but speculate on the varied fates of these young children and the thousands of others like them. No one knows what kind of homes they came from or were going to; for some the epidemic may have meant an improvement in their life chances, for others, a reversal. As an example of the latter, author Mary McCarthy described her own near-Dickensian experience as an orphan in her autobiography, Memories of a Catholic Girlhood. At six years of age, she and four younger siblings lost their loving and indulgent parents to influenza within the space of a few hours, only to have them replaced by harsh and indifferent caretakers.³⁷

Sometimes the epidemic wiped out a small family: Frank J. Connell, his wife, and their ten-year-old daughter of Camden, New Jersey, all died on October 7, 1918,

in the Connell home within a period of five hours. More often, however, the pandemic decimated a family's ranks, claiming two or more members. Florence Pickens, thirty, a graduate of Methodist Hospital nursing school and superintendent of a hospital in St. Paul, Minnesota, died from influenza on November 2, 1918. She had come to Indianapolis to attend her brother's funeral and fell ill the day he was buried. The twenty-nine-year-old wife of a westside Indianapolis minister, Rev. John Mason, and his five-year-old son John, Jr., died at the city hospital of pneumonia. Another child was in critical condition. Another westside family was struck by tragedy when Iva Mitchell, twenty-nine, and her daughter Mary, five, died of flu, leaving Fred Mitchell seriously ill from the same disease. Charles and Harold Isenhower, adult sons of a prominent livestock auctioneer from Martinsville, died from influenza within five days of each other. Four of the five children of Mr. and Mrs. Lewis Vest of Speed, near Jeffersonville, Indiana, died of influenza within a two-week period. The entire family had been ill, but the parents and an infant recovered. A farmer from Crothersville, James Langdon, died at ten o'clock on the morning of November 20, followed half an hour later by his twenty-year-old son; his eighteen-year-old daughter had died the previous night. Another son was ill.³⁸

Influenza also caused several deaths and other misfortune in odd, indirect ways. Colonel Charles B. Hagadorn, acting commandant of Camp Grant at Rockville, Illinois, shot himself due to worry over the pneumonia epidemic that had killed more than five hundred men at the camp. Dr. Charles Sudranski, one of the leading doctors in Putnam County and the examining physician for the county draft board, killed himself in despair

over the loss of his wife who had died from pneumonia a week before. After visiting a patient on the afternoon of Sunday, October 27, 1918, Sudranski went into a nearby field and cut his jugular vein. Survivors included his three young children. Mrs. Lavina Burbrink of Jonesville, the widow of Frank Burbrink who died of influenza at Camp Custer, was declared insane by a commission in October 1918. Its report attributed her mental breakdown to her husband's recent death.³⁹

Influenza played an pivotal role in two dramatic tales when it struck unexpectedly. One involved a young Indianapolis woman, Lillian Ricketts, who had fled the city in 1912 to escape her domineering father, a wealthy medicine manufacturer. Mr. Ricketts had hired detectives to search for her all over the country, but they could not find her. In mid-November 1918, her sister received a letter from the man Lillian had subsequently married, telling of her death from pneumonia and the events of her life after her disappearance. Lillian had gone to Detroit, assumed a different name, found an office job with a motor company, and eventually met her future husband. They married and had a child who was eight months old at the time of her death. Lillian had made her husband swear to keep her secret, but he thought her sister should know of her death.⁴⁰

The death of 20-year-old Leah Overstreet in Ladoga after a three-day bout with influenza deprived Montgomery County Circuit Court of a divorce case that promised to be the "most sensational suit" ever heard by that body. The week before her death, Mrs. Overstreet had filed a suit for divorce in which she made "grave and sensational" charges alleging that her husband had moved to a farm in 1917 to evade the draft and

that as soon as the armistice was signed he had begun “a course of cruel and inhuman treatment” that drove her from home. She asked the court to set aside several recent sales of property, which she said her husband had made without her consent.⁴¹

Not surprisingly, the pandemic killed a number of nurses and doctors who contracted influenza from their patients. Records indicate that approximately twenty-five physicians died of influenza in Indiana during the pandemic, but this source did not report the number of nurses who lost their lives. It is probable that more nurses than doctors died from influenza, not only because members of the former profession outnumber those of the latter but also because those physicians who remained in this country were on average not in the age groups especially susceptible to influenza.⁴²

The deaths of only one physician and one dentist appeared among the obituaries of flu victims in Indianapolis, but the death notices of at least nine nurses were printed during the same period. Five nurses died in the course of performing their duties in Indianapolis hospitals. Chloe Miller, thirty-two, a twelve-year veteran, had been working as a visiting nurse only two weeks before coming down with influenza; Eileen Miller, twenty-eight, was a nurse at Deaconess Hospital when she died of pneumonia; Sr. Patrice Kennedy, thirty, had been in charge of St. Vincent Hospital pharmacy for four years before her death from pneumonia; Catherine Libka, twenty-nine, was surgery superintendent at City Hospital when she died of pneumonia. Methodist Hospital lost its employee with the greatest seniority, night superintendent Mary Edna Fletcher, thirty-three, when her life was claimed by bronchial pneumonia. Four other nurses died in the communities or camps where they had gone as volunteers. Beatrice

Davis, thirty, died of flu at Clay City after nursing her brother's family back to health. Ethel Leach, a Red Cross nurse sent to the East, died from pneumonia at the Edgewood, Maryland Arsenal. Pauline Collins, twenty-eight, died of pneumonia at Universal, a mining town near Clinton, where she had been sent by the Red Cross. Florence LeClaire, twenty-four, a volunteer Red Cross nurse, died of influenza at Camp Devens; she contracted the disease while on the train to the camp and died soon after reaching her destination.⁴³

Conclusion

The principal function of the historian is to chronicle past events and interpret their meaning. This act of interpretation should be conducted in such a way that it explicates the emergence of the present from the past, breaching the gaps in time that in human consciousness seem to separate the immediate present from what has gone before; that is, showing the continuity of past and present. Historical interpretation should also show the link between the public events that fall under the rubric "history," the personal events that comprise an individual life, and their mutual interplay. Metaphorically speaking, an event can be conceptualized as simultaneously occupying a point on the "horizontal" axis of linear time and on a "vertical" axis where individual and collective experiences merge. Explaining events in terms of various levels of meaning tries to do justice to their depth and complexity.

The aim of this paper has been to present just such an interpretation of the experience of the city of Indianapolis during the Great Pandemic of 1918. The account

presented has been a detailed one in order to give a sense of the health crisis as it developed—first looming on the horizon, far off in New England, next appearing in other cities in Indiana, and finally arriving in Indianapolis where it quickly became an epidemic. This public event was placed in a larger geographic and social context by including descriptions of Spanish flu in other communities in Indiana—and to a lesser extent—in military camps, and by describing the state of medicine and public health at the time. The connections between the collective, public event and the lives of ordinary people were made by balancing the impersonality of mortality statistics with anecdotal material illustrating the loss and waste represented by the death of the pandemic's individual victims. It is to be hoped that this treatment has captured in some degree the complexity of a traumatic period in the history of the city of Indianapolis.

APPENDIX 1

Deaths From Influenza and Pneumonia in Indiana Cities September-December 1918

	<u>Sept.</u>	<u>Oct.</u>	<u>Nov.</u>	<u>Dec.</u>	<u>Total Deaths</u>	<u>Death Rate*</u>
Gary	10	110	145	78	343	11.4
Hammond	4	139	52	38	233	8.4
Connersville	0	26	8	28	62	7.5
EastChicago	9	165	35	26	235	7.4
Elwood	0	5	13	47	65	5.9
Logansport	1	45	32	36	114	5.3
Laporte	2	8	26	34	70	5.0
Lafayette	22	44	5	35	106	4.9
Lebanon	0	11	13	10	34	4.8
Princeton	0	21	5	6	32	4.8
Brazil	0	10	21	19	50	4.7
Frankfort	1	19	20	7	47	4.7
Clinton	0	8	16	13	37	4.5
Whiting	1	23	9	4	37	4.5
Jeffersonville	0	18	11	17	46	4.4
Bedford	0	28	8	11	47	4.3
NewAlbany	3	65	19	15	102	4.3
SouthBend	3	147	97	62	309	4.2
Elkhart	1	25	24	44	94	4.1
Evansville	5	117	101	91	314	4.0
Mishawaka	1	8	44	18	71	4.0
Wabash	0	7	10	17	34	3.9
Vincennes	0	7	22	39	68	3.8
Kokomo	2	25	32	24	83	3.7
Columbus	0	3	14	17	34	3.6
Indianapolis	34	430	303	247	1,014	3.5
Madison	1	3	10	10	24	3.5
TerreHaute	4	47	109	78	238	3.5
Bloomington	1	14	11	14	40	3.4
Crawfordsville	0	19	14	6	39	3.3
Richmond	2	26	33	22	83	3.3
Huntington	0	3	9	23	35	3.2
Shelbyville	0	20	5	12	37	3.2
Goshen	0	12	11	4	27	3.0
Seymour	0	6	3	9	18	2.9
Washington	0	9	5	9	23	2.9
Linton	1	3	10	7	21	2.8
Anderson	1	11	10	43	65	2.7
MichiganCity	0	10	21	30	61	2.7
Valparaiso	2	8	6	2	18	2.4
Newcastle	0	12	4	16	32	2.2
Greensburg	1	2	0	9	12	2.1
Peru	1	5	9	12	27	2.1
Muncie	3	9	8	29	49	1.9
Marion	0	1	14	21	36	1.8
FortWayne	4	26	23	84	137	1.7
MountVernon	0	0	1	9	10	1.7
HartfordCity	0	0	0	6	6	0.9
Kendallville	0	2	2	1	5	0.8

* Deaths per thousand

Source: Monthly Bulletin, Indiana State Board of Health, 9/18, p.107; 10/18, p.117; 11/18, p.135; 12/18, p.147

ENDNOTES

Chapter 1

- 1 Other articles about the effects of the Spanish influenza pandemic on civilians in Indianapolis and in Indiana are Kathryn S. Hutchens, "The Indianapolis Influenza Epidemic of 1918," Indiana Medical History Quarterly 5 (December 1979): 4-14 and Philip C. Ensley, "Indiana and the Influenza Pandemic of 1918," Indiana Medical History Quarterly 9 (December 1983): pp. 3-15. Wayne L. Sanford, "The Influenza Epidemic of 1918 and Its Effects on the Military," Indiana Medical History Quarterly 9 (December 1983): pp. 16-22, and in the same volume, Marybelle Burch, "'I Don't Know Only What We Hear': The Soldiers' View of the 1918 Influenza Pandemic," pp. 23-27, deal with the pandemic's impact on men in military camps.
- 2 Alfred W. Crosby, Jr., "The Influenza Pandemic of 1918," in Influenza in America 1918-1976, ed. June E. Osborn (New York: Prodist, 1977), p. 5.
- 3 W.I.B. Beveridge, Influenza: The Last Great Plague (New York: Prodist, 1977), pp. 24-25.
- 4 William H. McNeill, Plagues and Peoples (Garden City, NY: Anchor Press/Doubleday, 1976), p. 105.
- 5 Beveridge, Influenza, p. 18.
- 6 Ibid., p. 25.
- 7 Timothy Silver, A New Face on the Countryside (New York: Cambridge University Press, 1990), pp. 76-77.
- 8 Beveridge, Influenza, pp. 28-31.
- 9 Ibid., pp. 33-34.

- 10 June E. Osborn, "Epilogue—The Costs and Benefits of the National Immunization Program of 1976," in Influenza in America 1918-1976, ed. June E. Osborn (New York: Prodist, 1977), p. 63.
- 11 Interview, Celeste Jaffe with Julia Butwin, Donnell P. Ewert, and Chun Zhou, Indiana State Board of Health, Indianapolis, Indiana, 28 February 1994.
- 12 Beveridge, Influenza, p. 17.
- 13 Ibid., p. 9.
- 14 Geoffrey Marks and William K. Beatty, Epidemics (New York: Scribner's Sons, 1976), p. 276.
- 15 A description of the use of mercury and bloodletting in treating yellow fever may be found in J.H. Powell, Bring Out Your Dead (New York: Time Incorporated, 1969), pp. 82-83; their therapeutic uses for cholera patients are described in Charles E. Rosenberg, The Cholera Years (Chicago: The University of Chicago Press, 1962), p. 66.
- 16 John Duffy, The Sanitarians (Chicago: University of Illinois Press, 1990), p. 205
- 17 All material in this and the two subsequent paragraphs is taken from John Duffy "Social Impact of Disease in the Late 19th Century," in Sickness and Health in America, Judith W. Leavitt and Ronald L. Numbers, eds., (Madison: The University of Wisconsin Press, 1985), pp. 414-419.
- 18 Duffy, The Sanitarians, p. 138.
- 19 All the material in this paragraph is taken from *ibid.*, pp. 144-153, except for references to the establishment of the APHA in 1872 and the founding of the various state health boards, which come from George Rosen, A History of Public Health (New York: MD Publications, Inc., 1958), p. 248.
- 20 Duffy, The Sanitarians, p. 205.
- 21 Ibid., p. 242. For a discussion of venereal disease in early twentieth century Indianapolis, see Noraleen A. Young, "'To Protect and Improve the Institution of

Marriage and the Family,' The Social Health Association of Central Indiana, Fifty Years of Community Service." Indianapolis, 1993.

- 22 The information in this and the two subsequent paragraphs is taken from Ruby Grosdidier and Maria Rosado, eds., Marion County Health Department History 1820-1983 (Indianapolis: Marion County Health Department, 1984), pp. 10-12.
- 23 Ibid., pp. 24-25.
- 24 Ibid., p. 28.
- 25 Thurman Brooks Rice, The Hoosier Health Officer; A Portrait of Dr. John Hurty and the History of the Indiana State Board of Health to 1925 (Indianapolis, 1946), pp. 54-56.
- 26 Ibid., pp. 61-63.
- 27 All the information in this paragraph comes from Justin E. Walsh, The Centennial History of the Indiana General Assembly, 1816-1978 (Indianapolis, 1987), pp. 416-417, with the exception of Hurty's charge that the number of deaths could have been halved if there had been full-time health officers in the state, which came from Rice, The Hoosier Health Officer, p. 284.
- 28 The material in this and the next paragraph is taken from Rice, The Hoosier Health Officer, p. 87.
- 29 The material in this and the next paragraph is from Charles E. Rosenberg, The Care of Strangers: The Rise of America's Hospital System (New York: Basic Books, Inc., 1987), pp. 71-72.
- 30 Rosenberg, The Care of Strangers, pp. 82-83.
- 31 Robert P. Hudson, "Abraham Flexner in Perspective: American Medical Education, 1865-1910," in Sickness and Health in America, Judith W. Leavitt and Ronald L. Numbers, eds., (Madison: The University of Wisconsin Press, 1985), pp. 148-150.

Chapter 2

- 1 W.I.B. Beveridge, *Influenza: The Last Great Plague* (New York: Prodist, 1977), p. 42.
- 2 The disappearance of influenza from North America by April is noted in Alfred W. Crosby, Jr., "The Influenza Pandemic of 1918," in *Influenza in America 1918-1976*, ed. June E. Osborn (New York: Prodist, 1977), p. 7. The reference to the New World being nearly untouched by the first wave of flu is from Alfred W. Crosby, *America's Forgotten Pandemic: The Influenza of 1918* (New York: Cambridge University Press, 1989), p. 28.
- 3 Ibid., pp. 7-8. The hemorrhagic process refers to the sudden nosebleeds experienced by many Spanish flu patients. Edematous processes refer to the thin, bloody fluid found in the lungs of those who developed what appeared to be a new type of pneumonia. The common varieties of pneumonia typically cause lung tissue to become coarse and full of nodules, but autopsies performed during the pandemic revealed patients' lungs to be filled with large amounts of fluid instead. Victims literally drowned in this fluid, their faces turning blue and purple from lack of oxygen as their lungs progressively lost the ability to function. Doctors soon recognized the color change as a sure sign that death would occur within 24 to 48 hours.
- 4 Crosby, Jr., "The Influenza Pandemic of 1918," pp. 7-8; reference to La Becque in Crosby, *America's Forgotten Pandemic*, p. 26.
- 5 Beveridge, *Influenza*, p. 42.
- 6 Ibid., p. 43; reference to Brest and Boston in Crosby, *America's Forgotten Pandemic*, p. 37.
- 7 Crosby, *America's Forgotten Pandemic*, p. 31.
- 8 A.A. Hoehling, *The Great Epidemic* (Boston: Little, Brown and Company, 1961), pp. 22-26.

- 9 All the information in this paragraph is from Crosby, America's Forgotten Pandemic, pp. 39-40, with the exception of the reference to Ayer, Massachusetts, which appears in Hoehling, The Great Epidemic, p. 27.
- 10 The information in this and the two subsequent paragraphs is taken from Crosby, America's Forgotten Pandemic, pp. 46-50.
- 11 Crosby, America's Forgotten Pandemic, p. 52.
- 12 Indianapolis Star, 3 October 1918, p. 10, "Influenza Now Hits 43 States."
- 13 Crosby, America's Forgotten Pandemic, p. 53.
- 14 All the information in this paragraph comes from Ibid., pp. 56-62, except for the reference to Indianapolis which appeared in the Indianapolis Star, 11 September 1918, p. 1, "Grip and Influenza Gain in New York and Boston."
- 15 With the exception of the reference to influenza in Peru, Indiana, which appeared in the Indianapolis News, 24 September 1918, p. 11, "Four Influenza Cases in One Family at Peru," the information in this and the next paragraph is taken from Crosby, America's Forgotten Pandemic, pp. 56-63.
- 16 Indianapolis Star, 27 September 1918, p. 1, "Epidemic Gains; Crowder Halts October Draft."
- 17 The reference to death rates in army camps is taken from the Indianapolis News, 11 October 1918, p. 19, "Death Rate in Army Camps Is Increasing." The mid-October decline in new cases was reported in the Indianapolis Star, 15 October 1918, p. 2, "U.S. Mobilizes Health Forces." The end of the epidemic in army camps was reported in the Indianapolis News, 15 November 1918, p. 12, "Less Influenza in Camps."
- 18 Stephen E. Bower, A History of Fort Benjamin Harrison, 1903-1982, June 1984, Command History Office, U.S. Army Soldier Support Center, Fort Benjamin Harrison, Indiana, p. 19.
- 19 The state of the camps on October 10 was described in the Indianapolis News, 10 October 1918, p. 8, "Deaths Pass 760 Mark." The reference to Camp Taylor's

- 11,000 flu cases is from the Indianapolis News, 17 October 1918, p. 25, “Thirty Deaths at Taylor”. The reference to the deaths at Camps Grant and Sherman was reported in the Indianapolis Star, 27 October 1918, p. 7, “Epidemic Over at Camp Grant” and “Nurse Dies of Influenza.”
- 20 Crosby, America’s Forgotten Pandemic, p. 64.
 - 21 Reference to the spread of flu by October 3, Indianapolis Star, 3 October 1918, p. 10, “Influenza Now Hits 43 States”; reference to October 5, Ibid., 5 October 1918, p. 10, “Flu Territory Growing Larger”; reference to October 8, Indianapolis News, 8 October 1918, p. 11, “Fifty Thousand Cases in South”; reference to coastal states, Indianapolis Star, 16 October 1918, p. 5, “Whole Nation in Grip of Flu.”
 - 22 Reference to bureaus vital to the war effort, Indianapolis Star, 4 October 1918, p. 5, “Epidemic Death Rate Increases”; reference to closing galleries of Congress and the Supreme Court, Indianapolis News, 7 October 1918, p. 4, “Congress Galleries Shut”; reference to flu spreading in overcrowded housing, ibid., 11 October 1918, p. 28, “Would Stop Influx to National Capital”; reference to no new employees, Indianapolis Star, 16 October 1918, p. 5, “Whole Nation in Grip of Flu.”
 - 23 All information in this paragraph is taken from Crosby, America’s Forgotten Pandemic, p. 66, with the exception of the reference to the recurrence of flu in Massachusetts, which comes from the Indianapolis News, 30 October 1918, p. 9, “Tomorrow to See End of Ban in City.”
 - 24 The reference to flu at Beech Grove and other civilian cases is taken from the Indianapolis Star, 28 September 1918, p. 1, “Precautions Urged to Stay Influenza”; the reference to Mayor Jewett is from ibid., 1 October 1918, p. 9, “Tech Opening Is Postponed”; the reference to cases on October 5 is from ibid., 5 October 1918, p. 9, “Spread of Malady”; the reference to a total of 48 deaths is from ibid., 6 October 1918, p. 6, “Flu Some Better in ‘Voc’ Schools”; and the reference to cases and deaths during the first week of October is from the Indianapolis News, 7 October 1918, p. 1, “Public Meetings Are Forbidden.”
 - 25 The reference to epidemic stage being defined as 5 cases per 1,000 population is taken from the Indianapolis Star, 27 September 1918, p. 1, “Hurty Urges Drastic Steps to Curb Flu in Indiana.”

- 26 Ibid., 5 January 1919, p. 3, "Last 24 Hours See No Flu Deaths Reported."
- 27 The number of flu deaths is from Indiana State Board of Health Monthly Bulletin XXI (September-December 1918), pp. 107, 117, 135, 147. The reference to flu killing 2-3 percent of its victims is from Crosby, Jr., "The Influenza Pandemic of 1918," p. 5. The USPHS survey is described in Crosby, America's Forgotten Pandemic, p. 205.
- 28 S.A.T.C. units had been formed on five hundred American college campuses in the autumn of 1918 to serve as pre-induction centers where young men could be held prior to call-up for active duty. All able-bodied male students that semester were automatically enlisted as privates in the army, and as members of the S.A.T.C. wore uniforms, lived under military discipline, and received several hours of military instruction each week in addition to their college classes. This information is taken from David M. Kennedy, Over Here (New York: Oxford University Press, 1980), p. 57. According to the Year Book of the State of Indiana for the Year 1918, compiled and published under the direction of James P. Goodrich, Governor, by The Legislative Reference Bureau, Indianapolis, Indiana, 1919, p. 1013, other S.A.T.C. units were established at DePauw University, Greencastle; Central Normal College, Danville; Franklin College, Franklin; Hanover College, Hanover; Indiana University, Bloomington; Rose Polytechnic Institute, Terre Haute; Tri-State College, Angola; University of Notre Dame, South Bend; Valparaiso University, Valparaiso; Wabash College, Crawfordsville; and Purdue University, West Lafayette.
- 29 Bower, A History of Fort Benjamin Harrison, p. 19.
- 30 The reference to sixty cases of flu is from the Indianapolis Star, 27 September 1918, p. 8, "Nurses Ordered From This City"; the information about the Fort's designation as General Hospital No. 25 is from Bower, A History of Fort Benjamin Harrison, p. 30.
- 31 The reference to quarantine at the Fort is from the Indianapolis Star, 29 September 1918, p. 1, "Theaters Join Fight on Flu Infection"; the rest of the information in this paragraph is from the Indianapolis News, 7 October 1918, p. 1, "Ft. Harrison Soldiers in Dire Need of Nurses."
- 32 Indianapolis Star, 28 September 1918, p. 2, "Precautions Urged to Stay Influenza."

- 33 References to the changed situation at the Metropole Hotel are from the Indianapolis Star, 1 October 1918, p. 9, "Tech Opening Is Postponed"; the reference to completion of the new building at the Deaf School is from the Indianapolis Star, 21 October 1918, p. 5, "Metropole Barracks Is Now Metropole Hotel." News of the first cases at Butler appeared in the Indianapolis Star, 6 October 1918, Sec. 5, p. 1, "17 Cases of Flu at Butler Unit." The rest of the information in this paragraph is from the Indianapolis Star, 7 October 1918, p. 18, "Public Meetings Are Forbidden."
- 34 Ibid., 1 November 1918, p. 3, "Local Deaths Near Normal" and 2 November 1918, p. 3, "Flu Plague Is Almost Ended."

Chapter 3

- 1 Articles about the severity of the pandemic in cities in the northeastern United States appeared in the Indianapolis Star, 11 September 1918, p. 1, "Grip and Influenza Gain in New York and Boston"; 14 September 1918, p. 2, "Influenza Cases Mount"; 15 September 1918, p. 8, "1,000 Have 'Spanish Flu' at Camp Devens, 1 Death"; 17 September 1918, p. 1, "16 Dead of Influenza in Boston, Disease Spreads"; 19 September 1918, p. 1, "Influenza Toll in East Grows, U.S. Camps Hit"; 24 September 1918, p. 1, "Many Influenza Cases"; 26 September 1918, p. 1, "Influenza Spreads, 75,000 Ill in East"; 27 September 1918, p. 1, "Epidemic Gains, Crowder Halts October Draft"; and 30 September 1918, p. 9, "85,000 Now Ill from Influenza."
- 2 The article reporting the lack of confidence expressed by state health officials appeared in the Indianapolis Star, 22 November 1918, p. 1, "Health Board Asks Aid as Flu Alarms." Resistance to closing bans in other parts of the state were reported in the Indianapolis News, 28 November 1918, p. 16, "Rigid Closing Order in Effect at Terre Haute"; 16 November 1918, p. 20, "Influenza Situation Serious at Bicknell"; 9 December 1918, p. 8, "City Health Officer Resigns"; and 29 November 1918, p. 1, "Theater Men to Test Health Board Action."
- 3 The Indiana General Assembly voted to make the state totally "dry" effective April 2, 1918; Justin E. Walsh, The Centennial History of the Indiana General Assembly, 1816-1978 (Indianapolis, 1987), p. 300.
- 4 Indianapolis News, 26 October 1918, p. 1, "23 Deaths and 186 New Cases in City"; and the Indianapolis Star, 3 November 1918, p. 10, "Morgan Repeats City Car Rule."
- 5 Indianapolis Star, 19 November 1918, p. 1, "Flu Masks Must Be Worn in All Public Places Beginning Today."
- 6 The information in this and the following paragraph is taken from the Indianapolis Star, 14 September 1918, p. 9, "How to Avoid Spanish 'Flu'."
- 7 Indianapolis News, 24 September 1918, p. 18, "To Prevent Influenza."
- 8 Indianapolis Star, 29 September 1918, p. 1, "How to Make Flu Mask."

- 9 Indianapolis Star, 2 October 1918, p. 3, "Only One Death Result of Flu."
- 10 Indianapolis Star, 5 October 1918, p. 9, "Anti-Flu Advice Given to Public."
- 11 Prohibition of the burning of leaves was reported in the Indianapolis News, 12 October 1918, p. 1, "Do Not Burn Leaves." Dr. Hurty's concern about Halloween masks was reported in the Indianapolis Star, 24 October 1918, p. 1, "Plan to Lift School Ban Where Possible."
- 12 Indianapolis Star, 13 October 1918, p. 12, "Influenza Not to Halt Plants" described the circulars mailed by the State Board of Health. Dr. Hurty's advice regarding avoiding colds appeared in Indianapolis Star, 20 October 1918, p. 3, "Beware of Cold, Hurty Advises." U.S. Surgeon General Blue's admonitions about flu remedies appeared in Indianapolis Star, 27 October 1918, p. 1, "Public Is Warned of 'Flu' Remedies."
- 13 Indianapolis Star, 19 November 1918, p. 1, "Flu Masks Must Be Worn in All Public Places Beginning Today."
- 14 Indianapolis Star, 27 September 1918, p. 1, "Hurty Urges Drastic Steps to Curb 'Flu' in Indiana."
- 15 Indianapolis News, 7 October 1918, p. 1, "Influenza Situation as it affects State." According to the Book of Instructions to Health Authorities, p. 18, prior to the order of the State Board of Health, mild illnesses such as influenza had not been reportable diseases. In 1918 the only diseases that health officers were required to report to the state board were tuberculosis, smallpox, diphtheria, typhoid, poliomyelitis, measles, cerebrospinal fever, scarlet fever, whooping cough, trachoma, contagious opthalmia, syphilis, and gonorrhea.
- 16 The reference to Dr. King issuing the closing ban without formal approval appeared in the Indianapolis News, 7 October 1918, p. 1, "Influenza Situation as it Affects State." Indianapolis News, 10 October 1918, p. 13, "Public Meetings Off Until Oct. 20" reported the official closing order by the state board. The extensions of the closing ban by the state board were reported in the Indianapolis News, 18 October 1918, p. 1, "Ban on Influenza Holds until Oct. 26," and 25 October 1918, p. 1, "Ban to Continue until November 2." The official lifting of the statewide flu

ban was reported in the Indianapolis Star, 2 November 1918, p. 8, "Ban Stays on in 39 Counties."

- 17 The information in this and the next two paragraphs regarding the ban issued by the state board of health comes from the Indianapolis News, 10 October 1918, p. 13, "Public Meetings Off Until Oct. 20."
- 18 The sole exception to this rule was Indianapolis, Indiana's only city of the first class, which had special privileges as such. See Burns Annotated Indiana Statutes, Supplement to 1905, Vol. IV, Chapters 23-25, Sections 3463-3807, pp. 380-583 for a complete description of the rights and responsibilities of cities and towns in Indiana.
- 19 Indianapolis Star, 28 September 1918, p. 1, "Precautions Urged to Stay Influenza."
- 20 Dr. Morgan's order to keep streetcar windows open was reported in the Indianapolis Star, 6 October 1918, p. 24, "Cars Must Keep Windows Open." The other information in this paragraph is from the Indianapolis Star, 29 September 1918, p. 1, "Theaters Join Fight on 'Flu' Infection."
- 21 Mayor Jewett's support of Dr. Morgan was mentioned in the Indianapolis Star, 28 September 1918, p. 1, "Precautions Urged to Stay Influenza." The flushing of downtown streets was reported in the Indianapolis News, 14 October 1918, p. 2, "Abatement Seen in Influenza Cases."
- 22 Indianapolis News, 7 October 1918, p. 1, "Public Meetings Are Forbidden."
- 23 Indianapolis News, 8 October 1918, p. 1, "Morgan Extends the Closing Order."
- 24 Indianapolis Star, 23 October 1918, p. 9, "Politics Seems Doomed by Flu."
- 25 The reference to rowdy juveniles was found in the Indianapolis News, 12 October 1918, p. 9, "Warning to Boys." Restrictions on youth in Jasper, Kokomo, and Nashville, Indiana, were reported in the Indianapolis News, 7 October 1918, p. 4, "Children Ordered Kept in Doors [sic]"; 15 October 1918, p. 12, "Rescind Health Order on Dealers' Protest"; and 29 November 1918, p. 11, "Only Four Physicians to Fight the Influenza."

- 26 Indianapolis News, 11 October 1918, p. 1, "Order Enlarged by Health Board."
- 27 Indianapolis News, 12 October 1918, p. 1, "Hours Changed for Retail Stores."
- 28 Cancellation of Sunday services was reported in Indianapolis News, 12 October 1918, p. 17, "No Church Services on Account of Influenza." "Worship with the Star" was a feature in the Indianapolis Star on October 13, 20, and 27, 1918.
- 29 A. A. Hoehling, The Great Epidemic (Boston: Little, Brown and Company, 1961), p. 56.
- 30 Indianapolis Star, 19 October 1918, p. 2, "Epidemic Trend in City Upward."
- 31 Indianapolis News, 30 October 1918, p. 1, "Tomorrow to See End of Ban in City." Like many other cities, Indianapolis did suffer a resurgence of influenza, but it was not more virulent. In fact, Dr. W.D. Gatch and other members of the State Board of Health, believed the second visitation of influenza less so; this was reported in the Indianapolis Star, 24 November 1918, p. 1, "Flu Mask Order Stands." Alfred Crosby—America's Forgotten Pandemic, p. 66—notes that, "severe recurring waves of Spanish influenza were characteristic of the South, Middle, and Far West and not of the East, but there are many exceptions to that rule." Massachusetts apparently was one of those exceptions. In any event, there is no reason to attribute the reappearance of influenza to premature lifting of closing bans, Armistice Day celebrations, or any other single factor; to this day no one knows for certain why it happened.
- 32 Most of the information in this and the following paragraph is taken from the Indianapolis News, 30 October 1918, p. 1, "Tomorrow to See End of Ban in City." The reference to limited Halloween celebrations appeared in the Indianapolis Star, 1 November 1918, p. 1, "Halloween Revelers Get Chilly Reception," and the incident of unheated streetcars was reported in the Indianapolis Star, 3 November 1918, p. 10, "Morgan Repeats City Car Rule."
- 33 Dr. Morgan's warning regarding increased numbers of flu cases was reported in the Indianapolis News, 12 November 1918, p. 8, "Warning by Dr. Morgan." Everything else in this paragraph is taken from the Indianapolis Star, 19 November 1918, p. 1, "Flu Masks Must Be Worn in All Public Places Beginning Today."

- 34 The reference to school closings and loafing outside firehouses comes from the Indianapolis Star, 20 November 1918, p. 1, "Board Prepares to Enforce Flu Mask Wearing." Everything else comes from the Indianapolis Star, 19 November 1918, p. 1, "Flu Masks Must Be Worn in All Public Places Beginning Today; Schools Are Closed."
- 35 The reference to masking elementary and high school students is from the Indianapolis Star, 19 November 1918, p. 1, "Flu Masks Must Be Worn in All Public Places Beginning Today." The increased incidence of influenza among children is taken from the Indianapolis Star, 19 November 1918, p. 8, "Flu Gains Over State." The closure of schools in 1910 is referred to in the Indianapolis News, 7 October 1918, p. 1, "Public Meetings Are Forbidden." Herbert Foltz was quoted regarding Tech High School in the Indianapolis News, 30 October 1918, p. 14, "Closing Probably Has Affected School." The request to re-open the high schools was reported in the Indianapolis Star, 20 November 1918, p. 1, "Board Prepares to Enforce Flu Mask Wearing."
- 36 Indianapolis Star, 19 November 1918, p. 1, "Flu Masks Must Be Worn in All Public Places Beginning Today."
- 37 The objections to flu masks on the part of the Red Cross chapter was reported in the Indianapolis Star, 21 November 1918, p. 5, "Flu Mask Is Given Rap." Dr. Morgan's refutation appeared in the Indianapolis Star, 22 November 1918, p. 1, "Board Acts to Enforce Street Car Ventilation."
- 38 The incidents involving the three maskless arrestees and closed windows on streetcars appeared in the Indianapolis Star, 22 November 1918, p. 1, "Board Acts to Enforce Street Car Ventilation." State health board members not wearing masks at their meeting was reported on p. 1, "Health Board Asks Aid as Flu Alarms."
- 39 Indianapolis Star, 24 November 1918, p. 1, "Flu Mask Order Stands."
- 40 Indianapolis News, 27 November 1918, p. 3, "Indianapolis Schools to Open Next Monday."

- 41 Coolidge's appeal was reported in the Indianapolis Star, 27 September 1918, p. 1, "Stricken State Asks Help." The USPHS recruitment effort was reported in Crosby, America's Forgotten Pandemic, pp. 49-50.
- 42 Information about volunteer nurses from Indiana and the pay rate for volunteer physicians was taken from the Indianapolis Star, 27 September 1918, p. 8, "Nurses Ordered from This City." Information about volunteer doctors attending the medical association conference was taken from the Indianapolis Star, 28 September 1918, p. 1, "Precautions Urged to Stay Influenza." The pay rate for volunteer nurses was reported in the Indianapolis Star, 27 September 1918, p. 1, "Stricken State Asks Help."
- 43 Indianapolis News, 9 October 1918, p. 6, "Nurses Obtained for All Influenza Cases."
- 44 The meeting of the state board was reported in the Indianapolis News, 12 October 1918, p. 1, "Flying Squadrons of Doctors, Nurses, Plan." Withdrawal of the plan was announced in the Indianapolis Star, 13 October 1918, p. 12, "Influenza Not To Halt Plans."
- 45 The reference to San Francisco comes from Crosby, America's Forgotten Pandemic, p. 92.
- 46 Indianapolis News, 15 October 1918, p. 1, "Says Indiana Should Keep Doctors at Home."
- 47 Information about Red Cross activities in Indiana is taken from American Red Cross Department of Civilian Relief, Report of Activities in Indiana, 1917-19, compiled by Florence Waite, Cleveland, Ohio, 1919, p. 5. The donation of the ambulance by Harry C. Stutz, a local automobile manufacturer, was reported in the Indianapolis News, 15 October 1918, p. 4, "Women's Motor Corps Receives Ambulance." The tent for sick military transferees was reported in the Indianapolis News, 17 October 1918, p. 18, "Red Cross Canteen Has Tent at Union Station." Reference to the work of the emergency committee is taken from the Indianapolis Star, 20 October 1918, p. 10, "Nurses Needed to Aid Civilians."
- 48 Indianapolis Star, 22 October 1918, p. 1, "Shortage of Nurses Handicaps Flu Fight."

- 49 The reference to Dr. Davis and the Council of National Defense appeared in the Indianapolis Star, 21 October 1918, p. 2, "Volunteer Doctors Join in War on Epidemic." The action of the Lake Division Red Cross was reported in the Indianapolis Star, 23 October 1918, p. 1, "Bureaus to Enroll Influenza Nurses."
- 50 Indianapolis News, 25 October 1918, p. 13, "Teachers Urged to Help."
- 51 Indianapolis Star, 24 October 1918, p. 8, "Asks Home Care of Flu Victims."
- 52 Amos Butler was quoted in the Indianapolis News, 30 October 1918, p. 1, "Tomorrow to See End of Ban in City." Regarding life insurance, Alfred Crosby notes in America's Forgotten Pandemic, p. 312, that as a result of the number of claims paid out to survivors of Spanish influenza victims, 37 out of 48 life insurance companies in the U.S. were obliged to omit or reduce dividends. The Equitable Life Assurance Society paid out claims in the week of October 30, 1918, that were 745 percent higher than those paid in the same week in 1917; Metropolitan Life Insurance Company disbursed \$24 million dollars more in claims than actuaries had predicted.
- 53 The information in this and the next two paragraphs is from the Indianapolis Star, 22 November 1918, p. 1, "Health Board Asks Aid as Flu Alarms."
- 54 Reference to the fourteen councils that were formed appeared in the Indianapolis News, 29 November 1918, p. 21, "Only 55 New Influenza Cases in Last 24 Hours."
- 55 Indianapolis Star, 13 December 1918, p. 3, "Scientists Widely Split on Epidemic Measures."
- 56 The cases in Peru and Bedford were reported in the Indianapolis News, 24 September 1918, p. 11, "Four Influenza Cases in One Family at Peru," and 25 September 1918, p. 13, "Influenza Condition Exists at Springville." The Anderson case was mentioned in the Indianapolis News, 9 October 1918, p. 8, "Influenza and Pneumonia Reports." The destination of inductees from Indiana is from Stephen E. Bower, A History of Fort Benjamin Harrison, 1903-1982 (Indianapolis, Indiana: Command History Office, Fort Benjamin Harrison, 1984), p. 17. He says that in 1917 most Army inductees in Indiana were sent to Camp Zachary Taylor. Judging from the reports of flu deaths in the newspapers, I concluded that Camps Sherman and Grant and Great Lakes Naval Training Station also received many Hoosiers.

- 57 Benton County was mentioned in the Indianapolis Star, 14 October 1918, p. 2, "Abatement Seen in Influenza Cases." The spread of influenza from north and central Indiana to the south was reported in the Indianapolis Star, 16 October 1918, p. 16, "State Flu Not Yet On Decline." I obtained the rest of the information in this paragraph and the next by grouping data from the flu and pneumonia reports printed in the newspapers according to date and county in order to get a more coherent picture of how the epidemic progressed in the state. Crosby notes the spread of flu from cities and towns into rural areas in America's Forgotten Pandemic, p. 56.
- 58 References to Christmas cancellations appeared in the Indianapolis Star, 18 December 1918, p. 9, "Influenza Conditions." The Muncie item was reported in the Indianapolis News, 25 October 1918, p. 18, "Halloween[sic] Under Ban." The existence of early closing bans was reported in the Indianapolis News, 7 October 1918, p. 1, "Influenza Situation as It Affects State."
- 59 The story about Kokomo's ban appeared in the Indianapolis News, 15 October 1918, p. 12, "Rescind Health Order on Dealers' Protest." The story about the Bicknell health officer appeared in the Indianapolis News, 16 November 1918, p. 20, "Influenza Situation Serious at Bicknell." The Vincennes resignation was reported in the Indianapolis News, 9 December 1918, p. 3, "City Health Officer Resigns." The challenge of the ban by theater managers in Terre Haute appeared in the Indianapolis News, 29 November 1918, p. 1, "Theater Men to Test Health Board Action." Religious opposition to the closing ban in South Bend was reported in the Indianapolis Star, 2 November 1918, p. 5, "Pastors Oppose Flu Ban, One Placed Under Arrest."
- 60 The reference to a masking order in Richmond and Newcastle appeared in the Indianapolis Star, 21 November 1918, p. 5, "30 New Cases in Richmond" and "Newcastle Puts on Masks." Masking in Lawrenceburg was reported in the Indianapolis News, 29 November 1918, p. 11, "Conditions in the State." The masking order in Huntington was reported in the Indianapolis News, 10 December 1918, p. 5, "Masks Ordered at Huntington." The reference to masks in Lawrence County is taken from the Indianapolis Star, 3 November 1918, p. 7, "Flu Conditions in State." The experience in Brazil was reported in the Indianapolis News, 27 November 1918, p. 4, "Conditions in State," and the Indianapolis Star, 4 December 1918, p. 3, "Influenza Conditions." The reference to Fort Wayne appeared in the Indianapolis News, 10 December 1918, p. 5, "Conditions in the State." The

reference to Grant County is taken from the Indianapolis News, 9 December 1918, p. 3, "One Thousand Cases at Marion."

- 61 The reference to Brazil and Greensburg appeared in Indianapolis News, 7 October 1918, p. 4, "Influenza and Pneumonia Reports." The Anderson reference was in the Indianapolis News, 9 October 1918, p. 8, "Influenza and Pneumonia Reports." The Shelbyville ban was reported in the Indianapolis News, 12 October 1918, p. 20, "Three Shelby County Deaths," and the South Bend order in the Indianapolis News, 18 October 1918, p. 20, "Conditions in the State."
- 62 The reference to Muncie was in the Indianapolis News, 9 December 1918, p. 3, "Meeting Held at Muncie." The Lutheran Hospital shut-down was reported in the Indianapolis News, 10 December 1918, "Conditions in the State." The item about the Masonic home was in the Indianapolis News, 27 December 1918, p. 12, "Influenza Bans Lifted."
- 63 The closing of Indiana University was reported in the Indianapolis News, 10 October 1918, p. 8, "State University Puts Closing Order in Force." The story about President Bryan appeared in the Indianapolis Star, 15 October 1918, p. 4, "I.U. President Helps as Nurse."
- 64 The reference to the Boys School is from the Indianapolis Star, 21 October 1918, p. 1, "Red Cross to Help State in Flu Fight." Flu at Jeffersonville was reported in the Indianapolis Star, 21 December 1918, p. 4, "Influenza Conditions." Flu in Fort Wayne was reported in the Indianapolis Star, 12 December 1918, p. 9, "41 Counties Report 2,315 New Cases of Influenza." Reference to flu in Rush County appeared in the Indianapolis News, 15 November 1918, p. 8, "Influenza Is Serious in Many Places Again."
- 65 References to Elks facilities appeared in the Indianapolis Star, 24 October 1918, p. 5, "Cases in Other Cities"; 19 November 1918, p. 4, "Flu Claims 18 in Day at Gary"; and in the Indianapolis News, 31 October 1918, p. 10, "Influenza Conditions Improved in the State." The Bicknell reference was in the Indianapolis News, 16 November 1918, p. 20, "Influenza Situation Serious at Bicknell." The Terre Haute reference was in the Indianapolis News, 29 October 1918, p. 13, "Terre Haute Business Men to Fight Disease." Brown County's plight was reported in the Indianapolis News, 29 November 1918, p. 11, "Only Four Physicians to Fight

the Influenza,” and the Indianapolis Star, 7 December 1918, p. 3, “Influenza Conditions.”

- 66 Indianapolis News, 10 December 1918, p. 22, “New Cases at Muncie.”
- 67 The circus reference appeared in the Indianapolis News, 10 October 1918, p. 10, “Circus Forced into Quarters.” The flower famine was reported in the Indianapolis News, 9 December 1918, p. 22, “Cut Flower Famine Is in Evidence at Muncie.”
- 68 References to the Richmond Casket Co. were in the Indianapolis Star, 16 October 1918, p. 4, “Rush Order for Caskets,” and 20 October 1918, p. 5, “Casket Plants Are Rushed.” The plea for simple coffins was reported in the Indianapolis Star, 21 October 1918, p. 11, “Fancy Coffins Restricted to Speed Production.”
- 69 Indianapolis Star, 12 December 1918, p. 5, “Flu Deaths Fill Cemetery.”
- 70 Coal output on the national level was referred to in the Indianapolis Star, 4 November 1918, p. 1, “Flu Hits Coal Output.” Declines in coal production in Indiana was reported in the Indianapolis News, 27 November 1918, p. 4, “Drastic Action at Bicknell.”
- 71 Indianapolis Star, 27 October 1918, p. 15, “Sale of Stamps Hindered by Flu.”
- 72 The reference to the Shelby County draft board appeared in the Indianapolis News, 18 October 1918, p. 20, “Shelby County Has an Increase in Influenza.” Reference to the Elkhart board was in the Indianapolis News, 12 October 1918, p. 2, “Epidemic Halts Draft Tests.” The troop train story was in the Indianapolis News, 25 October 1918, p. 18, “Soldiers Taken Off Train.”
- 73 See Crosby, America’s Forgotten Pandemic, p. 64 for a discussion of the unpredictable effects of the pandemic from city to city in the United States.

Chapter 4

- 1 Indianapolis Star, 14 December 1918, p. 2, "Chicago Doctors Study Masks as Anti-Flu Agent."
- 2 Indianapolis Star, 13 December 1918, p. 3, "Scientists Widely Split on Epidemic Measures."
- 3 Alfred W. Crosby, America's Forgotten Pandemic: The Influenza of 1918 (New York: Cambridge University Press, 1989), pp. 269-270.
- 4 Information about experimental efforts to induce influenza and the material in the following paragraph come from W.I.B. Beveridge, Influenza: The Last Great Plague (New York: Prodist, 1977), pp. 2-9.
- 5 Ibid., pp. 2-3.
- 6 Crosby, America's Forgotten Pandemic, p. 84.
- 7 The history of influenza appeared in the Indianapolis Star, 6 October 1918, p. 6, "Influenza Like Grip Pandemic." The reference to droplet infection comes from the Indianapolis Star, 14 September 1918, p. 9, "How to Avoid Spanish Flu."
- 8 Beveridge, Influenza, pp. 47-48.
- 9 Indianapolis Star, 5 October 1918.
- 10 Dr. Hurty was quoted in the Indianapolis Star, 20 October 1918, p. 3, "Beware of Cold, Hurty Advises." Dr. Morgan's comments were reported in the Indianapolis News, 24 September 1918, p. 18, "To Prevent Influenza."
- 11 Interview, Celeste Jaffe, with Julia Butwin, Donnell P. Ewert, and Chun Zhou, Indiana State Board of Health, Indianapolis, Indiana, 28 February 1994.
- 12 The reference to the state of knowledge at the time of the pandemic came from the Indianapolis Star, 14 September 1918, p. 9, "How to Avoid Spanish Flu." Current knowledge about influenza transmission appears in Beveridge, Influenza,

- p. 49, except for the observation that shedding occurs two to five days before symptoms appear, which I learned from Julia Butwin of the State Board of Health.
- 13 Crosby, America's Forgotten Pandemic, p. 101.
 - 14 Dr. Morgan's warning appeared in the Indianapolis News, 24 September 1918, p. 18, "To Prevent Influenza."
 - 15 The observation of doctors in Boston that many influenza cases developed into pneumonia appeared in the Indianapolis Star, 11 September 1918, p. 1, "Grip and Influenza Gain in New York and Boston." I obtained the current health information in this paragraph during my interview with Martha Bennington, Senior Nurse Epidemiologist, Marion County Health Department, 28 February 1994.
 - 16 Dr. Morgan's advice can be found in the Indianapolis News, 24 September 1918, p. 18, "To Prevent Influenza." The state board of health circular was quoted in the Indianapolis Star, 13 October 1918, p. 12, "Influenza Not to Halt Plants." The instructions of the Chicago Health Department are from Crosby, America's Forgotten Pandemic, p. 53.
 - 17 Charles E. Rosenberg, The Care of Strangers: The Rise of America's Hospital System (New York: Basic Books, Inc., 1987), p. 72.
 - 18 The advertisement for Carter's Little Liver Pills appeared in the Indianapolis Star, 2 October 1918, p. 10; Dr. Caldwell's product was advertised in the Indianapolis Star, 10 October 1918, p. 8; Cascarets were advertised in the Indianapolis Star, 21 November 1918, p. 5.
 - 19 Father John's was advertised in the Indianapolis Star, 10 October 1918, p. 12; Dr. Pierce's medicines were advertised in the Indianapolis Star, 8 November 1918, p. 9.
 - 20 The Nostriola ad appeared in the Indianapolis News, 11 October 1918, p. 18; the Vick's ad was in the Indianapolis Star, 13 October 1918, p. 10; Kondon's was advertised in the Indianapolis News, 17 October 1918, p. 23.
 - 21 The Peruna ad appeared in the Indianapolis Star, 13 October 1918, p. 8; the ad for Miller's Antiseptic Oil was in the Indianapolis News, 25 October 1918, p. 25.

- 22 The Scott's Emulsion ad appeared in the Indianapolis Star, 24 October 1918, p. 3; the ad for Borden's was in the Indianapolis News, 30 October 1918, p. 9; the ad for Lysol and Horlick's was in the Indianapolis News, 31 October 1918, p. 3.
- 23 Indianapolis Star, 27 October 1918, p. 1, "Public Is Warned of Flu Remedies."
- 24 Alfred W. Crosby, Jr., "The Influenza Pandemic of 1918," in Influenza in America 1918-1976, ed. June E. Osborn (New York: Prodist, 1977), p. 5.
- 25 The information about India comes from Beveridge, Influenza, p. 31; the other mortality statistics appear in Richard Collier, The Plague of the Spanish Lady (New York: Atheneum, 1974), p. 305.
- 26 The mortality rates among native Americans during the colonial period are described in Alfred W. Crosby, Jr., The Columbian Exchange: Biological and Cultural Consequences of 1492 (Westport, Connecticut: Greenwood Publishing Company, 1972), p. 37. Crosby mentions the native American experience during the Great Pandemic in America's Forgotten Pandemic (p. 228) where he also notes that in 1918 black Americans, in the age groups 20-45, had lower death rates from all causes than their white counterparts. This anomaly may be due to the fact that a greater proportion of black persons—being generally more susceptible than whites to respiratory diseases—may have contracted flu in the spring wave and thereby gained some degree of immunity to the fall wave.
- 27 The reference to the problems estimating the flu deaths in the United States is taken from Crosby, America's Forgotten Pandemic, p. 204. Crosby does not explain the reason that not all states were included in the Original Death Registration Area, but Thurman B. Rice does (The Hoosier Health Officer, Indianapolis, 1946, p. 87). Only those states that had adopted accurate methods of registering vital statistics could be included; thanks to the efforts of the redoubtable John Hurty, Indiana was one of them. After amendments that Hurty had advocated became part of the state health law in 1899, doctors were obligated to report births and deaths to the local health officer; also, burial permits were required for an internment, but could be issued by the health officer only after he had received a signed death certificate from a physician. The following year, as a direct result of this progressive legislation, the Census Bureau added Indiana to the six New England states, New York, New Jersey, and Michigan that comprised the Registration Area. This was something of an accomplishment and one that

was not shared at the time by Ohio and Illinois, both of which were more populous and prosperous than Indiana or Michigan. A zealous proponent of the use of statistics in disease prevention and health promotion, Hurty struggled long and hard to enforce this law and was still doing so when the epidemic struck.

- 28 The information in this and the next paragraph comes from Crosby, America's Forgotten Pandemic, pp. 205-207.
- 29 Dannenberg's obituary appeared in the Indianapolis News, 15 October 1918, p. 12, "Former Mayor's Wife Dead." Morgan's appeared in the Indianapolis Star, 16 October 1918, p. 4, "Greensburg Boy Is Taken."
- 30 The reference to Fort Dix is taken from the Indianapolis Star, 26 September 1918, p. 10 "42 Deaths at Camp Dix;" the story about Camp Sherman is in the Indianapolis News, 7 October 1918, p. 5, "Mothers Go to Camp Despite Influenza." Private Witmer's death notice appeared in the Indianapolis News, 12 October 1918, p. 2, "Epidemic Halts Draft Tests." The notice mentioned that Witmer's wife had died on June 1 and that his 9-week-old son had died in August, a reminder that in 1918 death in childbirth was not uncommon and high infant mortality rates were still a part of life. Another death notice, Indianapolis News, 16 October 1918, p. 4 "Deaths at Columbia City," illustrated the relative precariousness of young children's lives in the era before widespread vaccinations. Helen Sweeney, 14, died of influenza in Columbia City on October 16, 1918. In 1915, her parents had lost three younger children to the measles in the space of one week.
- 31 The item about Miami University is from the Indianapolis News, 7 October 1918, p. 4, "Improvement at Miami." The story about Edward Carman is from the Indianapolis News, 17 October 1918, p. 10, "Conditions in the State."
- 32 John Abels' death notice appeared in the Indianapolis News, 9 October 1918, p. 8, "Influenza and Pneumonia Reports." The reference to influenza contracted while bringing a body home for burial is taken from the Indianapolis Star, 25 October 1918, p. 5, "Flu Conditions in State." The government policy of subsidizing transportation costs is mentioned in the Indianapolis Star, 26 September 1918, p. 10, "42 Deaths at Camp Dix."
- 33 Joseph Risenbeck's death was reported in the Indianapolis News, 10 October 1918, p. 8, "Husband Dies, Wife Ill." Helen Stout's obituary was in the Indianapolis Star,

- 20 November 1918, p. 9, "Obituary." John Richardson's death notice was in the Indianapolis News, 14 October 1918, p. 3, "Physician on Way, Man Dies."
- 34 Jesse Felts' death notice appeared in the Indianapolis News, 21 September 1918, p. 2, "Dies at Lakes Naval Station." Warren Walters' obituary was in the Indianapolis News, 12 October 1918, p. 20, "27 New Cases at Logansport." Harold Densmore's death was reported in the Indianapolis News, 14 October 1918, p. 3, "Goshen Reports Three Deaths." Jack Matheson's obituary appeared in the Indianapolis News, 15 October 1918, p. 14, "Conditions in the State."
 - 35 The story of the Indianapolis family was in the Indianapolis News, 18 October 1918, p. 21, "Babies Die, 14 Others Sick, Family Destitute." The Ringer family's ordeal was reported in the Indianapolis News, 29 October 1918, p. 1, "Crawls Mile on Hands and Knees to Highway."
 - 36 The Wallace's deaths were reported in the Indianapolis News, 10 October 1918, p. 8, "Man and Wife Are Victims." Notice of the Meldrums' deaths appeared in the Indianapolis Star, 7 December 1918, p. 16, "Funeral of Man and Wife, Pneumonia Victims, Today." William Dierking's death was reported in the Indianapolis Star, 20 October 1918, p. 4, "Wife and Husband Die." Edna Harmon's death notice appeared in the Indianapolis News, 20 November 1918, p. 5, "Brazil: Husband and Wife Expire."
 - 37 The estimate of the number of orphans in Indiana was reported in the Indianapolis Star, 3 January 1919, p. 6, "Thousands Made Orphans by Epidemic in Indiana." According to the Indiana State Board of Health, Monthly Bulletin, XXI (December, 1918), p. 148, an additional 1,379 married people died from influenza and pneumonia during December. Using the estimation method described in the body of the paper, there were a total of 8,304 children orphaned by the epidemic between September 1 and December 31, 1918. The story of the McCarthy children's lives in—and ultimately, their deliverance from—the unhappy foster home is told in Memories of a Catholic Girlhood (New York: Harcourt, Brace and Co., 1957), pp. 5-80 .
 - 38 The O'Connell deaths were reported in the Indianapolis News, 7 October 1918, p. 4, "Disease Spreads Rapidly." Florence Pickens' death notice appeared in the Indianapolis Star, 3 November 1918, p. 1, "Nurse Dies of Influenza." The Mason obituary was in the Indianapolis News, 27 November 1918, p. 8, "Mother and Son

- Die.” The Mitchell deaths were in the Indianapolis News, 1 December 1918, p. 15, “Mother and Child Dead.” The obituary for the Isenhower brothers appeared in the Indianapolis Star, 7 December 1918, p. 15, “Death From Flu Follows Brother’s Only 5 Days.” The deaths of the Vest children were reported in the Indianapolis Star, 19 November 1918, p. 4, “Four in Family Die.” The deaths in the Langdon family were reported in the Indianapolis News, 20 November 1918, p. 5, “Three in Family Die.”
- 39 Col. Hagadorn’s suicide was reported in the Indianapolis News, 8 October 1918, p. 1, “Col. Hagadorn Takes Life at Camp Grant.” Dr. Sudranski’s suicide was reported in the Indianapolis News, 28 October 1918, p. 4, “Physician Kills Self.” The story about Lavinia Burbrink appeared in the Indianapolis News, 12 October 1918, p. 17, “Husband Dies, Wife Loses Reason.”
 - 40 Indianapolis News, 16 November 1918, p. 1, “Letter Ends Mystery About Missing Woman.”
 - 41 Indianapolis Star, 16 December 1918, p. 8, “Death Takes Principal in Grave Divorce Suit.”
 - 42 William DePrez Inlow, “The Indiana Physician in World War I,” in One Hundred Years of Indiana Medicine, ed. Dorothy R. Russo (Indianapolis: Indiana State Medical Association, 1949), p. 102.
 - 43 Chloe Miller’s death notice appeared in the Indianapolis Star, 5 November 1918, p. 5, “Nurse Dies of Influenza While Fighting Epidemic.” Eileen Miller’s obituary was in the Indianapolis News, 18 October 1918, p. 20, “Nurse Pneumonia Victim.” Sr. Patrice Kennedy’s death was reported in the Indianapolis Star, 24 October 1918, p. 7, “Obituary.” Catherine Libka’s obituary appeared in the Indianapolis Star, 25 November 1918, p. 12, “Surgery Superintendent at City Hospital Dead.” Mary Edna Fletcher’s death notice was in the Indianapolis Star, 4 December 1918, p. 7, “Popular Nurse, Veteran of Methodist Hospital, Is Dead.” Beatrice Davis’ death was reported in the Indianapolis Star, 12 December 1918, p. 3, “Local Nurse Contracts Influenza and Dies.” Ethel Leach’s obituary appeared in the Indianapolis Star, 2 October 1918, p. 7, “Local Nurse Dies in East.” Pauline Collins’ death was reported in the Indianapolis Star, 9 November 1918, p. 7, “Indianapolis Nurse Expires of Pneumonia at Universal.” Florence LeClaire’s death notice appeared in the Indianapolis News, 10 October 1918, p. 10, “Influenza and Pneumonia Reports.”

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