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Recurrence and Resilience

The Third Wave of the 1918-19 Influenza Pandemic in Hamilton

D. Ann Herring and Sally Carraher, editors

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1

Recurrence and Resilience

D. Ann Herring and Sally Carraher

In June of 2009, the World Health Organization declared an influenza pandemic after over 74 countries reported laboratory-confirmed cases. Genetic analysis showed that this particular influenza was caused by an H1N1 strain unrelated to the human seasonal viruses that had circulated around the world since 1977 (WHO 2010b). In the wake of this announcement, those of us living in Hamilton, Ontario (and in Canada as a whole) were swept up in vigorous public health campaigns that included comprehensive vaccination programs and daily, often alarming, reports about the spread of infection. The 2009 virus, and patterns of illness and death it produced, were eerily similar to those observed during the 1918-19 influenza pandemic and comparisons between the two were often made.

The idea for this book was born out of these circumstances. We already knew that the City of Hamilton had experienced higher death rates than usual during the fall wave of the 1918 pandemic (Herring 2006), but little was known about the subsequent wave of influenza during the winter of 1919. Did Hamilton experience a resurgence of influenza, otherwise known as “the third wave” from January to April in 1919? If so, how did city officials and the public respond to yet another wave of influenza after enduring widespread illness and death and controversial bans on public assembly the previous fall?

The image on the cover of this book reflects what we learned about the third wave of influenza, and the people of Hamilton, during the winter of 1919. The cover depicts a young boy, Archibald “Archie” Hamilton Dixon, resting in bed and recovering from illness. Next to Archie, a vase of daffodils blooms in the spring air of Hamilton. The photograph was taken in 1909 by his older sister, Jessie Bell Dixon (Hamilton Public Library 2008). This picture of recovery and

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renewal symbolizes, very well, the overall message of this book: Even though the influenza pandemic resurged to take a toll of disease and death in Hamilton during the winter months of 1919, the people of the city showed remarkable resilience to its presence.

Written by fourth-year Honours Anthropology students studying infectious disease at McMaster University, this book tells the story of the recurrence of this deadly, global disease and how the people of Hamilton dealt with its manifestation in their city. The authors scoured local archives and libraries to uncover and compile cultural artifacts from the period: newspaper accounts, photographs, death and funeral records, and Hamilton Board of Health Reports. Drawing on this rich body of fascinating information, the author of each chapter discusses a different facet of the third wave of influenza in Hamilton.

Emily Waugh begins the story by examining the “viral panic” that surrounded pandemic influenza in 2009, concluding that the people of Hamilton showed little, if any evidence, of such an extraordinary level of worry during the winter of 1919. Amy Hughes-Jones discusses the processes whereby new strains of influenza emerge. Brydne Edwards takes up the question of whether a “third wave” of influenza actually occurred in Hamilton, in view of the fact that the pandemic did not recrudescence everywhere (Pearl 1919), and produces compelling epidemiological evidence of its presence. Even though epidemic influenza was the subject of media scrutiny in the winter of 1919, Laura Koskocky demonstrates that other less publicized diseases, such as tuberculosis, had higher case fatality rates. Hope McGilly maps the distribution of influenza deaths in Hamilton and reveals that they were more likely to cluster in some parts of the city, such as in the northwest Wards, than in others, such as the southern Wards. Sarah O’Sullivan examines the role of hospitals during the fall and winter waves of the 1918-19 pandemic and observes a return in the winter months to the more normal early twentieth-century pattern of dying at home, rather than in hospital. Katie Wright turns her attention to instances where both pregnant mothers and their infants died from influenza, a doubly tragic occurrence that continues to characterize influenza pandemics today. Whilst most of our book focuses on Hamilton, Jean Thompson looks toward the Six Nations Reserve and draws attention to the heavy impact that influenza had there, a toll that was likely even higher because many deaths probably were not registered with the Provincial government.

Duncan Ravenscroft reminds us that the view we have of any epidemic depends on how physicians define and diagnose diseases, a complicated process of subtle differentiation that is subjective and modulated by personal training and experience. Physicians often gain the spotlight during epidemics, but Elyse Pipitone reveals the more significant role that nurses played in the 1919 epidemic, despite the newness of their profession and the obstacles they faced in defining this new role for women outside of the home. However, while nurses and doctors tended to the sick in Hamilton, often many people were too poor to afford their services. Tiffany Rickard describes the relatively few social safety nets that existed at the time, and the organizations that provided relief to Hamiltonians who needed money and medical treatment when they fell ill, or burials when they died.

No one knew what was causing otherwise healthy people to sicken and die in the 1918-19 pandemic, even though the cause was generally attributed to influenza. Cassandra Popek traces the development of vaccines that were administered to ease symptoms and prevent illness; none was effective, simply because the virus causing influenza was unknown at the time and the vaccines targeted other pathogens. In the absence of knowledge about the disease and effective treatment, many people suffering with influenza sought relief by taking aspirin. Andrea Goertzen considers the possibility that misuse of aspirin may have led to symptoms that mimicked the symptoms of pneumonia, but were really caused by excessive doses of aspirin. Rory Schafer explains that several theories of disease causation were prevalent in Hamilton at the time, which led the residents to seek a variety of treatments, in keeping with these theories.

If the fall outbreak of influenza in Hamilton was punctuated by school, store, and church closings, these were virtually absent in the winter outbreak in 1919. Melanie Murken sees this lack of public health interference in the daily lives of Hamiltonians as a signal of a return to normalcy, despite the presence of influenza. Jovan Krasulja suggests that the relative lack of attention paid to influenza in the winter of 1919 was closely tied to a preoccupation with the end of the First World War, which overshadowed the disease. Certainly, local newspapers presented different versions of Hamilton's winter epidemic, some more positive than others, as Katherine Dewar argues in her chapter. Such contradictory renderings of the story, coupled with the lack of medical knowledge on what was causing the pandemic, Katie Zazulak argues, led the public to

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entertain a variety of ideas about its origins, many of which linked it to the horrific conditions of the war.

Even though the winter epidemic of influenza was less severe than the one that affected Hamilton in the fall of 1918, Brett Cuthbertson argues that people were suffering psychologically from the long term presence of illness and death in their midst. Chih Chen sees compassion fatigue as another facet of this weariness, but detects the death-affirming values of dutifulness and concern for the community in the language of influenza obituaries. Through the lens of an archaeological perspective, William Lucas explores funeral records as cultural artifacts that capture the memory of the people who died from influenza thereby illustrating the norms and rituals that were performed on their behalf, and many features of their social position in life.

Through this study of the recurrence of influenza in Hamilton in 1919, it is clear that the past has much to tell people today about human resilience and resourcefulness in the face of life-threatening crises.

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took the group photograph of the authors shown on the back cover (Brett Cuthbertson is missing) and showed that her talents extend well beyond anthropological research (chapter 2). Media Production Services at McMaster made sure everything was printed properly and according to schedule. This book would not have been possible without all of you. Thank you!

2

“Viral Panic” in the Hamilton Media during the H1N1 Pandemics of 1918-19 and 2009-10

Emily Waugh

“There is a new sense of vulnerability and uncertainty with respect to infectious disease, rekindling fears of mortality on the scale of historic plagues and spurring research into the origins and circumstances that allowed epidemics to erupt and flourish in the past” (Herring 2009:79).

Germs, viruses, and disease have barraged humankind throughout history, causing fear and uncertainty. News of newly virulent diseases most often reaches the general public via the media, whether it is by newspapers or television. During the 1918-19 influenza pandemic, the Hamilton newspapers screamed headlines such as “Fatal ‘Flu’” (The Hamilton Spectator 1919u1:10) and “Many Succumb to King Death” (The Hamilton Spectator 1919g2:3). In 2009, we experienced a strikingly similar “swine flu” pandemic in which comparable headlines prevailed, causing citizens of Hamilton to stock up on hand sanitizer and rush to the doctor’s office with the slightest trace of a cold. Headlines surrounding the anticipated wave in the autumn of 2009 state “Nurses Brace for Surge of H1N1: Some Reminded of Anger, Pain Left by SARS” (The Hamilton Spectator 2009c:A8), and “Worst Yet to Come for H1N1: WHO” (The Hamilton Spectator 2009d:A18). Public panic that results from taking the media’s interpretation of any event at face value is evident during both instances of the H1N1 influenza pandemics.

This chapter examines the similarities and differences between newspaper representation of influenza during the third wave of the 1918-19 and 2009-10 pandemics. The Hamilton Spectator is analyzed from both time periods. It is

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apparent that during the third wave in Hamilton in 1919 there is more conclusive evidence of “viral/germ panic” than in 2010. This may be partially due to the lack of effective treatment in 1919, compared to the widespread use of vaccines and other forms of prevention in 2009. In spite of effective medical and technological advances made to curb the spread of influenza today, common themes run throughout newspaper reports for both pandemics.

Disease and Germs: Then and Now

Throughout history, the medical community as well as the public’s view of what causes illness has changed drastically. At the end of the nineteenth century, it was generally believed that epidemics were caused by “bad air” or miasma, the poisonous vapors believed to be made up of particles from decomposing material (Williamson 1955:44). The origins of epidemic and endemic diseases were obscure; a few experimental discoveries, such as a vaccination for smallpox, allowed for some improvements in health conditions (Duffy 1971:797). In 1881, through various experiments, Louis Pasteur, a French chemist and microbiologist, came to the conclusion that fermentation was caused by the growth of microorganisms, not via spontaneous generation (Pasteur 1881:420). Although he was not the first to propose this idea, he carried out experiments to prove his theory. The germ theory of disease which grew out of these and other experiments gave rise to changes in hospital and medical practices to minimize the spread of infection and introduced the medical community to the concept of viruses. Soon after its formulation, articles on germ theory began to reach the public via newspaper and magazine (McClary 1980:33). Most notably, authors appeared to be preoccupied with the many ways in which germs are able to interact and infect the public. While the older miasmatic gases were inert and passive, it was evident the germs were quite different – they were alive, and could be opportunistic and aggressive (McClary 1980:41).

Today, there is growing concern about morbidity and mortality from emerging (new) and re-emerging (old) diseases (Barrett et al. 1998:256). Over the last 25 years, an exceptionally large number of new diseases has been detected, HIV/AIDS being the most dramatic example. Re-emerging diseases are becoming more prevalent, such as tuberculosis and polio. While climate change may be contributing to changes in disease patterns, most of these changes have

anthropogenic origins (Barrett et al. 1998:259). Antimicrobial drug resistance is also common, allowing for the evolution of “superbugs.” If past examples of influenza epidemics had been given closer inspection, projections about the imminent decline of infectious disease epidemics might not have been so optimistic (Barrett et al. 1998:262). Humanity is quickly coming together as a single global disease network in today’s world of international business and rapid travel.

What is “Viral/Germ Panic?”

Drawing from the original idea of “germ panic” from Nancy Tomes’ article “The Making of Germ Panic: Then and Now” (2000), it is possible to see how this theme runs through the media’s representation of influenza. Tomes states that the increasing public obsession with germs today shows striking parallels to similar events in the past, and that these ideas are shaped by trends in public health education, journalism, and advertising (2000:119). During the Spanish Influenza pandemic of 1918-19 and the swine flu pandemic in 2009, the public may panic about looming diseases due to the media’s negative representation of them as potential “killers” and urging that readers take drastic precautions to avoid being “attacked.” While it is obvious that influenza should be taken seriously, it may be debatable to what extent it is as threatening as depicted. The way in which events are reported remains at the discretion of news personnel who decide what is reported and how to define certain events (Spencer & Triche 1994:199).

After acceptance of the germ theory in the early twentieth century, the media barraged the public with reports on the terrifying ways in which diseases could be contracted. Germs not only could be found in dust floating in the air, but they could also be found on non-living objects (fomites) and on ice in drinking water (McClary 1980:35). How could people possibly protect themselves from these deadly killers? It became the norm in the early twentieth century to disinfect all objects and surfaces on a daily basis, a practice that is still reinforced strongly today. These ideas became the foundation for aggressive new public health campaigns that sought to make citizens aware of what should be done to stop the spread of frightening infectious diseases (Tomes 2000:192).

This first “germ panic” followed a technological advance in print production in the mid-nineteenth century, in which newspapers and books were

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reaching the public at a quicker rate (Tomes 2000:193). The Spanish influenza pandemic created panic, moreover, because the general public and medical community alike did not know what was causing the deadly disease. There was no effective vaccine for influenza, which in turn created feelings of insecurity for citizens. Today, the anxiety caused for most diseases can be better described as “viral panic,” as the threat causing most serious, newsworthy sickness are viral pathogens (Tomes 2000:194).

Disease panic and the media go hand in hand. The more panic and rumours there are, the more demand there is for information provided by the newspapers, and later, by television (Humphreys 2002:846). There are many factors that contribute to the creation of panic within the media. It is important to situate each disease within its place; when the realm of safety cannot be defined, artificial boundaries are created to separate suspect populations and create an illusion of safety (Humphreys 2002:847). Often if the symptoms and speed at which the disease can be fatal are discussed, people become more afraid. Incomplete and unclear information via the media also causes more panic, as people then believe that even the medical community cannot keep them safe. In the past, critics believed the media to be a factual source of information (Tomes 2002:629). However, this may not always be the case.

The Hamilton Spectator on the “Flu” in 1919 and 2010

While there were other newspapers in circulation during 1919 (The Hamilton Herald, The Hamilton Times), The Hamilton Spectator is used as the primary media source for this study because the Times and the Herald do not exist today. In order to examine the presence of “viral/germ panic” within the Hamilton Spectator it is essential to determine the degree to which this newspaper represented influenza during the Spanish influenza pandemic. By examining each article that mentioned influenza from January to April of 1919, it is possible to see how the news media of Hamilton presented the disease and how the public reacted to it.

For the purposes of this study, I examined the bolded, larger print headlines because they catch the eye of the reader. If a headline mentioned any aspect of the flu, it likely prompted the reader to read the entire article. For this reason, any headlines that mentioned influenza were analyzed. I also evaluated

the sections of The Hamilton Spectator entitled “Brief Local Items” and “News in Brief” because they were often read by the general public and offered quick information on local news that might have been more likely read than lengthy articles. Any articles that failed to mention influenza in the headline were not considered. All of the articles were given either a negative or a positive rating, depending on how they represented influenza (Table 2.1). In this scheme, an article categorized as negative was deemed to cause panic. Articles given a negative rating stated that the flu was still prevalent, new cases had been found, or that people continued to die from it. Articles were assigned a positive rating if they indicated that the flu was less prevalent, and that fewer people were contracting and dying from it.

Month	Negative (Panic Causing)			Positive (Panic Abating)		
	Regular Articles	Brief Local Items	News in Brief	Regular Articles	Brief Local Items	News in Brief
January 1919	6	0	0	1	3	0
February 1919	10	0	0	2	0	0
March 1919	5	0	0	1	0	0
April 1919	2	0	0	2	0	0
Total	23			10		

Table 2.1: Articles Causing and Abating Viral Panic in the Hamilton Spectator during the Third Wave in 1919.

As Table 2.1 shows, it is evident that many articles might have alarmed the newspaper-reading public. There were more articles categorized as negative ($n=23$), and therefore potentially causing panic, than articles categorized as positive ($n=10$) because they reassured readers about the influenza pandemic. The death toll due to influenza and pneumonia totaled 227 for the months of January to April of 1919, peaking at the end of February and into March (see Edwards, Chapter 4). Negative articles in the Hamilton Spectator are also more

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frequent in February and March (n=15), with a significant decline in April (n=2), and then no mention of influenza after 9 April, 1919.

In January, the six negative articles mention a death either by influenza directly, or from pneumonia as a result of influenza. There is even an article entitled “Moose Die from Flu” (The Hamilton Spectator 1919h2:7). During February, there is the suggestion that the pandemic was waning, but that there was no reason not to “continue to disinfect the nose, throat, and air passages regularly” (The Hamilton Spectator 1919d2:22). There are reports of people dying from the disease. The flu is also reported to be “very serious” in Woodstock, with more severe cases and a number of deaths there (The Hamilton Spectator 1919v1:11). In March, there is much mention of “the grippe,” which is one of the terms used to refer to influenza. One hundred cases of influenza were reported by health authorities on March 14, 1919, most of which were “just cases of old-fashioned grippe” (The Hamilton Spectator 1919a1:11). At the beginning of April, more confirmed cases of influenza occurred but none of them appeared to be serious. Many headlines were negative but the article itself stated that cases were not as serious as before and that the threat of flu was waning.

The articles characterized as positive are far fewer, but they provide evidence that The Spectator was publishing encouraging stories about the course of the epidemic. In January, under “Brief Local Items,” one article states “With the flu germ driven from the city, there is little to occupy the attention of the department of health” (The Hamilton Spectator 1919:n.pag.). In February influenza continued to spread, but mortality did not increase (The Hamilton Spectator 1919). By April, it is evident that the flu was disappearing, and there is no mention of influenza after April 9, 1919.

Having considered reporting of influenza in the early months of 1919 when the influenza pandemic continued to be present in the city, I now move to consider media reports of influenza by the Hamilton Spectator during the same period in 2010. This newspaper is now available online, so it was possible search for key phrases related to H1N1 from January to March of 2010. I searched each paper for the terms “swine influenza” and “H1N1”. Only four articles mentioning swine flu or H1N1 were retrieved, and I categorized all of these articles as positive. One article mentioned that seasonal flu and H1N1 shots were available for those who had not yet been vaccinated. In the same article, Dr. Elizabeth Richardson states that the H1N1 pandemic has definitely tapered off (The

Hamilton Spectator 2010b:A4). Another article provided tips on how to avoid seasonal flu, “now that the fears of the H1N1 virus have morphed into relief that it hasn’t been worse” (The Hamilton Spectator 2010c:G6). Most importantly, the article entitled “We’re free of flu: H1N1 and seasonal” claims that the prevalence of flu, seasonal or pandemic, was extremely low. While there were still cases of flu-like symptoms across Ontario, only two H1N1 laboratory-confirmed cases were reported since January (The Hamilton Spectator 2010c:A6).

What Diminishes “Viral/Germ Panic”?

The articles in The Hamilton Spectator from 1919 and 2010 reveal very different trends in media reports after each pandemic. This begs the question: In general, what was different about the two pandemics? Table 2.2 compares the two pandemics. The course of disease during both pandemics was strikingly similar, and often targeted the same demographic groups. Aspirin was used as a treatment during both, but a vaccine was readily available for the public in 2009. In the way of public education, much of the media was censored during 1918, hindering the accurate representation of influenza. Today, major health issues are covered extensively by the media, and public health infrastructure and the World Health Organization (WHO) plays a crucial role.

When the current H1N1 strain was discovered in 2009, the early focus on slowing the spread depended on non-pharmaceutical interventions including limiting the international spread of the virus, reducing the spread within national and local populations, reducing the individual’s risk for infection, and communicating risk to the public (Hollenbeck 2009:349). The media, whether in 1919 or 2010, thrives on the negative. In a newspaper report, definitions of an event’s consequences are a significant element of the social construction of risk (Spencer & Triche 1994:205). With regards to the Spanish Influenza pandemic in 1918-19, the consequences of the disease were depicted as either severe illness or a subsequent infection, such as pneumonia. In 2009, illness and death were depicted as the ultimate consequences of infection with H1N in the absence of a protective vaccination. It is not possible to know exactly how the general public reacted to what they read about influenza in The Hamilton Spectator in 1919, but when it comes to a risk or danger of any kind, people generally respond with panic and fear.

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It may be deduced that the major advancement made during the current pandemic is the availability of potential protection in the form of a vaccine. There was little known about the cause of influenza during the early nineteenth century. Doctors claimed to have discovered how the influenza “germ” worked until well after the pandemic had subsided, but the virus was not identified until 1933. Some authorities suggest that the best defense against influenza is vaccination, if the right strain can be predicted and there are no mutations after the administration of the vaccine (Hollenbeck 2009:350). In 1918, a vaccine for influenza was introduced and was believed to decrease the occurrence and severity of influenza and pneumonia (Wetmore 1919:1076). However, there is no

	1918-19 Influenza Pandemic	2009-10 Influenza Pandemic
Origin	Rural Kansas	Rural Mexico
Course of Disease	First Wave: mild, March/April Second Wave: moderate, summer	First Wave: mild, March/April Second Wave: moderate, late summer
Primary Victims	Third Wave: severe, October/November Pregnant females Young adults	Third Wave: Unknown as of October 2009 Pregnant females Young adults
Treatment	Folk cures, Aspirin, bed rest, quarantines	Tamiflu/Relenza, Aspirin and other fever/pain relievers
Public Education	Very limited, mass media censored, influenza was not reported prior to 1925	Extensive media coverage, Public Health officials report influenza to the Centers for Disease Control, WHO influenza surveillance network in place
Government Response	Limited in scope and often reactive	Proactive, used resources to meet the challenges of a potential pandemic

Table 2.2: Comparison of 1918-19 and 2009-10 Influenza Pandemics (Hollenbeck 2009:350).

evidence that the vaccine was distributed in Hamilton. In October of 2009, the federal government approved the H1N1 pandemic vaccine, and they were distributed by the millions to specific vaccination clinics in Hamilton and around the country (The Hamilton Spectator 2009a:A10). On its first day, Hamilton's first public clinic vaccinated 1,750 people in high risk groups, that is, people with compromised immune systems, chronic illnesses, and children from six months to less than five years. Panic may have been generated when the possibility of a vaccine shortage loomed at the beginning of November. People not among the high-risk groups were denied the vaccine. Clinics were able to close on December 4, 2009 in Hamilton, due to the diminishing cases of H1N1 (The Hamilton Spectator 2009c:A6).

The lack of panic depicted via The Hamilton Spectator during the third wave of 2010 may be due to the security the community felt as a result of the availability of a vaccine two months earlier. Even though there was a shortage in November 2009, the vaccine was readily available to those who wanted it. In 1919, "viral panic" was not as prevalent during the third wave as it was in the second wave. This is probably due to the fact that The Hamilton Spectator assured its readers that even though there were cases of influenza in the city, most of them were not serious or life threatening.

Feeling Secure?

It can be drawn from these analyses that while "viral panic" may have been generated by The Hamilton Spectator during the second and third waves of the influenza pandemics of 1918-19, it was not nearly as prevalent during the third wave from January to April. By effectively communicating the availability of a vaccine, the media in 2009-10 assured the public of Hamilton that a safety net was in place. In 1919, following the devastating aftermath of the second wave of the Spanish Influenza, citizens were still experiencing reports of flu deaths via the Hamilton Spectator; however, there were fewer new cases and they were not as serious or life threatening as during the previous fall. The fact that nobody, including the medical community, knew what was causing influenza likely increased panic among the general public. Today, it is generally known that the H1N1 virus caused the 2009 influenza outbreak and this made it possible to take action against it in the form of vaccines.

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The media will continue to maximize and dramatize risk, especially when it comes to emerging and re-emerging diseases. Communal fear and the feelings of loss will always be exacerbated by media accounts. However, as medical advancements are made, these feelings can be lessened in the presence of new vaccines, mitigation strategies, and hopefully, cures.

3

Understanding and Identifying the Influenza Virus

Amy Hughes-Jones

“Flu? If we but knew. The cause of flu. And whence it came and what to do, I think that you. And we folks, too, Would hardly get in such a stew. Do you?”
(Illinois Health News 1918:203).

The story has been told again and again. A new emerging disease presents itself in a population and infects millions of people, generating panic and fear. In some instances, bacterial diseases such as *Variola major* (smallpox), *Bacillus anthracis* (anthrax), *Yersinia pestis* (the bubonic plague) have considerably reduced human populations. Viral infections, such as the human immunodeficiency syndrome (HIV) that causes acquired immunodeficiency syndrome (AIDS), killed 16 million people globally by 1999 (Duncan 2003). Another virus, influenza, has been seen in pandemic form nine times between the period of 1700 to 1900, and at least three times since (Patterson 1986; Taubenberger & Morens 2008).

Between 1918 and 1919 an influenza pandemic infected approximately 500 million people. Nicknamed “The Spanish Lady” by the non-Spanish European press, this influenza had a short incubation period, and quickly spread within crowded areas (Phillips & Killingray 2003). “She “emerged in three waves that occurred at different times of the year and took a variable toll of mortality. Only a few isolated places in the world escaped the “virulent breath” of the 1918-19 influenza pandemic (Phillips & Killingray 2003:4).

The purpose of this chapter is understand the 1918-19 pandemic in light of what is known about influenza today, with a focus on the situation in Hamilton, Ontario. This discussion is based on Hamilton Board of Health reports (Hamilton Board of Health Reports 1916-17; 1917-18;1918-19;1919-20;1920-21;1921-22)

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and on registered deaths for the district of Hamilton for 1919 (Ontario Death Registers 1918-19), and explains how pandemic waves and the influenza virus are identified.

Recognizing an Infectious Disease of Unknown Etiology

At the time of the 1918-19 pandemic, infectious diseases in plants and animals were known to be caused by a limited range of microorganisms (Grafe 1991). In Germany and Russia, however, microbiologists deduced that there were other unidentifiable agents which they defined as “subcellular entitieswhich became marks of specific disease” (Oldstone 1998:14). This observation provided the basis for later developments that eventually led to the identification of viruses (Grafe 1991).

Before the 1918 outbreak, influenza pandemics prevailed in Europe in 1889 and 1898, resulting in 6,000,000 and 500,000 deaths, respectively (Oxford 2000). The etiology of the disease that caused these pandemics was unknown but Richard Pfeiffer discovered bacteria in the throats and lungs of influenza-infected individuals (Crosby 1976). Based on his research, coupled with the observation that “Pfeiffer’s bacillus” was present in the throats of many individuals suffering from influenza in the subsequent 1918-19 pandemic, many microbiologists considered it to be the cause of Spanish Influenza, even though the bacillus was also found in people who were not sick, or who suffered from other diseases, such as whooping cough (Oxford 2000).

The influenza virus was discovered by chance many years later when research on animals helped identify the origin of infection (Grafe 1991). In 1933 Europe experienced another influenza epidemic. After experiments on dogs, pigs, horses and foxes failed to identify the agent, Wilson Smith, C.H. Andrewes, and P.P Laidlaw tested filtrates of infected influenza victims on old world ferrets and discovered the influenza virus. Pfeiffer’s bacillus, otherwise known as *Haemophilus influenza*, was discovered to be associated with the pneumonia found in influenza-infected people (Oxford 2000), solving the mystery of its presence in the throats of influenza-infected people during the 1918-19 pandemic.

Europe and America 1918: The Presence of Three Waves

Although no one at the time knew what the causative agent of the 1918-19 pandemic was, epidemiological research conducted on a global scale identified that the pandemic occurred in three epidemic waves within a single year (Taubenberger 2006). Frost (1919), for example, studied the death rates by months in cities in the U.S.A. and England and Wales (Figure 3.1). As seen in Figure 3.1, the first wave of influenza occurred in June and July 1918; the second, and most severe, wave occurred in the fall, peaking in November 1918; and finally, the third wave occurred in February and March 1919. Frost (1919:316) noted that most European cities followed the same three-wave trend, including comparable differences in the severity of each wave. The second wave had the greatest impact in terms of death rates, followed by the third wave, and then the first (Frost 1919). Pearl (1919) studied the weekly mortality statistics for thirty-nine American cities. He found that the relative explosiveness of the outbreak was directly related to pre-pandemic death rates observed in each city. In other words, Mortality during the pandemic depended on pre-existing death rates from other diseases, such as pulmonary tuberculosis and kidney disease (Pearl 1919:1783).

The Birds and The Pigs: Identifying the 1918-19 Influenza

Virologists now categorize the influenza virus as part of the family of viruses known as *Orthomyxoviridae* (Cox & Subbarao 2000). There are three forms of influenza, conveniently referred to as Influenza A, B and C (Duncan 2003). Only Influenza A causes pandemics and each of its subtypes is identified by its surface proteins, or antigens (Kilbourne 2003). Influenza A has two surface antigens: haemagglutinin (HA) and neuraminidase (NA) and different combinations of these two surface antigens distinguish the various subtypes or strains of influenza, such as H1N1 and H2N2 (see Table 3.1). The long-term success of influenza viruses is explained by the antigenic variation of these surface proteins that “renders an individual’s susceptibility to new stains” (Cox & Subbarao 2000:408). New antigens can be introduced into human Influenza A strains from animal reservoirs (such as avian or swine influenza) or when a new antigen occurs through genetic exchange between animal and human strains of influenza A (Cox & Subbarao 2000).

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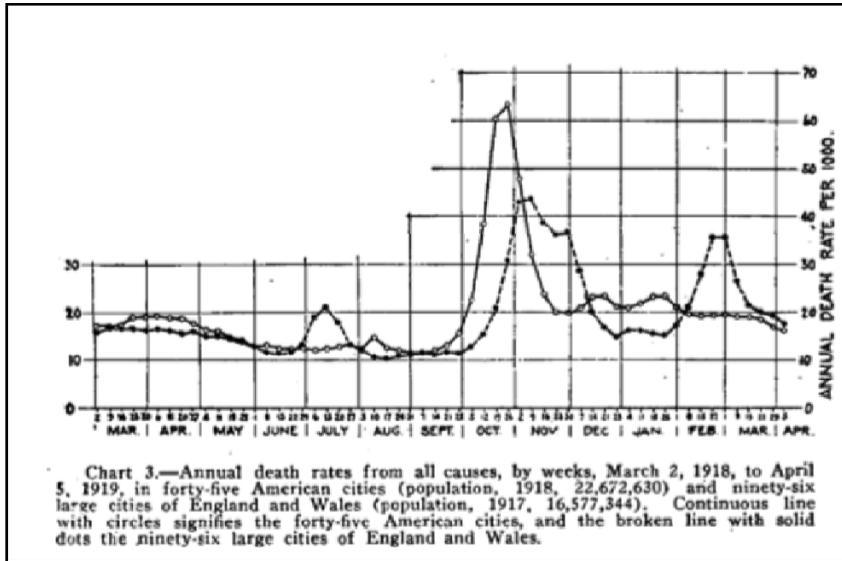


Figure 3.1: Three Waves of Influenza in 1918 (Frost 1919:316).

The strain of influenza associated with 1918-19 virus subtype has been identified as H1N1, based on its surface antigens (Table 3.2). This was accomplished by studying sections of wax embedded lung tissue from military influenza victims from 1918, and by sampling frozen tissue from victims exhumed from the arctic (Oxford 2000).

Year	Subtype	Deaths $\times 10^6$	Country of origin
1889	H2N2	6	Europe
1898	H3N2	0.5	Europe
1918	H1N1	40	Europe
1957	H2N2	4	Asia
1968	H3N2	2	Asia
1977	H1N1	?	Asia (laboratory)

Table3.2: Past Pandemics of Influenza A (Oxford, 2000:120).

Identifying the Virus

Analysis	Swine	Avian
Generic	Similar complete HA sequence (Taubenberger 2006)	Similar HA antibody binding sites, glycosylation sites, and receptor binding sites (Cox & Subbarao 2002)
	Similar partial NP gene (Taubenberger 2006)	Amino acid changes (nonsynonymous changes) place the 1918 NA with avian viruses (Reid et al. 1999)
	Synonymous NA nucleotide changes place the 1918 NA sequence with the mammalian viruses (Taubenberger 2006)	Of the first fragments amplified, four gene sequences are closer to avian influenza (Cox & Subbarao 2002)
	Presence of two clades that are phylogenetically distinct from avian strains (Reid et al. 1999)	
Theoretical	Outbreak in swine during the same period as in humans (Taubenberger 2006)	Hypothesis is that all human Influenza A viruses have avian origins (Crosby 1976) Avian influenza has also been found in pigs (Cox & Subbarao 2002)

Table 3.3: Comparison of Genetic and Theoretical Analyses of the 1918 Swine and Avian Influenzas.

Analysis of the H1N1 viral genome from 1918-19 has suggested to researchers that it is closely related to both avian and swine influenza strains until research done in 2005. Table 3.2 summarizes some of the factors that link the virus to swine and avian.

More recently, Taubenberger (2005) has studied polymerase genes from the 1918-19 strains that are evolutionarily closer to avian than swine genes. They state that, “an entirely avian-like virus adapted to humans...A total of ten amino acid changes in the polymerase proteins consistently differentiate the 1918 and subsequent human influenza virus sequences from avian virus sequences” (Taubenberger 2005:889). That said, researchers still do not know why the strain

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so virulent, but Taubenberger (2005) believes that looking at human-adapted avian influenza viruses may provide an answer.

A Third Wave in Hamilton

In order to place the 1918-19 pandemic in Hamilton in perspective, it is important to determine whether three waves of influenza actually occurred, recalling Frost's (1919) observation that not all cities were affected by a third wave of influenza. Hamilton's Board of Health Reports from 1916 to 1922 provides information on the number of cases of notifiable infectious disease in the city. Influenza, however, was not a notifiable disease from January to April until the 1918 epidemic started the previous fall and thus the Board of Health reports are silent on the possibility of a first wave of influenza in the spring/summer of 1918 (Figure3.2).

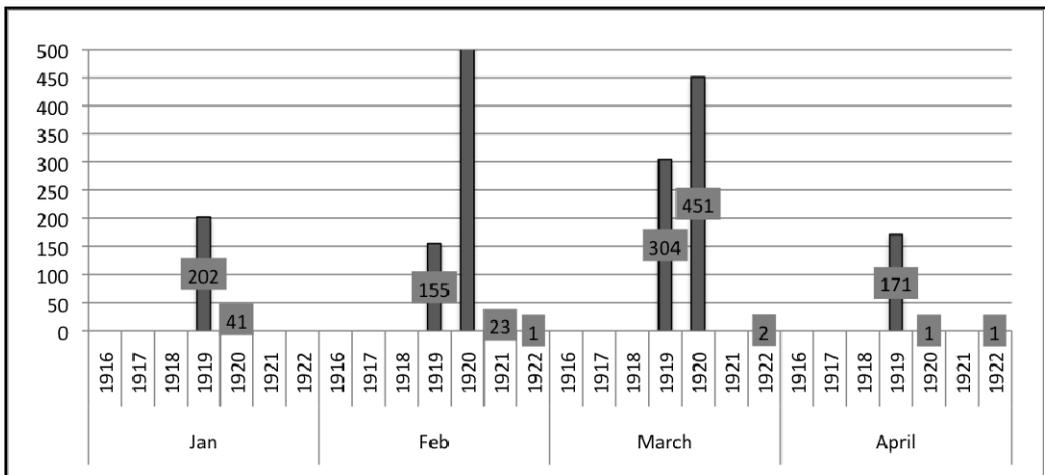


Figure3.2. Individuals Infected by Influenza in Hamilton, Ontario, 1916-22 (Hamilton Board of Health Reports 1916-17, 1917-18, 1918-19, 1919-20, 1920-21, 1921-22).

It is clear from these figures, however, that a third wave of influenza was present in Hamilton from January to April 1919, with a peak in cases occurring in March that year. Furthermore, scrutiny of the registered deaths for Hamilton during this period shows that a large percent of the deaths that occurred from

Identifying the Virus

January to April were caused by other diseases (Figure 3.3; see also Koskocky, Chapter 5). This is an increase of individuals infected with other communicable diseases during the third wave compared to the second (Figure 3.4). This is in keeping with the observation by Merler et al (2008) that influenza increases susceptibility to other diseases. It is important to recognize that, on average, half of the deaths in Hamilton resulted from other communicable diseases already present in the city. That said, when the monthly cases of influenza are plotted against deaths ascribed to influenza from August 1918 through May of 1919, it is clear that the second and third waves of influenza were present in Hamilton (Figure 3.5).

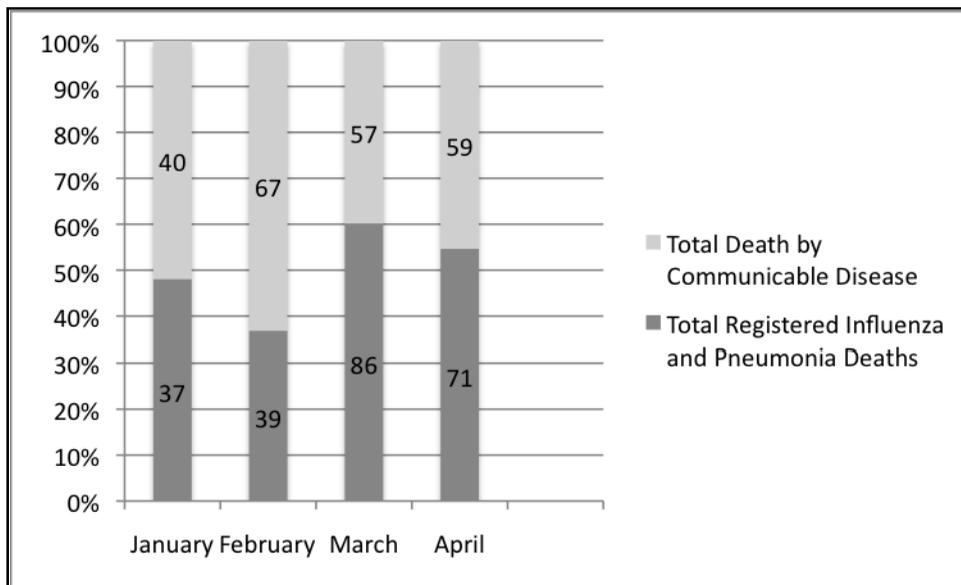


Figure 3.3: Percentage of Total Deaths by Communicable Disease (Hamilton Board of Health Report 1918-19).

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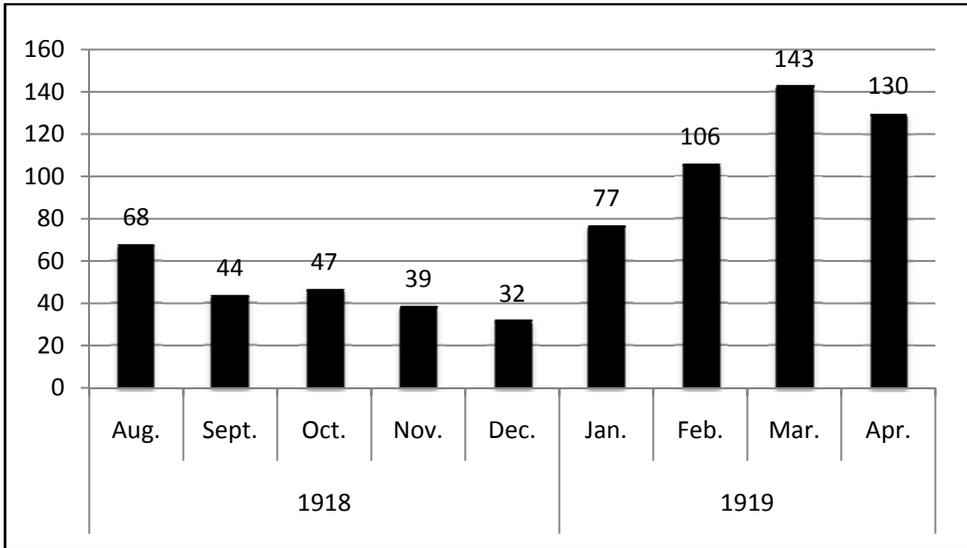


Figure 3.4: Reported Communicable Diseases Excluding Influenza, 1918-19 (Hamilton Board of Health Report 1918-19, 1919-20).

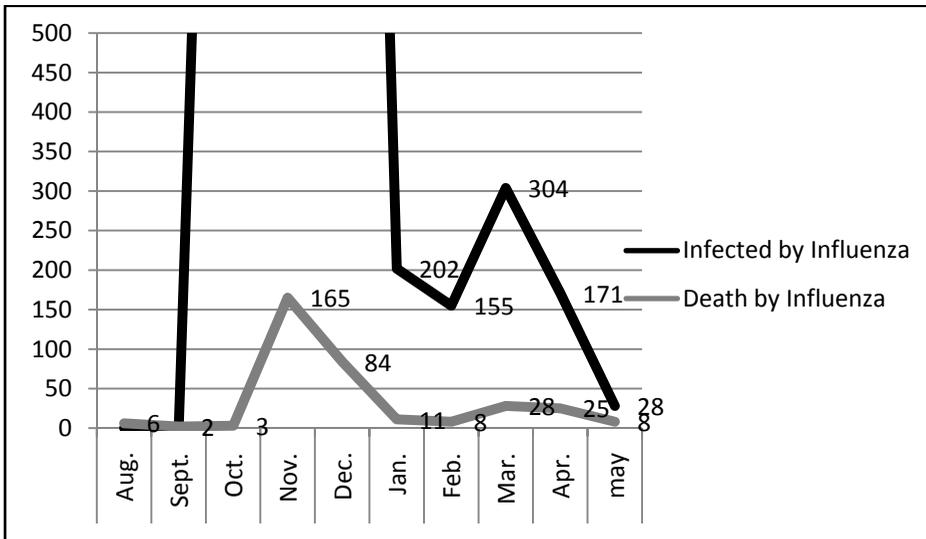


Figure 3.5: Second and Third Waves of Influenza in Hamilton, Ontario (Hamilton Board of Health Report 1918-19, 1919-20).

A Third Wave?

My analysis suggests that a third wave of influenza was present in Hamilton during the winter of 1919. That said, there were a large number of cases of influenza during January and February. What might this mean? One possible explanation is that Hamilton lacked a distinct third wave, but was subject to a prolonged second wave that finally ended in April. Pearl (1919) noted this phenomenon in some American cities. In such cases, he suggested that the strain of influenza was so aggressive that the population was not able to develop immunity and continued to be susceptible to the virus that had emerged the previous fall. Merler et al (2008) point out that co-infection with other pathogens can trigger multiple pandemic waves. Influenza only accounted for some 50% of deaths from communicable disease in Hamilton from January to April and it is thus possible that coinfection with these other diseases may have helped to prolong the second wave into the winter of 1919. As other chapters in this volume suggest (Edwards, Chapter 4), the presence of the W-pattern of age-specific mortality during February and March add weight to the hypothesis presented here that a third wave of influenza did indeed affect Hamilton in the winter of 1919.

4

Recurring Death: Evidence of the Third Wave in Hamilton

Brydne M. Edwards

“Already there have been over 300,000 deaths from the disease and one prominent health official predicts that there will possibly be 750,000 in the country next year from influenza and the ailments which follow it...the influenza epidemic has by no means ended” (The Hamilton Herald 1918:7).

The 1918 influenza epidemic is well-known for its W-shaped mortality age profile, in which an unusually large number of young adults died (Noymer & Garenne 2000). In fact, it has been demonstrated that adults between the ages of 20 and 40, who do not usually succumb to influenza, experienced mortality rates up to 20 times higher in 1918 than during any other influenza season (Chan & Kluge 2006:52). Seasonal influenza typically has a U-shaped mortality age profile, where very young children and the elderly are at the highest risk of dying. The increase in mortality rates among young adults is a distinguishing feature of epidemic influenza (Taubenberger & Morens 2006).

In addition to the unique W-shaped age mortality profile, there was a male bias in mortality rates in the United States during the autumn wave of the pandemic (Noymer & Garenne 2000). Noymer and Garenne (2000) have suggested that this could be due to males' increased chances of contracting other illnesses, especially tuberculosis. Singer and Clair (2003) contend that this type of interaction between diseases is an important component of a syndemic. Syndemics is a recently coined theoretical framework used to explain the synergistic interaction of two or more coexisting diseases that act in conjunction

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with deleterious social circumstances to channel illness and death into disadvantaged groups. This chapter focuses on the age and sex structure of influenza mortality during the winter of 1919 in Hamilton, Ontario, and places the findings within a syndemics framework.

Defining Influenza

A clinical case of influenza is not easily distinguished from other respiratory illnesses, because of the common symptoms these share, including cough and fever (Wiselka 1994). As a result, caution is warranted when defining a case of influenza at any time. Pneumonia is a complication of influenza and some scholars suggest that pneumonia deaths should be included in counts of influenza deaths during epidemics. Taubenberger and Morens (2006), for instance, advocate combining influenza and pneumonia deaths because of the rapid progression from uncomplicated flu infection to a fatal pneumonia infection. This process is considered to be a hallmark feature of the autumn and winter pandemic waves in 1918-19 (Taubenberger & Morens 2006:17).

To explore the nature of mortality during the third wave of influenza in Hamilton, death records for influenza and pneumonia between January and April 1919 were extracted from all registered deaths for the City of Hamilton during that period (Government of Ontario 1919:n.pag.). Any registered death in which influenza, Spanish Influenza, flu or any type of pneumonia was listed as the cause of death, disease causing death or immediate cause of death was included in this analysis (influenza n=99, pneumonia n=128). Figure 4.1 shows estimated mortality rates for influenza and pneumonia in Hamilton during this period.

Figure 4.1 demonstrates that pneumonia and influenza deaths follow similar trajectories; when combined, the epidemic curve is similar to that for influenza alone. It is therefore reasonable to infer that individuals diagnosed as having died from influenza or pneumonia in Hamilton actually passed away from different manifestations of the same disease. Consequently anyone who died from influenza or pneumonia is considered in this chapter, and in the rest of this volume, to have constituted a case of influenza.

The Third Wave in Hamilton

The 1918-19 influenza pandemic occurred in three waves in most nations, with the third wave occurring between January and April in the northern hemisphere (Taubenberger & Morens 2006). Some scholars have suggested that Canada is one of the fortunate countries that did not experience a third pandemic wave (Shen 2006:7). To evaluate this possibility, influenza mortality rates were calculated for 1 January to 30 April, 1919 using population data derived from the Census of Canada for 1921. The size of the population in 1921 was likely greater than that recorded for 1919, thus these rates must be viewed as rough, conservative estimates.

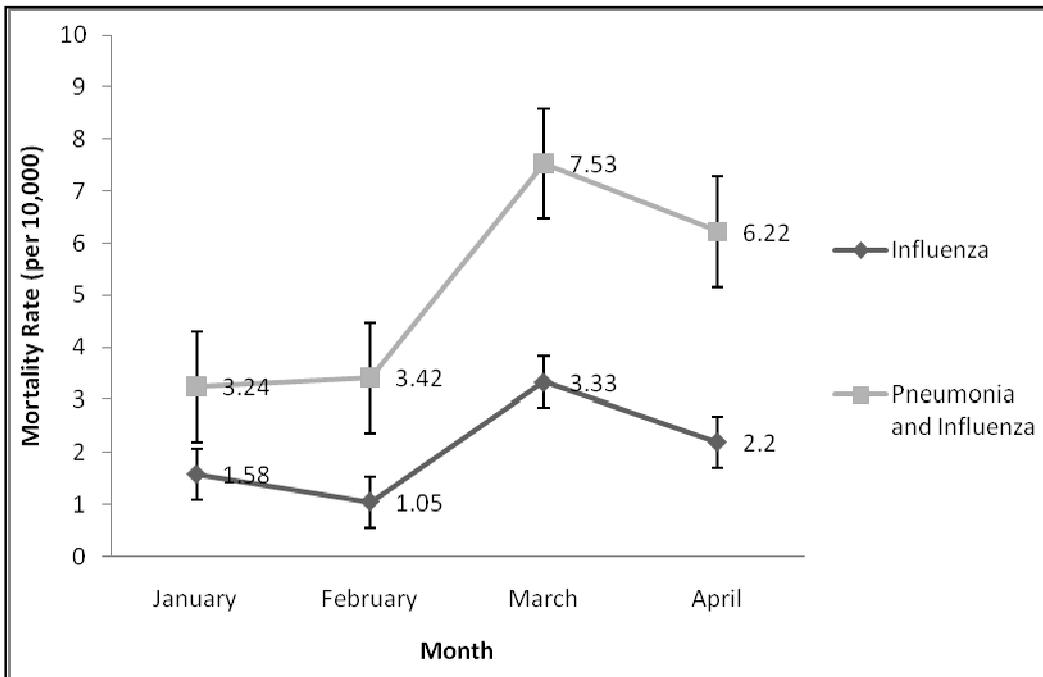


Figure 4.1: Influenza and Pneumonia Mortality in Hamilton, 1 January to 30 April, 1919 (Government of Ontario 1918-19: n.pag.).

Epidemic curves can indicate important information about the aetiology and intensity of an epidemic (Herring 1994:90). The estimated mortality rates

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depicted in Figure 4.2 strongly suggest that in the winter of 1919 Hamilton experienced a third wave of the influenza epidemic. Research from the United Kingdom and the United States demonstrate similar trends (Langford 2002). The results for Hamilton reveal that influenza mortality rates decreased during the winter, falling from 5.69 per 10,000 in December to 3.24 per 10,000 in January, and then rose dramatically to 7.53 per 10,000 in March. There is a clear spike in influenza mortality in March and a slight decline in April. The sudden spike in mortality rates is another characteristic feature of epidemic influenza. Figure 4.3 illustrates the mortality rates from the United Kingdom, where it is recognized that three waves did occur (Taubenberger & Morens 2006). The trends in Figure 4.3 are similar to the trends illustrated in Figure 4.2, which provides more support for the presence of a third wave in Hamilton.

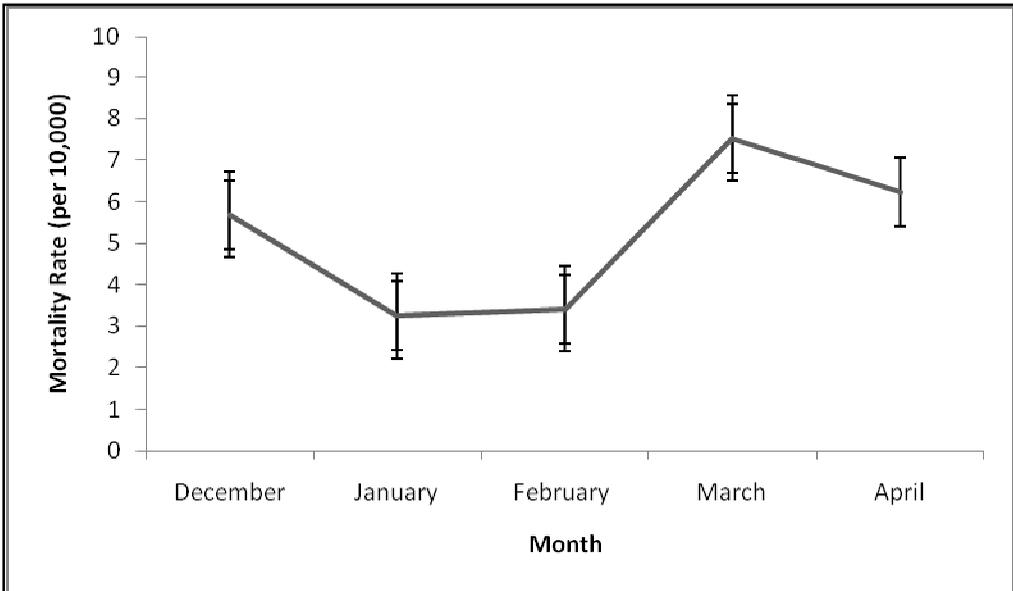


Figure 4.2: Influenza Mortality Rates from December to April, 1919 (Government of Ontario 1918-19: n.pag.).

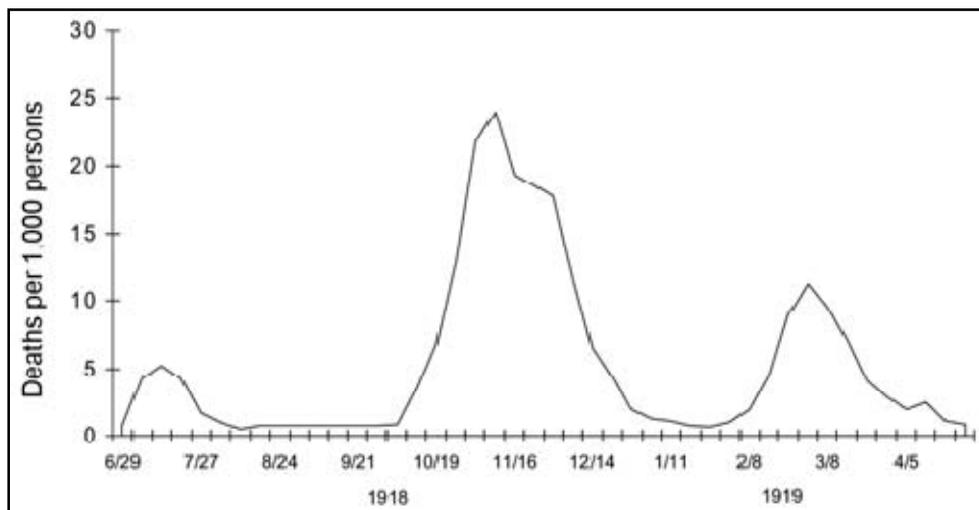


Figure 4.3: Three Waves of Pandemic Influenza in the United Kingdom, 1918-19 (Taubenberger & Morens 2006:17).

The Infamous W-shape Mortality Curve

Epidemic influenza creates a W-shaped mortality curve based on age, in which mortality rates rise significantly among typically healthy adults between the ages of 20 and 40. Although this was the case for the second wave in the autumn of 1918, the demographic trends for the third wave of influenza in the winter of 1919 are less clear. Using the registered deaths data for Hamilton from the Archives of Ontario (Government of Ontario 1918-19:n.pag.), estimated age specific mortality rates for January to April, 1919 are presented in Figure 4.4.

The age-specific mortality rates in Figure 4.4 reveal the characteristic W-curve of epidemic influenza. For example, in March mortality in the 20-39 age category reached 8.8 per 10,000. In addition, the overall influenza mortality rate in March increased dramatically from February, and it is during the months of March and April that the characteristic W-shape mortality age profile is most evident.

Figure 4.5 shows how the age-specific pattern of mortality in Hamilton (W-shape) differs from what would be expected for seasonal influenza mortality (U-shape). Some authors suggest that the third wave of influenza might not have

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been caused by the same virus that infected most of the population during the second wave (Taubenberger & Morens 2006). However, given the evidence for the W-shaped age mortality profile and the dramatic increase in influenza mortality in March, it is reasonable to infer that Hamilton experienced a third wave of the 1918-19 pandemic. Furthermore, it is likely that the virus that infected the population in Hamilton during this period was the same virus that infected the city in the fall of 1918, not merely seasonal influenza.

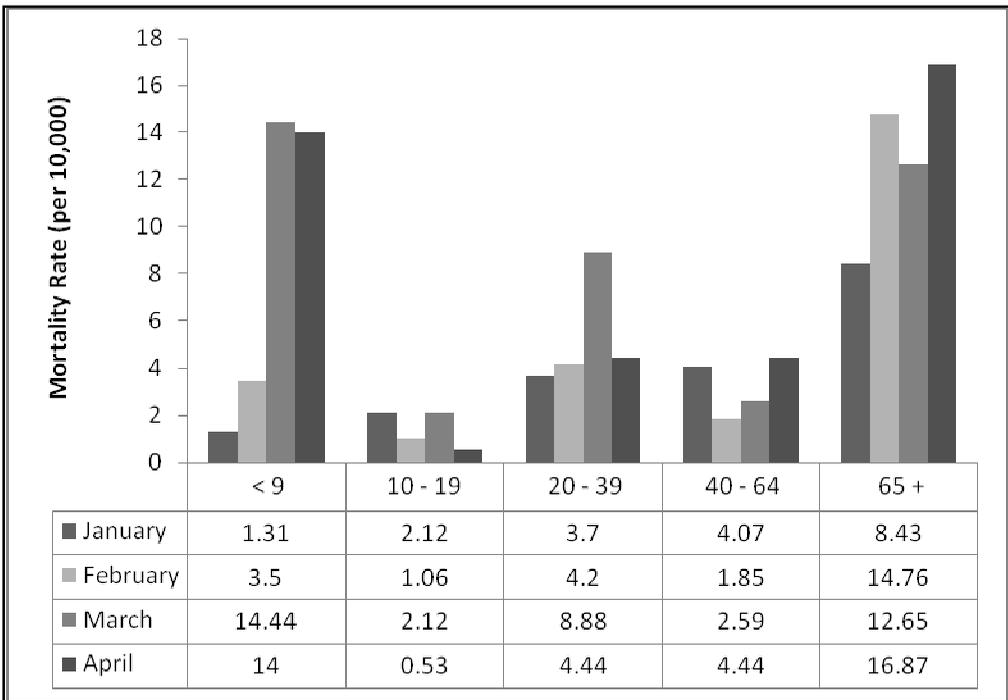


Figure 4.4: Proportionate Influenza Mortality Rates by Age Category and Month from January to April, 1919 (Government of Ontario 1918-19: n.pag.).

Male and Female Mortality Rates

Sex differences in influenza mortality rates are important because some scholars suggest there was a male bias in mortality from influenza in 1919. Such differences can have important implications for interpreting the unusual age

mortality curve (Noymer & Garenne 2000). Venus and Persaud demonstrate that during the fall epidemic in Hamilton, men had higher influenza mortality rates than women (2006:38). Some researchers have suggested that this could be due to war conditions or hazardous occupational conditions (Venus & Persaud 2006; Wood 2005). Others suggest that the W-shaped mortality curve could also be attributed to other common diseases affecting the same age group, such as tuberculosis (Noymer & Garenne 2000).

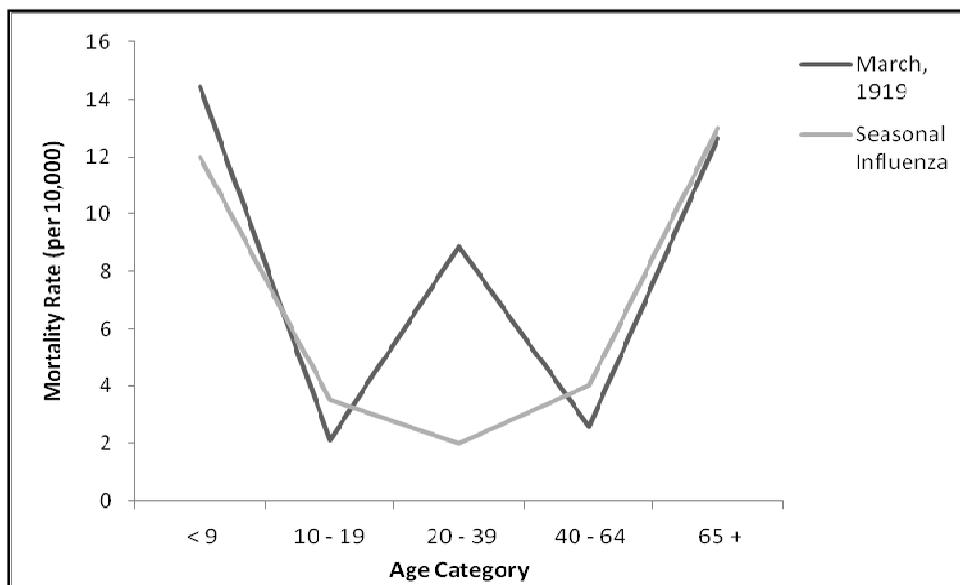


Figure 4.5: W-shaped Influenza Mortality in Hamilton, March 1919 and U-shaped Seasonal Influenza Mortality (Government of Ontario 1918-19:n.pag.).

The results shown in Figure 4.6 illustrate that when mortality rates from influenza are high in Hamilton, as in March and April, males appeared to have a slightly higher death rate. The results, however, are not significant, as demonstrated by the standard error bars. In other words, men and women in Hamilton were not differentially affected by influenza, and the virus was equally fatal to both sexes. Langford (2002) found similar trends in sex patterns of mortality in 1919 in the United Kingdom. More research is needed to analyze the

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demographic similarities between the second and third pandemic waves in other parts of Canada.

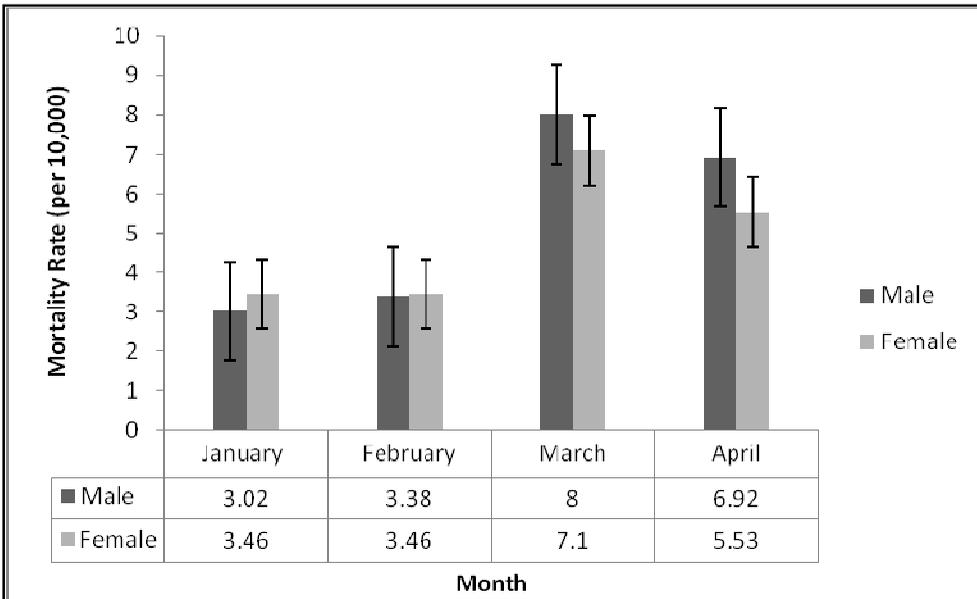


Figure 4.6: Male and Female Mortality Rates in Hamilton, January to April, 1919 (Government of Ontario 1919: n.pag.).

Pneumonia, Tuberculosis, and Influenza: An Introduction to Syndemics

Pneumonia and influenza occurred together in Hamilton during the winter of 1919, as their epidemic curves are similar (Figure 4.1). According to Wiselka (1994), pneumonia is reliably diagnosed using a radiograph of the lung. Since the diagnostic tools used today were not available in 1919, it is possible that there were several misdiagnosed cases, where influenza could have been diagnosed as pneumonia and vice versa. In addition, the order in which an individual contracts these illnesses could have a significant impact on the severity of the infection. Co-infection with influenza and pneumonia can account for excess mortality if pneumonia is contracted after the influenza virus. Interestingly, this interaction in mice results in 100-percent death rate, however if pneumonia is contracted first, the death rate is reduced to control levels (Singer & Clair 2003:427).

Furthermore, tuberculosis has been demonstrated to be a significant risk factor for contracting influenza (Noymer & Garenne 2000:4). Noymer and Garenne assert that this pathogenic interaction likely occurred because tuberculosis rates were high in these same age groups in the United States during 1918. Also, pneumonia was considered a lethal secondary consequence of influenza, which was further exacerbated by active tuberculosis or tubercular lesions (2000:5). As such, these authors suggest that the male bias in mortality rates during the 1918 influenza epidemic could be attributed to the increased risk of males contracting tuberculosis.

Although this study failed to find a significant difference in female and male influenza mortality rates in Hamilton during the winter of 1919 (Figure 4.6), there is a difference in male and female tuberculosis mortality rates. These mortality rates were also calculated using the death registers from the Archives of Ontario (Government of Ontario 1918-19:n.pag.). The male mortality from tuberculosis between the ages of 20-39 was 1.24 per 10,000 and women's mortality for the same age range was 0.69. Noymer and Garenne's (2000) hypothesis is therefore not supported in Hamilton and a tuberculosis-influenza interaction is not a reliable explanation for the age-mortality profile illustrated in Hamilton.

However, it is a good indication of the types of co-infections that can exacerbate an illness and potentially result in the synergistic interaction of diseases. This synergistic interaction is an important component of a syndemic. A syndemic is defined as a dynamic relationship involving two or more diseases and the social environment which augments this interaction (Singer 2009:28). Unfortunately, this chapter does not provide direct link between any deleterious social circumstances in Hamilton associated with increased frequency of disease during the third wave, although there is evidence for this interaction in Hamilton during the second wave (Persaud & Venus 2005). Whether there was a recurrence of this trend in Hamilton during the third wave remains unclear and further research is needed to explore this possibility.

Yes! There was a Third Wave in Hamilton

Despite some arguments that Canada escaped a third pandemic wave of influenza, this chapter has demonstrated the recurrence of influenza in Hamilton during

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1919, evidenced by the W-shaped mortality profile. The unusual mortality curve is a distinguishing feature of epidemic influenza and is not observed in seasonal influenza. This suggests that more research should be done in other major cities in Ontario and across Canada, to explore the possibility that Canada did experience a third wave.

Adopting a syndemic perspective allows some analysis of interacting diseases that could influence the expression of influenza and explain the characteristic demographic trends which otherwise might be overlooked. The data available for this study however does not satisfy all of the conditions necessary to support the operation of a syndemic in Hamilton. Thinking about influenza as a syndemic is important because this theoretical framework provides a more nuanced perspective on the epidemiology of the influenza epidemic and demonstrates that it did not occur in isolation. As Singer asserts, “syndemics have had dramatic impacts in the past and are having significant consequences for human health currently; given our changing environment, it may well be that syndemics will be even more significant in the future” (2009:220).

5

Other Diseases in Hamilton during the Third Wave of Influenza

Laura L. Koskocky

“Influenza and Pneumonia — These diseases have been epidemic throughout the districts, and, in fact, the Province generally, claiming 4,735 victims during the year, proving the most fatal epidemic in the history of the Province” (Hamilton Board of Health 1920:13).

The third wave of the 1918-19 influenza epidemic affected a lot of people in the city of Hamilton. However a number of other diseases also occurred during this same period. These other diseases are often overshadowed by influenza, but they nevertheless exacted a considerable toll in the early months of 1919. Furthermore, it is important to understand why the effects of other diseases may have been under recognized in Hamilton during this period. As Humphreys notes:

Even though other illnesses might account for more of the year’s mortality, the concentration of unusual disease and death within a few months sets the stage for panic. The very concept of epidemic, a sudden rapid rise in disease incidence that creates a wave of morbidity and mortality, creates a crisis situation that the fluctuating levels of endemic diseases do not provoke (Humphreys 2002:849).

Influenza may not have been the leading cause of death in Canada in 1919, but because of the severity of the fall 1918 outbreak and the fact that it was a new

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mysterious disease, it caused fear and received considerable attention (Waugh, Chapter 2).

This chapter uses data from the Hamilton Board of Health Report for 1919 to analyze the reported cases, recorded deaths and case fatality rates attributed to communicable diseases during the third wave of the influenza pandemic. As is demonstrated later in this chapter, even though influenza increased the burden of disease and death in Hamilton, the case fatality rates from diseases, such as diphtheria and tuberculosis, were higher than that for influenza. They were, therefore, more deadly diseases, even though more attention was focussed on influenza.

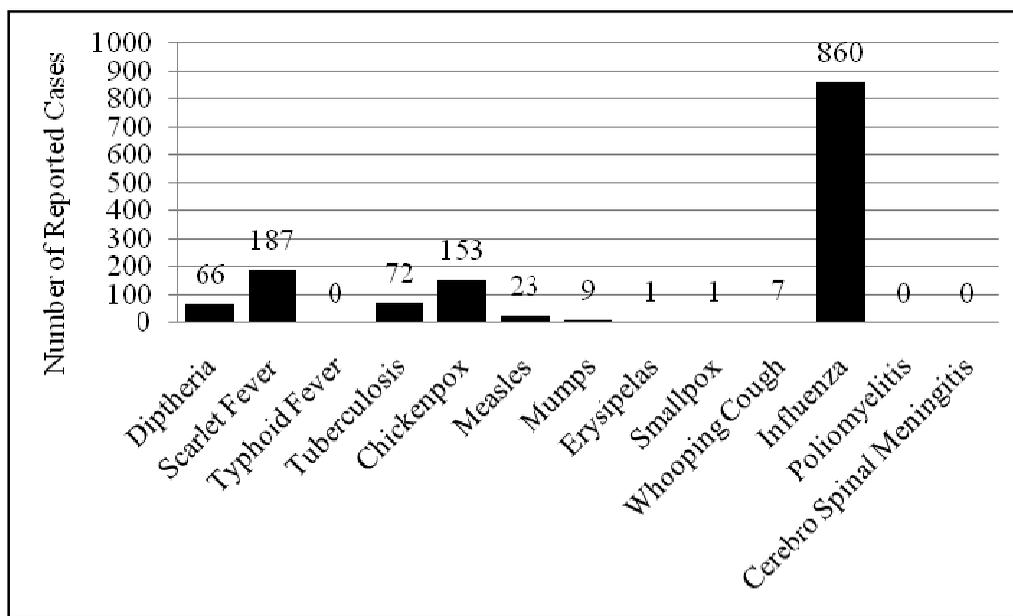


Figure 5.1: Reported Cases of Communicable Disease from January to May, 1919 (Hamilton Board of Health 1920).

The Microbial Terrors

The Hamilton Board of Health Report for 1919 provides a list of the reported cases (Figure 5.1) and a list of deaths due to communicable diseases (Figure 5.2), for the months of January to May of 1919. These reports offer insight into the

other diseases that were prevalent in Hamilton during the third wave and help to place deaths from influenza in wider epidemiological context. Furthermore, consideration of the causes and symptoms of Hamilton’s most deadly communicable diseases conveys a sense of the complications, pain and suffering associated with diseases other than influenza. The Hamilton Board of Health Report for 1919 indicates that, after influenza, scarlet fever, chickenpox, tuberculosis and diphtheria were the most common communicable diseases while tuberculosis and diphtheria ranked second and third behind influenza as causes of death from communicable disease. In terms of case fatality rates, however, tuberculosis (402.78 per 1000) and diphtheria (106.6 per 1000) were much more likely to lead to death than influenza (93.02 per 1000) (Table 5.1).

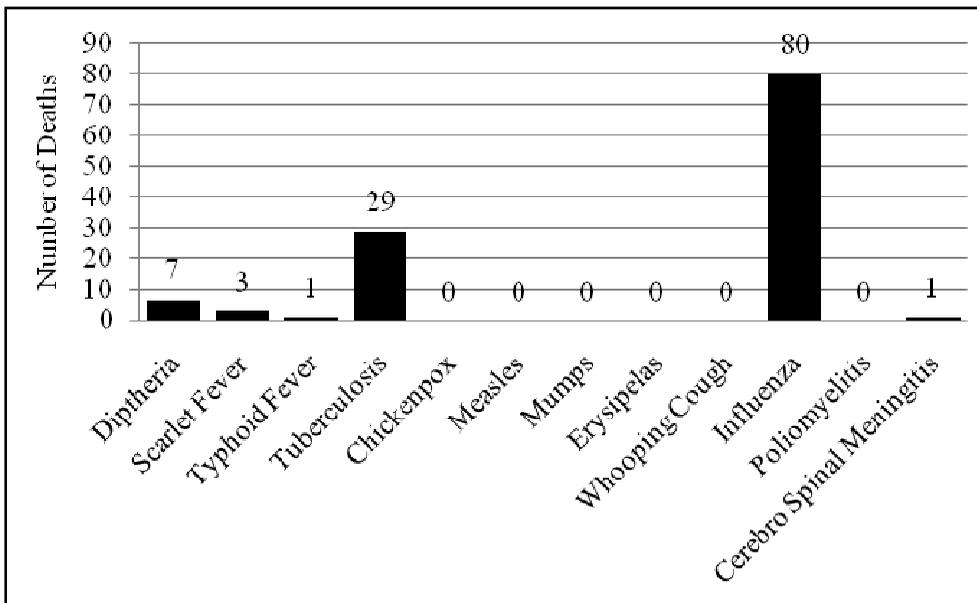


Figure 5.2: Deaths from Communicable Disease from January to May, 1919 (Hamilton Board of Health 1920).

Diphtheria, Scarlet Fever, and Tuberculosis

The Hamilton Board of Health Report for 1919 indicates that diphtheria ranked fifth in the reported number of cases and was the fourth leading cause of death

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due to communicable disease. Diphtheria also produced the second highest case fatality rate (106.06 per 1000) for communicable diseases from January through May of 1919.

Diagnosis	Fatalities
Diphtheria	106.06
Scarlet Fever	16.04
Tuberculosis	402.78
Chickenpox	0
Measles	0
Mumps	0
Erysipelas	0
Smallpox	0
Whooping Cough	0
Influenza	93.02
Poliomyelitis	0

Table 5.1: Case Fatality Rate from Communicable Diseases from January to May, 1919 (Hamilton Board of Health 1920).

Diphtheria is caused by *Corynebacterium diphtheriae*, a bacterium that infects the throat, mouth, and nose. A grey membrane may form in the throat which can prevent proper air flow. Also, heart problems can occur when diphtheria is not treated because the toxin spreads throughout the body (Healthy Ontario 2009a). Symptoms may include fever, a sore throat, bluish colouration of the skin, and breathing problems. Today, antitoxin treatment is administered and intravenous fluids or breathing tubes may also be used (U.S.

National Library of Medicine 2010a) and a vaccine is administered to children (Healthy Ontario 2009a). Crowded environments and poor hygiene contribute to the spread of diphtheria. Respiratory droplets and contaminated food, such as milk, are major routes whereby the disease spreads. The consequences of unsanitary environments created by crowded conditions or filthy streets in Hamilton undoubtedly contributed to the spread of this disease.

The Hamilton Health Report for 1919 indicates that scarlet fever cases ranked second among communicable diseases but that it was fifth in terms of communicable diseases that caused death. With a case fatality rate of 16.04 per 1000 it is clear that most sufferers recovered from this infection. Scarlet fever is caused by streptococcal bacteria and was a common cause of infection among children in the early twentieth century. Within one to two days of infection, individuals with scarlet fever often experienced a fever or sore throat and, later, a rash on the body. Other possible symptoms may include a swollen tongue or vomiting. Antibiotics are now available to treat scarlet fever and they are important for preventing the disease from progressing to more serious conditions, such as rheumatic fever (U.S. National Library of Medicine 2010b). One of the

more severe consequences of scarlet fever, rheumatic fever, can affect the joints, the central nervous system, and the heart. Treatments today include the administration of antibiotics during the early stages of streptococcal infection to prevent the disease from becoming more severe. Once rheumatic fever has occurred, non-steroidal anti-inflammatory drugs are used (Healthy Ontario 2010b). In the pre-antibiotic era in which 1919 fell, it was likely that scarlet fever was treated by resting in bed or by taking aspirin.

Tuberculosis ranks fourth in terms of reported cases during the third wave of influenza and it had the second highest number of deaths during the same time period (Hamilton Board of Health 1920). Of all reported communicable diseases from January to May of 1919 tuberculosis had the highest case fatality rate (402.78 per 1000), indicating that more people died from this communicable disease than from any other, including influenza. The annual death rates due to tuberculosis greatly declined from 1909 to 1919 which is likely due to growing knowledge on how to prevent the spread of the disease (The Hamilton Spectator 1927). Tuberculosis is caused by *Mycobacterium tuberculosis* and it was a common cause of death in 1919 (Canadian Lung Association 2010). In most cases of exposure to the bacillus, the human immune system kills the tuberculosis bacteria and no infection occurs. A non-contagious tuberculosis infection occurs when the bacteria are not killed. However, 10 percent of cases can develop into contagious tuberculosis disease. The areas of the body commonly affected by tuberculosis include the lungs, lymph nodes, and bones. Common symptoms of tuberculosis include weakness, chills, fever, and severe coughing that may produce sputum (Health Canada 2009). Exposure to and infection by tuberculosis can occur when an individual with the disease releases droplets into the air through coughing, sneezing, or talking and a non-infected individual subsequently inhales them (Canadian Lung Association 2010). Today tuberculosis can be treated with antibiotics, but if the full course of doses is not completed, drug-resistant forms of the disease can emerge (Health Canada 2009).

What the Data Tell Us

The total number of deaths from communicable disease is drastically lower than the total number of reported cases for each communicable disease from the months of January, 1919 to May, 1919. According to the Hamilton Board of

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Health Report for 1919, only 5.69% of the reported cases of communicable diseases resulted in death, indicating that the vast majority of people who became ill recovered. As shown in Figure 5.1, there were over four times more reported cases of influenza than scarlet fever, which was the second highest reported communicable disease in Hamilton in 1919. Influenza also caused approximately three times more deaths than did tuberculosis, the second leading cause of death due to communicable disease. Influenza clearly was without competitors, at least in terms of prevalence, during the third wave of the epidemic. There were 860 reported cases of influenza during the months of January to May, 1919, but only 80 deaths from the disease during this same period. In other words, approximately 9.3% of the reported cases of influenza resulted in death. In the case of tuberculosis (all forms), however, 40.3% of the reported cases resulted in death from January to May, 1919. Therefore although influenza affected the highest number of individuals and resulted in the highest number of deaths, it did not have the highest death rate.

The number of reported cases does not always correlate with the number of recorded deaths. For example, if an individual is infected with tuberculosis and then is subsequently infected with influenza, that person may die from influenza rather than from their underlying tuberculosis (Edwards, Chapter 4). Table 5.1 presents the case fatality rates of each reported communicable disease from Hamilton from the months of January, 1919 to May, 1919. As mentioned earlier, tuberculosis had the highest case fatality rate (402.78), followed by diphtheria (106.06) and then influenza (93.02). This makes it clear that a large number of individuals were affected by influenza in 1919 but many survived the infection. It is also clear from Table 5.1 that many reported communicable diseases, such as measles, whooping cough, and chickenpox did not lead to any reported deaths, and therefore had a case fatality rate of zero. This means that all individuals who were reported as infected recovered from these illnesses.

Public Health Initiatives

Some communicable diseases clearly had a less severe impact on the population of Hamilton than others. This could in part be due to increased public health awareness. The Hamilton Health Report for 1919 indicates that there were 6,907 food and dairy inspections that year. There were also 271 notices issued to clean

restaurants and 89 notices to clean milk dairies (Hamilton Board of Health 1920). To further show that the city of Hamilton had health and sanitary precautions in place, there were three prosecutions “for maintaining dirty and unsanitary restaurants” (Hamilton Board of Health 1920:188). The report of sanitary inspectors explains that there were 22,023 total inspections from 1 November, 1918 to 31 October, 1919 (Hamilton Board of Health 1920). Notices for these inspections included 1,250 to “clean and repair premises”, 910 “notices to remove rubbish and refuse” and 15 “notices to provide proper water supply for tenants” (Hamilton Board of Health 1920:189). These inspections and notices clearly indicate that city authorities were endeavouring to provide a safer, cleaner environment for its residents. The Hamilton Board of Health Report for 1919 also indicates that there was an initiative within the city to continue to expand the sewage system. The Hamilton Board of Health Minutes (1919) show that new sewage systems and sewage connections were being built in the latter half of 1918 which would very likely contribute to the eventual reduction in disease within Hamilton in 1919.

The 1919 Hamilton Board of Health Report further indicates that there were other initiatives aimed at eliminating or preventing the spread of communicable disease. For example, 195 houses were placarded for scarlet fever, diphtheria, measles and meningitis (Hamilton Board of Health 1920). A placard is “a notice for display in a public place; poster” (Guralnik 1982:1086). A further 483 houses were disinfected for scarlet fever, diphtheria, measles, smallpox, erysipelas, typhoid, tuberculosis, and influenza (Hamilton Board of Health 1920). Even though the aetiology of many communicable diseases was still unclear, the initiatives undertaken by the Board of Health show that a great deal of attention was being paid to the influence of sanitation and hygiene on the prevalence of disease.

Stealing the Show

The city of Hamilton actively attempted to create a healthy community in 1919. Gagan (1981) observes that even before 1919 the city of Hamilton recognized that unsanitary milk can lead to typhoid outbreaks, and therefore dairy inspections became integral to disease prevention. Other initiatives included better sanitation

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through improved sewage and food inspections and careful case findings and follow up of cases of communicable disease (Hamilton Board of Health 1920).

Influenza was indeed the leading cause of death due to infectious disease from January to May 1919, resulting in a total of 80 reported deaths. Other communicable diseases resulted in low death rates compared to influenza. It is worth noting, however, that influenza had the third highest case fatality rate (93.08 per 1000), after tuberculosis (402.78 per 1000) and diphtheria (106.06 per 1000). This clearly indicates that although influenza was the major contributor to both the number of reported cases as well as the number of deaths due to infectious disease, a higher proportion of infected individuals recovered from influenza than did those infected with tuberculosis or diphtheria

The amount of attention given to the 1919 influenza epidemic in the city of Hamilton should be reconsidered. Future research should instead pay attention to diseases that had a more substantial impact on the residents of Hamilton in 1919, such as diphtheria and tuberculosis. Even though influenza did infect a substantial segment of the population during the third wave, the public's perception of the seriousness of the disease was out of proportion to its actual severity. This caused residents of the city of to deflect their attention from diseases like diphtheria and tuberculosis that were more likely to result in death (Hamilton Board of Health 1920).

6

Pinpointing the Epidemic in Hamilton

Hope McGilly

After December of 1918, the influenza epidemic in Hamilton was thought to be on its final leg. However, after reviewing much of the data that was collected from local newspaper articles and the city's death records from January until April 1919, we can see that this was not the case. As this chapter demonstrates, many people continued to die from influenza from each of the eight wards in Hamilton. The purpose of this chapter is to examine the places where people died from influenza. Each death provides crucial spatial information that makes it possible to determine how the epidemic spread, festered, and petered out. In this chapter, I ask: How did the epidemic spread through the city? Were some wards, and some parts of the city, affected more severely than others by the epidemic?

Tracing the Epidemic through the City

The main source of information for this study are the death records for Hamilton from January to April 1919 (Government of Ontario 1918-19:n.pag.), which were transcribed and entered into an Excel data-base by my colleagues. Each death record contained the following information: County; Division; Surname; Given Name; Sex; Age; Date of Death; Place of Birth; Place of Death; Occupation; Cause of Death; Physician who attended Deceased; Name of Informant; Address of Informant; Disease causing Death; Immediate cause of Death; Duration; and Date of Return. Each death record took a substantial amount of time to transcribe, yet the information is invaluable.

To determine where people died from influenza in Hamilton, it was necessary to analyze information on the place of death. In order to properly

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analyze the information, I adhered to the protocol of Chan and Kluge (2006:41-46). Although there were many addresses with complete information for Place of Death (n=120), there were others that required more in depth research to locate the complete address (n=35). To locate additional information, I consulted the City of Hamilton Directory for the year 1919 (City of Hamilton 1918-1920:n.pag.) housed at Mills Library at McMaster University. When the deceased was a child, the place of residence of the father was used as the location of death. Unmarried adult women were treated the same way. The addresses for deceased married women were found by locating the address of their spouse. This process of record linkage made it possible to find many of the missing addresses. A total of 109 deaths were retrieved or about 48.2% of the 227 deaths ascribed to influenza and pneumonia from January to April, 1919. In instances where the address for the deceased could not be found by any means, the record was not used. A total of 47 out of the 227 recorded deaths, or about 21.1% of the all the deaths were available. In instances where the deceased died in a hospital or asylum, the record was also omitted. These records accounted for about 31.3% of the overall records, or 72 out of a total of 227 deaths.



Figure 6.1: Influenza Deaths in Hamilton's Eight Wards, 1 January-30 April, 1919.

Once identified, I entered the addresses into BatchGeo©, a software system used for plotting maps. Through this software, I was able to obtain both latitude and longitude coordinates for many of the addresses. The accuracy of this system was tested by plotting modern landmarks that could be easily verified. This information was then input into the GIS system ArcView 3.2© and the points of interest were plotted onto a modern map of Hamilton, as a map from 1919 was unavailable. The remaining addresses were input manually into ArcView 3.2©. This made it possible to view all of the plottable deaths from pneumonia and influenza during the third wave of the epidemic in Hamilton.

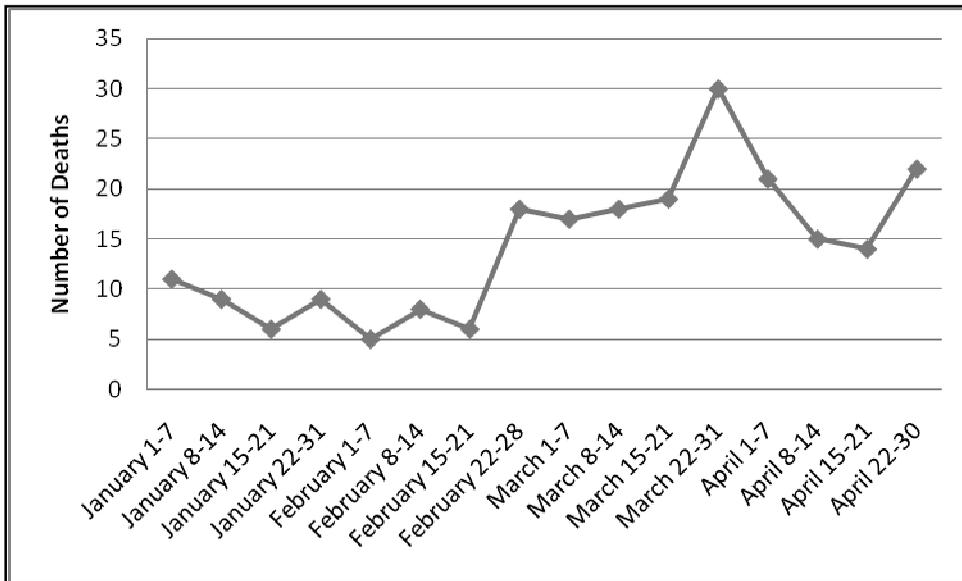


Figure 6.2: Influenza-Related Deaths in Hamilton by Week, 1 January-30 April, 1919.

It was emotionally harrowing to put names to people who initially were represented only as records of death. The more I viewed each record, the more touching and humanizing the research process became. I was no longer viewing a death record from a reel from the Ontario Archives, I was viewing the death of a person who suffered greatly during this epidemic and who had a family and loved

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ones. This made the entire process much more real and emphasized how crucial it was to complete this process properly.

In 1919, Hamilton was separated into eight wards, but also into east and west, north and south Hamilton (Figure 6.1). West Hamilton consisted of Wards Two, Three, Four, Five, and Six. East Hamilton consisted of wards One, Seven, and Eight. North Hamilton refers to Wards Four through Eight, and South Hamilton consisted of wards One through Three. Table 6.1 shows the distribution of plottable influenza-related deaths by ward.

Analyzing the spread of the epidemic from this perspective is also quite invaluable as the wards allow us to see specific clustering of deaths. These clusters result from the socio-economic structuring of the city are discussed later in this chapter.

Progression of the Epidemic in Hamilton

Ward	Number of Plotted Deaths
1	19
2	6
3	14
4	10
5	12
6	10
7	12
8	26
Total	109

Table 6.1: Number of Influenza-Related Deaths per Ward, January to April, 1919.

In December 1918, the people of Hamilton believed that the influenza epidemic was coming to an end. The emergency hospitals were closing and businesses were re-opening (Murken, Chapter 16). However, in analyzing the week-by-week death toll, we are able to see that this was not the case. There was a steady increase in weekly mortality by the end of February, with peaks in mortality evident in the fourth week of February, the third week of March, and the final week of April (Figure 6.2). On average, there were 14 deaths per week in Hamilton. During the week of 22-31 March, the death

toll was twice as high as the average.

Despite this evidence to the contrary, numerous articles in the Hamilton Herald claimed that the epidemic was over and that Medical Health Officers were unconcerned that the death toll was again rising in the city. Despite headlines such as, “Battling Influenza: Health Authorities Report 100 Cases in the City” on March 14, 1919 (The Hamilton Spectator 1919a1:11) there were also headlines

such as, “Spanish Influenza: 76 New Cases Reported, But M. H. O. Is Not Alarmed” (The Hamilton Spectator 1919p2:1) printed on March 22, 1919. This latter was published the same week that the death toll peaked; however, public officials remained unconcerned that the epidemic was reaching its third wave.

North and South Divides

Figure 6.2 shows the plottable deaths in the city and reveals that the epidemic was spread throughout the entire city, though not evenly. The wards in the north end of the city (Wards four, five, six, seven and eight) show many more cases of influenza compared to the southern wards (wards one, two and three). The total number of influenza related deaths in the northern wards is approximately 1.8 times higher than in the southern portion of the city. Nonetheless, the third wave affected people of every class, in each neighbourhood, and was not confined to a select area of the city.

Ward	Number of Plotted Deaths	Percentage of Plotted Deaths
Northern (4,5,6,7,8)	70	64.2%
Southern (1,2,3)	39	35.8%
Total	109	100.0%

Table 6.2: Influenza Mortality in the Northern and Southern Wards.

The analysis of the northern and southern divides of the city allows us to consider the factors that may have contributed to the higher mortality rate from influenza related deaths in the northern half of the city. This can be attributed to the northern half being composed of mostly working-class citizens and immigrants, while the southern portion was home to the more affluent upper and middle classes of Hamilton. Immigrants that came to Hamilton often resided in the northern area because of the industrial build up, which made the area polluted and noisy. This also lowered property taxes and general prices of homes, thus making it much more affordable for newly immigrated families and families with lower income than those who resided in the southern portion of the city (Farmer 2004:80). The working class citizens lived in close quarters to each other, which could have contributed to the amount of influenza related cases in that section. The population density of the north was approximately three times higher than

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that of the southern community (Gagan 1989:163). Influenza was mainly spread through airborne water droplets, especially from coughing, speaking or sneezing in close proximity to another person. People living in close quarters to people with influenza were more susceptible to infection than those living in more spacious homes and neighbourhoods.

The affluence of the residents of the south is evident particularly in the location in which they live and the value of their properties. People residing in the southern wards lived further from the city's industrial pollutants and noise, and closer to the Niagara Escarpment with its stunning views and elevated properties (Doucet 1976:100). The value of the property of the south was also three times more than those located north of King Street (Gagan 1989:163).

The more affluent citizens of Hamilton also had better access to health care, which may have allowed them to be treated for their ailments at home, rather than in a hospital. However, it is important to recall that many influenza related deaths could not be plotted on Figure 6.1 due to the fact that the deaths occurred in hospitals rather than at home. As stated previously, there were 71 recorded hospital and asylum influenza related deaths, accounting for approximately 31.3 percent of the total influenza deaths between January 1919 and April 1919.

West and East Divides

In addition to its divisions into North and South Hamilton and its organization into eight wards, the city was also divided into West and East Hamilton, as it is today. James Street separates these two portions of the city.

The map in Figure 6.4 shows the boundaries between the western and eastern portions of the city. It is evident, moreover, that influenza deaths tended to cluster in the western end of the city; as one moves farther east, the deaths become sparser. The western wards are also smaller in total area than the eastern wards. This has the effect of increasing the average number of deaths per square kilometer in the western wards of the city. This tendency for deaths to be more tightly clustered in the western portion of the city may be attributed to the working class and immigrant neighbourhoods in the northern west and the industrial build up of the north east. Also, it is important to note that there are

few clusters of deaths in the southern half of both of the east and west sides, again showing the affluence of the Southern residents.

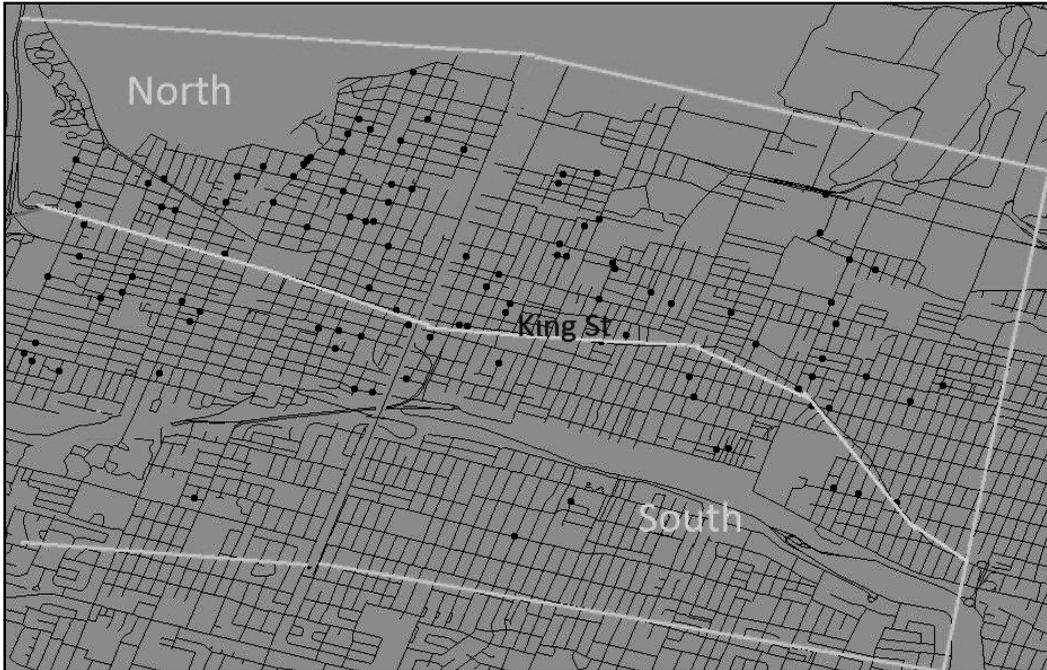


Figure 6.3: Influenza Mortality in the North and South Divisions of Hamilton in 1919.

Pinpointing the Epidemic

Several conclusions can be made based on the analysis of the GIS data and the tables that have been derived from the information provided from the plottable, registered deaths for Hamilton from January to April, 1919.

First, the third wave of influenza occurred throughout the city. Although the address data are incomplete and only 48 percent of the home addresses of the deceased was plottable, it is evident that influenza did not target specific neighbourhoods. This indicates the virus did not discriminate based on socio-

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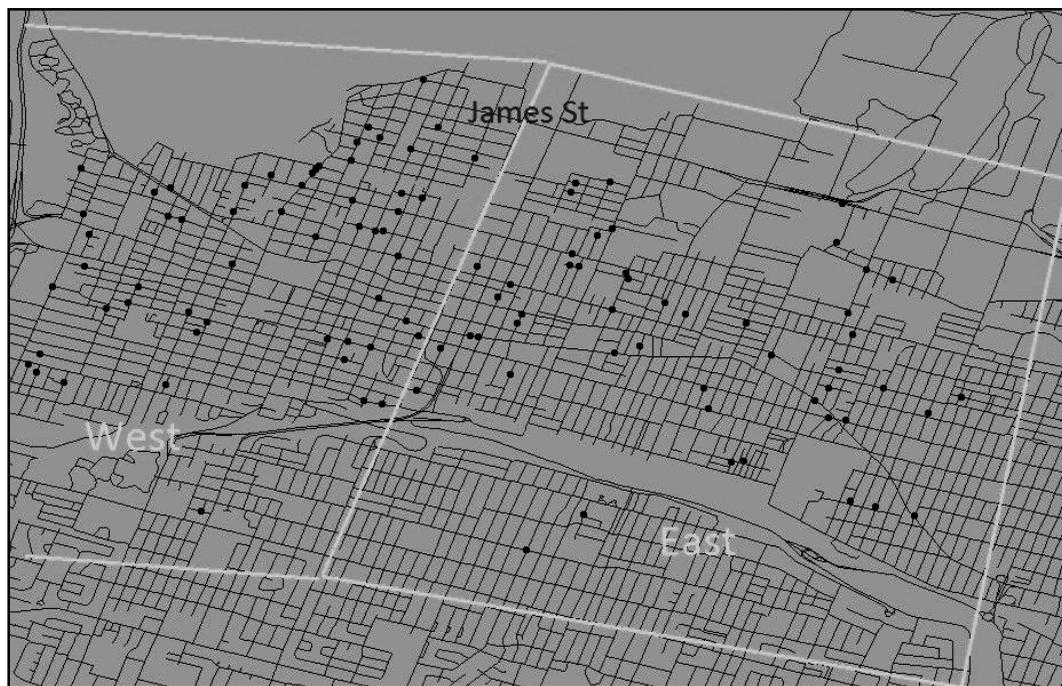


Figure 6.4: Influenza Mortality in the West and East Division of Hamilton in 1919.

economic status. It can be seen through Figures 6.3 and 6.4 show that residents of all areas of the City were susceptible to the virus.

That said, influenza related deaths in Hamilton appear to have clustered in certain areas. This is especially seen in the area west of James Street and north of King Street. This area was inhabited by working class families and there were many neighbourhoods of immigrants as well. These parts of the city were crowded, which made the transmission of the virus much more likely than in the affluent areas of Hamilton. This should not be taken to mean that people with lower incomes were more susceptible to the virus, as the only deaths used in the GIS analysis were those who died at home. It is possible that families with higher incomes were able to seek private treatment at home, which may have resulted in their recovery from the virus, while those with lower incomes were forced to seek

treatment at already crowded hospitals, which could have resulted in their deaths (O'Sullivan, Chapter 7),

Finally, three separate peaks in mortality during the third wave of the influenza pandemic can be noted. These peaks occurred in the weeks of 22-28 February, 22-31 March, and 22-30 April. These can be attributed to an increased number of total cases of the virus rather than to an increase in the fatal nature of the virus.

It is interesting to note that once again the Medical Health Officials expressed little concern about the third wave of the epidemic. It is obvious, however, that the third wave of the 1918-19 influenza pandemic was a deadly reality in Hamilton. In just four months 227 lives were lost in the third wave that officials attempted to deny even existed. Each of these death records belongs to a person whose life was ultimately lost to this epidemic.

The People Behind the Numbers: Influenza Victims and Healthcare Accessibility

Sarah O’Sullivan

“...Aunt Mary was sick and fainted, Inez and Grandma both had bad colds and coughs, the house was like a hospital. I suppose it’s this new fashioned Grippe, Spanish Influenza” (Anonymous 2007).

Until the twentieth century, hospitals were only used as a last resort for the poor and homeless. Patients were stigmatized, so that impoverished and working class, often illiterate, individuals filled hospitals rather than more prosperous members of society. Patients were cared for by strangers and were often the subject of medical and social curiosity. More affluent citizens who could afford better treatment than that provided in hospitals received care in the comfort of their own homes by trusted family members, nurses and doctors with whom they had personal relationships (Gagan & Gagan 2002). Health care given by family doctors was inaccessible to poorer individuals, so the only hope they had of receiving any treatment was from the doctors at public hospitals.

The negative image of hospitals began to transform at the turn of the twentieth century and to resemble the modern view of hospitals as a place of scientific and medical innovation. The development of germ theory and asepsis made hospitals, for the first time ever, a relatively safe environment (Gagan & Gagan 2002:14). New medical technologies and advancements made hospital treatment better than home treatment; as a result, hospital treatment began to appeal to all social classes. Because hospitals were becoming more desirable places to receive health care, fees were extremely high and only the very rich

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could afford private wards with the new revolutionary medical technologies (Lisowska 2005:89). Healthcare treatment for the poor remained very similar to what it had been prior to these new medical developments.

The influenza pandemic that ravaged Hamilton from 1918 to 1919 occurred on the verge of the new technological advancements that lead to the modern hospital. This means that there were mixed feelings towards the health care treatment received at hospitals. This chapter examines hospital and home care during the last two waves of the epidemic and the health care available to the citizens of Hamilton. Since accessibility to premium health care, be it from a family doctor or a private hospital ward, affects everyone differently, various factors are explored. This includes an examination of the extent to which various groups were treated at home or in hospital: immigrants versus non-immigrants; married versus single people; young versus old age groups; and people living in a rural versus urban settings. This chapter explores the difficulties sick individuals faced during the second and third waves of the 1918 influenza epidemic. It is often forgotten when working with statistics that each number represents a human being. This chapter reminds the reader that each number listed throughout this book represents a person who had a story to tell, who lived and breathed during the influenza epidemic, and who died from it.

Hospital or Home?

One of the interesting features of the 1918 and 1919 death records for people who died from influenza shows that the extent to which people died at home or in hospitals differed for the two waves. During the third wave (January to April 1919), a larger percentage of individuals die at home compared to during the second wave (Table 7.1).

	Hospital Deaths		Home Deaths	
	n	%	n	%
Second Wave, 1918	295	56%	229	44%
Third Wave, 1919	71	31%	156	69%

Table 7.1: Hospital Versus Home Deaths during the Second and Third Waves (Government of Ontario 1918-19:n.pag.).

Emergency hospitals had been opened because of the severity of the second wave but most had closed before the third wave of the influenza pandemic began. The fact that more hospitals were open during the second wave helps to explain the higher ratio of hospital to home deaths relative to the third wave.

Immigrants and Non-Immigrants

When epidemics appear they are usually marked by increased episodes of intolerance and discrimination towards immigrants (Jones 2006:58). For the purpose of this analysis of registered deaths from influenza, an immigrant is defined as any individual born outside of Canada who enters the country from another with the intent to live within the Dominion of Canada (Library & Archives Canada 2005). Although immigrant status per se is not listed in the registered deaths, Place of Birth is. If the Place of Birth indicated that the person was born outside of Canada, their death was placed in the immigrant category. A comparison of hospital and home deaths among immigrants and non-immigrants (Tables 7.2 and 7.3) shows that, during both waves, immigrants were about twice as likely to die in a hospital compared to non-immigrants.

Second Wave, 1918	Hospital Deaths		Home Deaths		Total
	n	%	n	%	
Immigrant	147	68%	70	32%	217
Non-immigrant	148	48%	159	51%	309

Table 7.2: Immigrants and Non-immigrants and Their Places of Death during the Second Wave.

Third Wave, 1919	Hospital Deaths		Home Deaths		Total
	n	%	n	%	
Immigrant	27	47%	31	53%	58
Non-immigrant	44	26%	125	74%	169

Table 7.3: Immigrants and Non-immigrants and Their Places of Death during the Third Wave.

Presumably, immigrants were more likely to be hospitalized because of their lack of access to a family doctor. Many immigrants who moved to Canada at

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the turn of the twentieth century lived in poverty and were socially stigmatized because of their ethnicity (West 2007). The combination of urban poverty and socially devalued ethnicity is particularly unhealthy (Singer 1994:931). Members of minority groups are not only more likely to get ill, but being a member of a minority group has been linked to a lower likelihood of receiving regular care (Doescher et al. 2002:53). There were other ways for an immigrant in Hamilton to receive relief during this time. Several Fraternities and benevolent societies operated in the city and though most catered to the rich, some did extend care to people who had recently immigrated to Canada (see Rickard, Chapter 12).

Though the social circumstances of their lives and the lack of a family doctor contributed to their hospitalization during the pandemic, immigrants often lack a family network in the country to which they have migrated with the result that they often end up ill in the hospital (Biddlecom et al. 1994). It is likely that many immigrants to Hamilton died in a hospital during because they lacked sufficient family support or resources in Canada to be cared for at home.

Rural and Urban

As mentioned earlier in this chapter, most “respectable” Canadians preferred home care over hospital care. Though home care was the preferred way of receiving health care, it was sometimes the only option. At the time of the influenza epidemic, when hospitals were few and far between, people who lived in rural areas received care at home simply because it was more convenient (Gagan & Gagan 2002:4).

Though home care was perceived to be better, there were few healthcare options for the rural population at the turn of the twentieth century (Hicks 2008). The best treatment farm families could receive was from a rural doctor’s office which often lacked the latest advancements in medical care. The lack of technology for rural doctors was attributed to their distance from hospitals, coupled with the fact that their practices were usually not affiliated with a hospital (Gagan & Gagan 2002:133). Rural victims often died more quickly because they were diagnosed later in the disease process because of the lack of accessible premium health care (Franks et al. 1994:17). There were only a few registered deaths for rural dwellers during the second and third waves of the influenza pandemic in Hamilton, but the issue is worth exploring in a study of a larger

geographical area, such as Wentworth County as a whole, where a sufficiently large sample could begin to address the effects of rural living on home versus hospital care.

Marital Status

In this section, the marital status of people who died from influenza is explored to determine if there is a relationship between status and hospitalization (Figure 7.4). Three categories were created using information from the Marital Status column in the registered deaths for Hamilton: widow, married, and single. Individuals who died under the age of 20 were eliminated from this part of the study to ensure that children did not inflate the “single” category.

As Figure 7.1 shows, all three categories of marital status were more likely to be hospitalized in the second wave compared to the third. In the second wave, moreover, single people were more likely to be hospitalized than the other two groups: 73% of the deaths among single people occurred in hospitals compared to only 47% for widows and 64% of married individuals. During the third wave, the proportion of hospital deaths dropped considerably among all three marital statuses and the gap between them narrowed.

Age Groups

The second wave of the 1918 influenza epidemic had a W-shaped mortality profile, and Edwards (Chapter 4) demonstrates that the W-shape also characterized Hamilton’s third wave. This means that the very young, the very old, and young adults had the highest mortality rates (Noymer & Garenne 2000). Healthy young adults who normally have the strongest immune systems died at an abnormally rapid rate and this distinguishes epidemic influenza from regular influenza.

Millions of people around the world died in hospitals during the 1918-19 influenza pandemic (Killingray & Phillips 2003). Little is known, however, about the age distribution of people who died in hospitals compared to that of people who died at home. To examine this question, five age categories were created using information contained in the Age column of the registered deaths for Hamilton (Figures 7.2 and 7.3).

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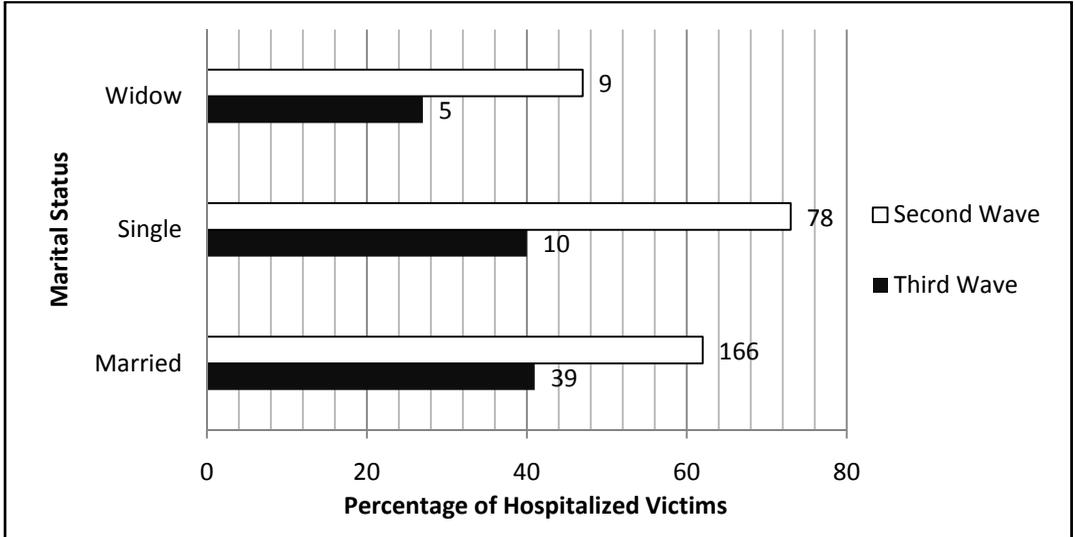


Figure 7.1: The Marital Status of Hospitalized Victims during the Second and Third Waves.

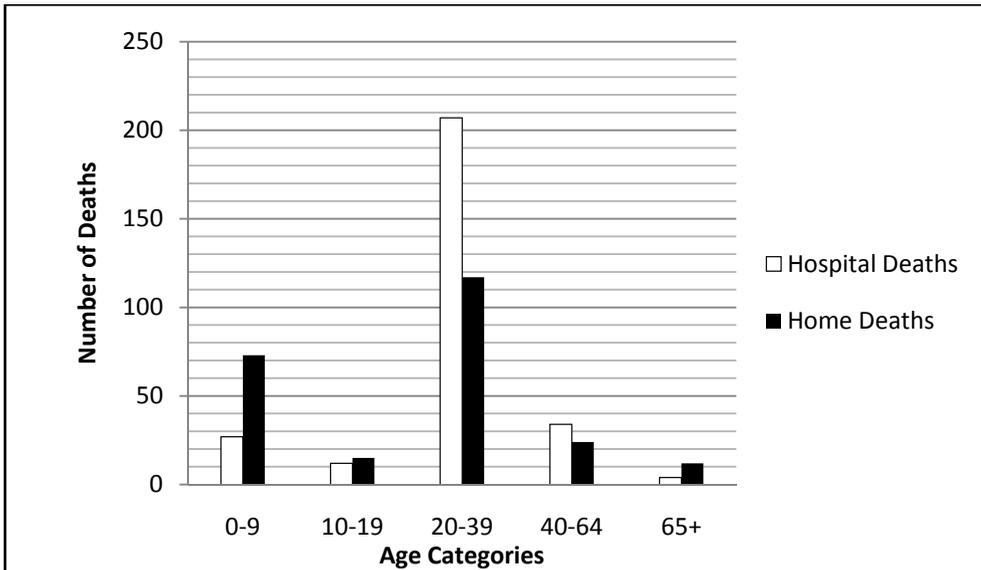


Figure 7.2: Influenza Deaths by Age during the Second Wave, 1918.

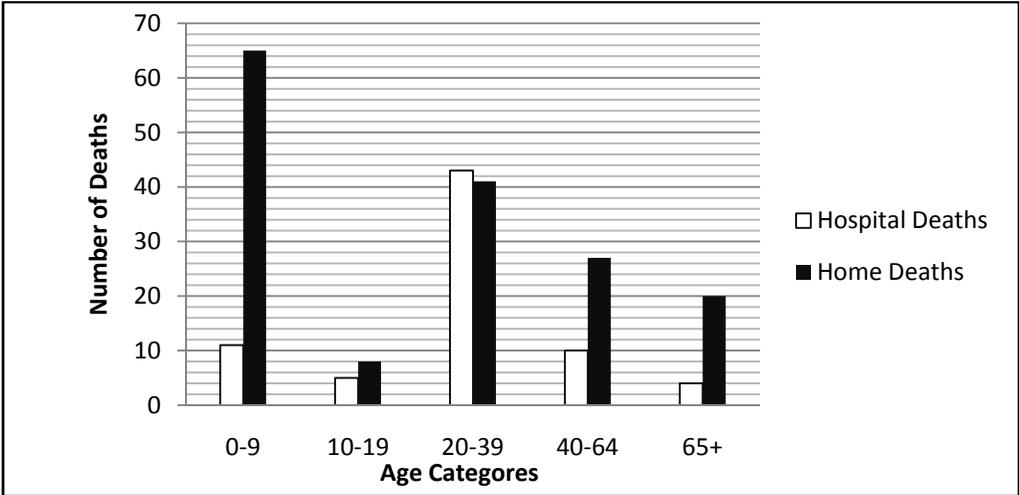


Figure 7.3: Influenza Deaths by Age during the Third Wave, 1919.

The pattern of hospitalization and home deaths for the very young (0-9) and very old (65+), the usual victims of the regular flu season, is interesting. During both waves, victims in the 0-9 and the 65+ age categories mostly died at home while the majority of the 20-39 year old victims died in hospital. One can only speculate as to why this occurred. Since it is common for the very young and very old to die of illness, perhaps there was no perceived need to send them to a hospital; hospitals may have been reserved for severely ill adults who normally would have the strongest immune systems. This is only educated conjecture, but the results of this analysis suggest that research is warranted on the relationship between age and hospitalization during the 1918-19 pandemic.

Influenza Victims Unveiled

It is apparent from this analysis that the second (1918) and third waves (1919) of influenza were managed differently in Hamilton. Proportionately more people died in hospitals during the second wave than in the third. Immigrants were more likely to die in a hospital during both waves because of their relatively low social status and lack of a family support system. There is not enough information in the 1918 and 1919 death records for Hamilton to conclude whether or not rural

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families were more likely to be hospitalized. Rural families, however, belonged to the working class and exploration of their places of death with a larger sample would be useful. Although immigrants and working class victims were the usual patients in hospitals, socio-economic status alone did not determine who was hospitalized during the 1918-19 pandemic in Hamilton. Marital status and age also proved to influence the likelihood of hospitalization. During the second wave, for instance, single victims were most likely to have died in hospital (Figure 7.1). Perhaps they lacked a support system at home that married individuals enjoyed. According to this analysis, hospitalization was also influenced by age. During a regular flu season, the usual victims are the very young and the very old; the majority of the 0-9 and 65+ aged victims died at home during the 1918-19 waves in Hamilton. Interestingly, it was 20-39 year olds who died most often in hospitals.

There is no doubt that the third wave of influenza was significantly different from the second wave. The third wave reflects a return to the normal pattern of home deaths and to support this, Table 7.1 confirms the majority of the victims of the third wave died at home. During this time, home care was much preferred over hospitalization. Analysis of the age, marital status and place of death further support this conclusion and the gap between the numbers of single and married hospitalized victims narrows during the third wave.

The point of this analysis was to explore health care accessibility, specifically accessibility to a family doctor, in Hamilton during the 1918-19 pandemic. By using Place of Death (hospital versus home), it was possible to examine this question indirectly. Access to a family doctor through home visits, the preferred way to receive healthcare, was directly related to the socio-economic status. This research revealed a large socio-economic gap in Hamilton. Immigrants were not well received and were often poorer than Canadian-born residents. Therefore, whether a victim was an immigrant or not played a major role in determining if he or she received home care or were hospitalized during the 1918-19 pandemic. A victim's place of residence also determined access to the quality of health care. During both outbreaks rural families received healthcare from home not because it was better, but it was the only option available because of the distance to hospitals and doctors.

Given the social institutions of today, it is not likely that immigrants and the impoverished would face the same plight as they did in 1918 and 1919. The

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accessibility to health care that Canadian citizens have today should not be taken for granted given the disparity and overt neglect facing those most affected by the influenza pandemic in Hamilton nearly a century ago.

8

Mother and Infant Mortality during the Third Wave

Katie Wright

The supreme dependence of the very young on their parents, particularly their mothers, suggests that high adult illness and mortality is likely to have an impact on infants and children, and this makes discussion of the effects on infants and children all the more interesting. While adults could be affected either directly or indirectly (via a secondary infection, a complication, or as a contributory cause), the wellbeing of infants could also be determined by their mother's health (Reid 2005:53).

There are reports worldwide of high mortality rates in pregnant women during the 1918-19 influenza pandemic. Pneumonia increases the risk of mortality for both mother and infant (Hallman 2009:29). Some estimates suggest that maternal mortality among pregnant women in 1918 ranged from 30% from influenza to 50% when they contracted pneumonia (Larsen 1982:601). An obstetrician in New York reported a 70% mortality rate among his pregnant patients during the 1918 influenza pandemic (Hallman 2009: 29). Women also experienced higher risk of serious complications after abortion or labour (Hallman 2009:29).

In this chapter, I demonstrate that pregnant women in Hamilton were similarly affected during the third wave of influenza. The context in which motherhood occurred in the winter of 1919 was very different from what it is today, as were the risks of contracting infectious disease. I explore deaths among mothers and children, attributed to influenza and pneumonia, contained in the Ontario Death Registers (Government of Ontario 1919). In addition, I was able to

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link six instances of influenza deaths to funeral records (Dwyer Funeral Records 1919) which, together, put a human face on the epidemic in Hamilton.

Motherhood in 1919

Understanding the many aspects of motherhood helps establish the background of maternal and infant health during the third wave of the influenza pandemic in Hamilton. In 1919, giving birth in hospitals had become an acceptable practice. Prior to 1900, however, receiving any sort of health care outside of the home (by physician or family) only occurred among the poor, not among the more prosperous members of society (Noel-Weiss 2007:3). In 1919, fewer than 50 percent of all Canadian childbirths were attended by a medical professional such as a nurse, doctor or, less often, by a midwife (Mitchinson 2000:200). In hospital settings it was not uncommon for a nurse to deliver the infant if a doctor was unavailable. Nurses not only played a significant role during childbirth but they also provided postpartum care. Prenatal care, however, was not considered as important as postpartum care of mother and infant at this time. After birth, infants were either breastfed, or if the mother were wealthier and better educated, the baby may have been bottle-fed. In 1919, bottle-feeding formula was considered to be beneficial for infants (Noel-Weiss 2007).

Canada first developed a Department of Health in 1919, but it wasn't until the following year that the Division of Child Welfare was created after high infant mortality rates were recognized to be a significant problem (Dodd 1991). Once the Division of Child Welfare was established in 1920, Helen MacMurchy (chief of the Child Welfare Division) developed a set of "Blue Books" containing advice for parents on how to improve maternal and infant health. This was the first set of Canadian government sponsored maternal and infant health literature (Dodd 1991). During the 1918-19 pandemic, therefore, there were no official Canadian guidelines for maternal and infant health (Dodd 1991).

Neonatal and Post-neonatal Mortality during the Third Wave

Infant mortality is partitioned into two age groups: neonatal and post-neonatal infant deaths. Neonatal mortality represents infants who die in the first 28 days of life from causes originating in their mother's womb, such as infection or congenital malformations (Hallman 2009:8). For neonates born between January

and April 1919, the risk of dying from starvation would have been nearly three times higher than usual (Reid 2005). As Hallman explains “epidemic-related neonatal deaths were likely caused by maternal infection with influenza that affected the developing fetus, preterm labour, or resulted from maternal-death related starvation” (Hallman 2009:9). During the third wave in Hamilton, however, only one neonatal death attributed to influenza or pneumonia was recorded, which is lower than would be expected. This may be because the prenatal effects of influenza on the mother may have produced symptoms in the neonate, such as wasting, that would not have been attributed to influenza or pneumonia (Reid 2005).



Post-neonatal mortality is represented by infants who die after the first 29 days and before 365 days of life. Post-neonatal deaths are often attributed to aspects of the external environment, such as infections, nutritional deficiencies or violence (Hallman 2009:8). Hallman explains that post-neonatal deaths during the influenza pandemic may have been caused by “the effects of maternal infection, but were more likely to have resulted from direct infection with influenza and environmental degradation caused by the death or illness of the primary care-givers” (Hallman 2009:9).

Figure 8.1: Mother and Infant.
(Schriever 1909).

Recurrence and Resilience

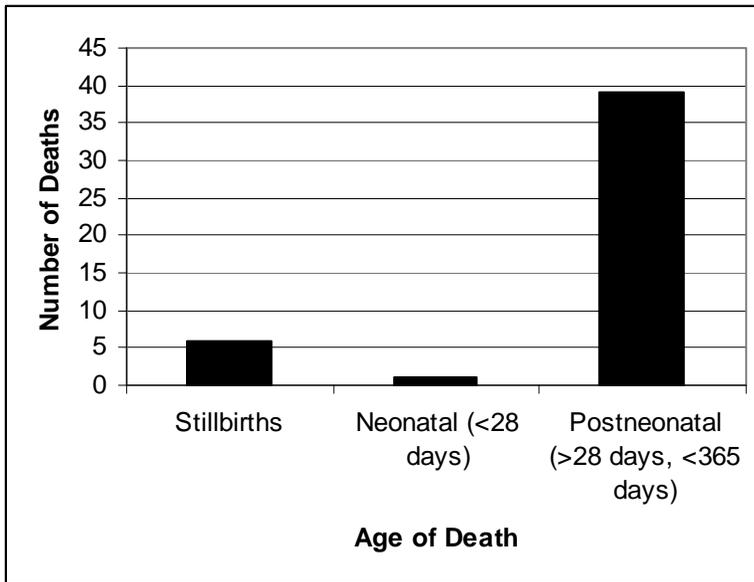


Table 8.1: Infant Age of Death in Hamilton January to April, 1919
(Government of Ontario: n.pag).

Infant Influenza and Pneumonia Mortality Rates

To calculate the infant mortality rate in Hamilton during the third wave of the 1918-19 influenza pandemic, the total infant deaths per year were divided by total live births per year per 1000 live births (Mausner & Bahn 1974:186). The infant mortality rate was estimated using counts of deaths for January to April 1919. To estimate the number of births that occurred between January and April, the total number of live births in 1919 was divided by the days in a year (365) to obtain the average number of births per day. This value was then multiplied by 120 (the number of days in January through March) to estimate the births for the period. The four-month infant mortality rate due to influenza and flu related deaths in Hamilton is 51.9 per thousand. In nearby Toronto, the infant mortality rate was 98.99 deaths per thousand in 1919 (Hallman 2009:55). Toronto's infant mortality rate included all causes of death. This shows that the infant mortality rate in Hamilton was relatively high during the third wave considering that this rate only included deaths attributed to influenza or pneumonia.

Mother and Infant Mortality

Year	Population	Births	Marriages	Deaths	Excesses of Births over Deaths	Natural Increases per 1000 people
1918	109,076	2770	1003	1756	1014	9.30
1919	107,980	2636	1340	1281	1382	12.80

Table 8.2: Number of Births, Marriages, and Deaths in Hamilton, 1918-19 (Foster 1920).

Maternal Death and Stillbirths during the Third Wave

Pregnancy may reduce maternal immunity (Hallman 2009:29), which may predispose pregnant women to contract influenza and develop more serious complications. Today this lowered immunity is called PAIDS (pregnancy associated deficiency syndrome). Not only do pregnant women have decreased immunity, but they also are at “a particularly high risk from influenza towards the end of their pregnancy” (Reid 2005:32). Influenza also dramatically increases the frequency of stillbirths. Stillbirth is defined by Statistics Canada (2009) as a fetal death after 20 weeks duration (of pregnancy) or by the weight of the fetus equaling a minimum of 500grams (Statistics Canada 2009). In some areas, infants born during the second and third waves of the influenza pandemic were 25% more likely to be stillborn than at any other time between 1917 and 1922 (Reid 2005). A study of 50 cases of pregnancy complicated by influenza found that when pregnancy was interrupted by stillbirth, 80.9% of the pregnant women died (Titus & Jamison 1919:1666).

To determine whether pregnant women died during the third wave in Hamilton, I identified 61 deaths from influenza or pneumonia in the Ontario Death Registers for Hamilton that occurred among women in the reproductive age group of 15 to 49 years of age. These women potentially could have been pregnant when they died during the third wave. Six of them were indeed pregnant. This was determined by matching the surname and address of the deceased women to stillborns listed in the Ontario Death Registers for the same period. There are likely other maternal-infant links, but there was insufficient information to define these cases.

All six women died after the interruption of pregnancy by stillbirth. The study conducted by Drs. Jamison and Titus noted that the majority of stillbirths occurred within twenty-four hours of maternal death, owing to premature labour or fetuses that had not yet reached full term (Titus & Jamison 1919:1666). In four

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cases in Hamilton, the mothers and infants died within one day of each other. According to Titus & Jamison (1916:1666), when the mother died two to twenty-one days after the stillbirth, the infant had reached full term. There are two such examples among the sample of influenza deaths among Hamilton women.

Interestingly, the six cases of mothers and stillbirths identified during the third wave begin to appear in the records in March of 1919. Only abbreviated last names are mentioned here to protect individual privacy. Jane H. suffered from influenza for one week before passing away on 1 March, 1919. Her infant son was stillborn on 2 March, 1919 not long after his mother. Both Jane and her son died at their home on McNab Street North.

Only days later on 4 March, 1919, 28-year old Bertha W., passed away on Hunter Street East. Her infant son was stillborn on 5 March, 1919. Bertha was diagnosed by Dr. J. I. Moins as having had Spanish influenza for one week and then complications of Spanish influenza for another week prior to her death. In one case, not only did the mother and infant pass away, but so did the infant's father.

In another unfortunate case, an entire family passed away in one day, on 27 March, 1919. Husband and wife, Lucy (age 25) and Fred (age 26) D., passed away alongside their infant stillborn son, also named Fred, at Mountain Hospital (Figure 8.3). In 1919 The Mountain Hospital "had 100 beds and included a maternity ward, an operating room for minor surgery and a nurses' residence" (Archives of Hamilton Health Sciences and Faculty of Health Sciences 2005). The Mountain Hospital evolved into the Henderson Hospital of Hamilton Health Sciences and is currently located at 711 Concession Street in Hamilton (Hamilton Health Sciences 2005). Both parents had pneumonia for 7 days and finally suffered respiratory failure for the remaining six hours (Fred) and four days (Lucy) of their lives. The entire family was buried together (Dwyer Funeral Records 1919). The Dwyer Funeral records contain some minor discrepancies in the details for this family, such as the spelling of the surnames and variations in given names. Lucy, for instance, was referred to by her full name "Lucinda" in the funeral records, but not in the Ontario Death Registers. Similarly, her stillborn son, Fred, was called "Infant D." in the funeral records. This familial situation is especially poignant because this appears to be the only instance in which both parents passed away during the third wave of the 1918-19 pandemic.



Figure 8.2: The Mountain Hospital Where the Entire D. Family Passed Away on 27 March, 1919, of Influenza (Archives of Hamilton Health Sciences and Faculty of Health Sciences 2005).

Soon after the passing of the D. family, Geraldine B. (age 25) gave birth to her infant son, a stillborn male, on 28 March at her home on Hughson Street North. Only several days later on 31 March, Geraldine passed away at home after seven days of pneumonia and heart failure.

In early April of 1919, Merle N. also gave birth to a stillborn daughter on 4 April at “lot 8 con 8”. She later passed away on 9 April after suffering influenza for one week, followed by pneumonia, after she lost her daughter. It is interesting to note that Merle was 17 at the time of her death and no father was listed for her stillborn daughter. The baby was listed as “illegitimate” as Merle was not married. In 1919, “bearing a child outside of marriage was considered to be a social disgrace” (Baker 2008:12). Many mothers of illegitimate infants were unable to raise a child without a male breadwinner and therefore opted for illegal abortion or adoption of the infant after birth (Baker 2008:12). Merle would have been dealing with these difficult social circumstances in addition to suffering the physiological stresses of influenza during pregnancy.

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Toward the end of April, Margaret T. (age 27) and her stillborn daughter passed away on Crook Street. She was married at the time and died from influenza on 26 April after one week of illness. There are likely other women who lost infants during a bout of influenza or pneumonia; however, stillbirths were not recorded as readily as infant deaths which makes it difficult to determine how many maternal deaths and stillbirths actually occurred.

Locations of Maternal Deaths and Stillbirths

Information on addresses contained in the registered deaths makes it possible to determine where maternal deaths and stillbirths occurred in Hamilton (Figure 8.3.). Most occurred in the north-west region of Hamilton, where McGilly (Chapter 6) observed clusters of influenza death in 1919. Residents in the north-west of Hamilton were generally immigrants or working class families attracted by the lower income housing available there. Five of the six mothers and their stillborn babies passed away at home. The D. family, however, passed away in a hospital. As mentioned earlier, it was only recently becoming socially acceptable for births to occur in hospital. The D. family was likely hospitalized due to influenza, and not directly because of the impending birth of their child. It is perhaps also noteworthy that when Merle and her stillborn daughter passed away, their home at “lot 8 concession 8” was relatively far away from Hamilton’s core and hospitals.

Plague of Pregnancy

Certainly, the third wave of influenza effected maternal and infant well-being during the influenza pandemic in Hamilton, as expressed through the tragic loss of women such as Geraldine B. and Merle N. Some devastating occurrences, such as the death of the D. family, are especially affecting because both parents and infant passed away in a single day. These women and their infants faced the possibility of serious complications when the mother contracted influenza during pregnancy. Pregnant women in Hamilton during the early part of 1919 were at a high risk for delivering stillborns, and faced the possibility of their own deaths soon after. It was rare for a woman to survive for more than twenty one days after

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a stillbirth because “The epidemic of influenza...acted like a veritable plague, carrying off pregnant women” (Titus & Jamison 1919:1665).



Figure 8.3: Distribution of Mother and Stillborn Infant Deaths (McGilly Chapter 6).

9

Haudenosaunee Dying: Influenza Deaths amongst the Six Nations

Jean A. Thompson

“The Mohawks, our particular Nation, have on all counts shown their zeal and loyalty to the Great King; yet they have been very badly treated by his people of that country” (Joseph Brant, cited in Kelsay 1984:166).

Most often, disease amongst Indigenous populations in Canada is associated either with modern epidemics of heart disease and diabetes or historical outbreaks, such as smallpox, during the early contact period. However, Indigenous communities also experienced high rates of fatal diseases in the early twentieth century, with the 1918-19 influenza pandemic contributing to the comparably high number of deaths relative to non-native communities.

The influenza outbreak in early 1919 killed at least seven of 808 people living on the Six Nations Reserve in South Western Ontario (Canadian Genealogy Centre 1911). These influenza victims ranged in age from three to 43 years, and were nearly evenly represented by males and females. Although the oldest person to succumb to the disease seems young at 43 years, the average age-at-death in 1919 for this community was 32 years (Government of Ontario 1918-19: n.pag.). A total of seven deaths may not be startling, until we consider that the already diminished population saw only 12 recorded deaths between January and April 1919, and more than half of these were attributed to influenza (Government of Ontario 1918-19:n.pag.). Early twentieth-century death records were compiled for each county by a clerk. The clerk noted that many of the deaths for Six Nations were discovered by the Indian Office in Brantford. In contrast,

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government officials were rarely listed as the death informant in Wentworth County. It is quite possible that deaths regularly went unregistered and that the true death toll from the third wave of the 1918-19 pandemic might have been higher for the Six Nations community.

This chapter addresses the issues of underrepresentation of documented deaths and high mortality rates at the Six Nations reserve during the third wave of the 1918-19 influenza pandemic. I transcribed registered deaths for the Six Nations Reserve identified in the Brant County death records (Government of Ontario 1918-19: n.pag.). There are only a small number of deaths to consider in this study, but since it is the only information that is available, and small samples are not unusual for Indigenous communities in Canada, it is important to glean whatever is available from the data at hand (Stephens 2008). I explore the care given to both Indigenous and non-Indigenous groups during the 1918-19 and 2009 influenza epidemics, and argue that the Indigenous groups are so small in number due to high rates of death during earlier epidemics.

Unparalleled Mortality

According to the Canadian census for 1911, there were 808 individuals living at Six Nations Reserve (Canadian Genealogy Centre 1911). If the population maintained itself over the subsequent 8 years, it would indicate that less than one percent of the population died as a result of the pandemic in 1919. To provide further context to the situation at Six Nations, let us consider influenza deaths in the Hamilton Division of Wentworth County in 1918-19. Hamilton Division, which was primarily comprised of a non-Indigenous population, recorded 961 deaths between January and April 1919 (Government of Ontario 1918-19:n.pag). Of these deaths, 227 entries listed influenza or pneumonia as the “disease causing death” or the “immediate cause of death”. Table 9.1 demonstrates that, for the period being analyzed, a person living at Six Nations was nearly 2.5 times more likely to die from influenza than people living in the Division of Hamilton in Wentworth County.

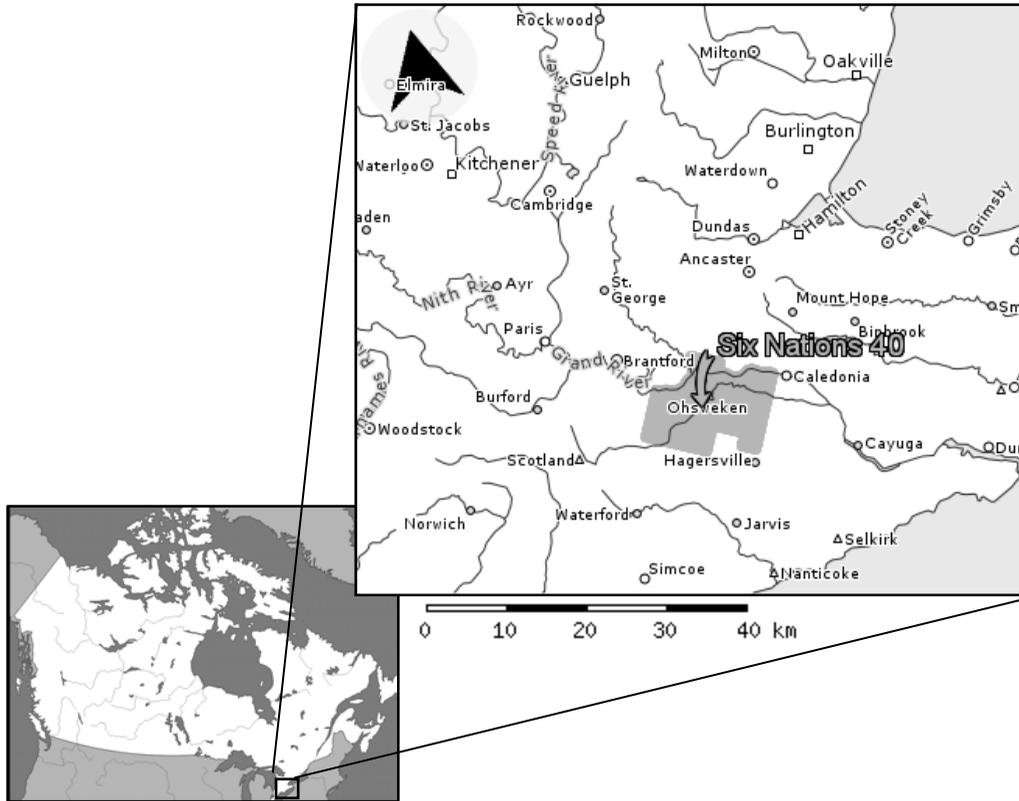


Figure 9.1: The Six Nations Reserve in Proximity to Hamilton (adapted from D-Maps.com 2007-2010; Natural Resources Canada Atlas 2010).

The discrepancy between the two locations is striking and difficult to explain. The reserve did not lack doctors. Three physicians are listed within the death records for the county, indicating that, at minimum, three practiced in the area. The doctor listed most regularly, W. Davis, lived in the village of Ohsweken in the center of the reserve (Figure 9.1). The other two lived in the village of Hagersville, immediately opposite reserve land, and were close enough to the reserve to provide treatment. In Wentworth County, 84 physicians diagnosed the 227 cases of influenza and pneumonia deaths listed in the registry (Ravenscroft, Chapter 10). Although these 84 individuals cannot be considered to represent an exhaustive list of physicians practicing in Wentworth County, they seem to be most

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likely to have attended to the seriously ill. Based on this data, it should be noted that there was only one doctor for every 1,362 people in Wentworth, while there was approximately one for every 270 people living on the reserve. If we assume that the two physicians in Hagersville also served the population of 421, we have a ratio of one doctor for every 1,229 people including the reserve and village, which is still more than in the region that encompasses the large city. We therefore cannot conclude that the Haudenosaunee, or the Iroquois as they were more commonly known at the time of the epidemic, suffered so severely because there were no physicians practicing in the area. What does differ dramatically in terms of social support between Six Nations and the Division of Hamilton is access to wealthy neighbours. Rickards (Chapter 12) suggests that through formalized systems of relief, such as charities and fraternities, wealthy Hamiltonians assisted their poorer neighbours in times of sickness. In a completely impoverished community such as Six Nations, this social structure (however flawed it may have been in the city) was not in place to assist the sick. The lack of institutionalized systems of poor relief could have contributed to the greater proportion of deaths at Six Nations. Therefore, although the Haudenosaunee could seek assistance from doctors, multiple other resources remained inaccessible to them.

January-April, 1919	Registered Deaths	Deaths Caused by Influenza	Percentage of Deaths Caused Influenza
Hamilton Division, Wentworth	961	227	23.6
Six Nations	12	7	58.3

Table 9.1: Deaths from Influenza and Pneumonia at Six Nations compared to Hamilton Division, Wentworth County (Government of Ontario 1918-19; County of Brant 1919).

Another possible explanation for the lower death rates in Hamilton Division is the introduction of the new national Department of Health. This new system provided benefits to people in Hamilton, but not to Indigenous people living on reserve. Lux (1996) explains that well into the twentieth century, deaths on reserves continued to be much higher than the deaths of other Canadians, not only because of a higher susceptibility to disease but because, thanks to organized public health, Canadians not living on reserves were becoming more knowledgeable about proper sanitation techniques. As non-Indigenous Canadians

stayed healthier in the face of epidemics and Indigenous peoples continued to fall ill, the perception grew that Canada's Indigenous populations were biologically weaker and unable to cope with the strain of disease (Lux 1996:343).

Tied to public health care is the relationship between being well and doing well at work and in life. Public health initiatives keep workers at work and able to earn money. When individuals earn more, they have to work less. When an individual works less, they are able to take time to get well, and maintain good health. On overcrowded early twentieth-century reserves, not only were many people suffering from poverty, but they were also unable to take sick leave from subsistence labour to care for themselves (Lux 1996:345). No amount of physician consultations could help individuals who were forced to stay out of bed to provide for themselves and their families. Rickard (Chapter 12) suggests that in times of epidemic crisis, formalized systems of relief were in place to assist people in need. Even if a hospital bed were made available to a Native person, their poverty would not permit them to leave their home long enough to heal.

Underreported Mortality

Of the 27 recorded deaths on the Six Nations Reserve for the entire year of 1919, nine lacked the name of a friend or family member in the column reserved for the informant of the death to the clerk (Government of Ontario 1918-19:n.pag.). Instead, the clerk recorded the Indian Office as the informant, if any informant was listed at all. This not only indicates that people from Six Nations rarely participated in the provincial enumeration scheme and rules, but that there could have been more deaths that went undetected by the clerk, and therefore were never recorded. This is not to say that the clerk or the Indian Office were uninterested in those dying on the reserve, but that they were more distantly connected to the community and less able to observe illness and death there.

However, the opposite seems more probable: The Haudenosaunee were uninterested in telling the clerk that a family member had passed away. The community's distrust of the Canadian government is evident in the passage from Joseph Brant that introduces this chapter. He explains the mistreatment felt by his people at the hand of the English, the precursor to the Canadian authorities (Kelsay 1984). That said, it has been observed that English-speaking, Protestant regions tended to record less information about Indigenous groups than their

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French-speaking, Catholic counterparts (Willigan & Lynch 1982:63). Slonim claims that this is not because of the Protestant clerks' attitudes towards Indigenous peoples but because of differences in record keeping traditions between the English and French (2004:47). Lux (1996:343) suggests that the belief that non-natives were superior to Indigenous peoples is due to their *perceived* resistance to disease, which escalated racial tensions on the Canadian prairies. It is not surprising that some Haudenosaunee were reluctant to inform Canadian authorities of deaths or illnesses as it would fuel the stereotype of the weak or diseased "Indian".

Slonim suggests that the under-recording of deaths during epidemics also occurs when the record-keepers themselves have fallen ill (2004:46). In the Haudenosaunee case, it would have been difficult, if not distressing, for people to leave the bedside of their recently deceased relatives to report the family member's death to the clerk. This should average out amongst clerks representing both reserve and non-reserve registers, however, we continue to see more cases of under-recording in the records for Six Nations than for the Hamilton Division. The common lack of information in the "informant" category for registered deaths from the reserve is one example of this under-recording.

Understanding Recent Mortality, or is there Recent Mortality?

A discussion of the impact of influenza upon Indigenous peoples on reserves in Canada would not be complete without at least a brief examination of the prevalence of H1N1 during the recent 2009 influenza pandemic. Although my research has concentrated on the third wave of the 1919 flu pandemic, one reason for the inception of this particular book project was our expectation that we would be in the throes of our own third wave while writing this volume. What was discovered, however, is that although the World Health Organization (2010a, 2010b) has not yet dismissed the pandemic at the time of publication, there were no new reported cases of H1N1 on Southern Ontario reserves after mid-December 2009 (Health Canada 2010). The statistics represented in the memorandum from Health Canada to the offices of First Nations and Inuit Health in Ontario state that Southern Ontario reserves saw only two cases of H1N1 influenza from the onset of the outbreak in April until 31 August, 2009, with 29 cases during the subsequent wave in early 2010 in a population of 11,410,046 (Statistics Canada

2006). Although we have been discussing the death rates from influenza, it is important to note that the statistics provided by Health Canada do not refer to deaths but instead to cases of the illness, regardless of whether the patient has passed away.

Canada as a whole saw very low rates of influenza in the early months of 2010 – lower than what would be expected for any given year, let alone one expected during a pandemic. The third wave of this H1N1 outbreak appears to have wreaked far less havoc in both Indigenous and non-Indigenous populations than anticipated (Public Health Agency of Canada 2010). With few instances of influenza in total for 2009-10, it is impossible to compare the ratios of influenza cases on-reserve versus influenza cases off-reserve for 1918-19 and 2009-10.

Avoiding Repeated Mistakes

The mistreatment of Indigenous peoples by the settler people of this country, as expressed in the opening quotation by Joseph Brant, is not the only inequity that the Haudenosaunee faced through the early twentieth century. Nor is it the only inequity they continue to face today. Epidemics have regularly ravaged the Six Nations reserve. Two centuries before the influenza deaths, a serious smallpox epidemic depleted the population. The Iroquoian support of British troops between 1716 and 1717 during various military campaigns introduced smallpox to the communities (Preston 2009). This early instance of disease contributed to the community's population decline to 808 by 1911, and then through the influenza pandemic, this small group shrank at a far greater rate than off-reserve groups in the same area. The diseases that the Indigenous peoples of Canada, including those at Six Nations, regularly experience are a result of neglect by health authorities. As such, the Haudenosaunee continued to be badly treated by the people of this country in the face of a pandemic that affected everyone.

The Haudenosaunee and other Indigenous people living in Southern Ontario fared far better than their counterparts on other northern Ontario reserves during the 2009-10 epidemic. As of mid-July 2009, only one case of H1N1 had been reported on a Southern Ontario reserve, while 60 cases had been reported on other reserves. The majority of these cases occurred in the Sioux Lookout Zone (zone 10) and Thunder Bay Zone (zone eight). Health Canada reported that Canadian Aboriginals, in general, were more prone to hospitalization from H1N1

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than their non-Indigenous counterparts because of the greater proportion of pregnant women, young children, and people with chronic diseases (Public Health Agency of Canada 2010).

During the 2009-10 pandemic, the government of Canada set strict guidelines to assist with health care in First Nations, Inuit, and Métis communities to avoid significant outbreaks of influenza (Public Health Agency of Canada 2009). Health Canada pre-positioned medical supplies on reserves across the country, and intentionally ensured that these communities had access to educational resources regarding healthcare best practices to avoid influenza. Concurrently, the impact of the disease on various communities and the prevalence of H1N1 were studied by the government in hopes of avoiding past population destruction in the present or future (Public Health Agency of Canada 2010).

Whether government efforts are to be commended or not, all should be thankful that a winter “third” wave did not sicken anyone or even come to fruition in 2010. Reporting throughout the most recent epidemic is deemed to have been accurate and represented the number of illnesses well, but we continue to question the precision of the 1919 death records from the Six Nations as a true account of influenza fatalities that fateful winter. What is certain is a reluctance to report illness and death, whether on the part of the clerk or the family members. With this reluctance comes the inevitable fear that perhaps far more than 50 percent of the deaths from January to April 1919 were caused by influenza on the Six Nations reserve.

10

Doctors, Diagnoses, and Discourse

Duncan Ravenscroft

“During the later part of the nineteenth century, as the epidemiological transition in North America began, changing conceptions of disease, diagnostic nomenclature, and systems for recording causes of death were substantial and confound longitudinal analysis of mortality trends” (Anderton & Leonard, 2004:11).

As the holders of the proverbial keys to answers to questions and cures for ailments, doctors exude a certain air of professional intrigue. Neatly separated from the layman by highly rehearsed rhetoric and institutional accreditation, the word of doctors is rarely disputed (Freidson 1988). To take the word of doctors as law, however, is to forget their fundamental weakness; their humanity. While they may have a working understanding of symptomatology and command of an arcane language, doctors are still subject to human errors, emotions and behaviours. In this respect, the diagnoses that doctors ascribe are often closely tied to such factors as previous experience with similar cases, when and where they were educated, and even their current state of mind (as factors such as fatigue or exhaustion could ostensibly affect diagnosis).

With the demystification of the medical profession comes the realization that if doctors can make diagnostic errors, perhaps our understanding of past diseases is wholly dependent on imperfect data. Compounding the potential for conflicting diagnoses from different physicians is the apparent fluidity of the prevailing medical and scientific perceptions of illness and disease. What factors coalesce to allow for different diagnoses of similar symptoms between doctors?

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How do the diagnoses of individual physicians affect our perceptions and historic understanding of overall mortality patterns of diseases? These diagnostic issues have received little attention with respect to the 1918-19 influenza pandemic. This chapter evaluates the role that Hamilton's physicians played in the perceived virulence of the third wave of the influenza pandemic. An overview of prevailing medical theory and education provides the qualitative framework, while an evaluation of Hamilton's death records provides the quantitative foundation for this discussion.

Deciphering Different Diagnoses

It is entirely possible for different doctors to come to dissimilar diagnoses based on the same patient's symptoms. Many factors affect a physician's diagnosis: the time and place where they were educated, the medical theories *du jour*, and their personal and clinical experiences converge to produce a diagnosis that reflects each of these individual factors, factors that may differ from those experienced by another physician (Montgomery 2006:5).

From Miasma to Microbes: Shifting Medical Paradigms

When Spanish Influenza began to spread in the wake of the World War One in 1918, another war was already raging within the medical and scientific communities. The decades surrounding the pandemic were rife with divergent opinions regarding the cause and transmission of diseases, and regarding illness in general. The prevailing humoral theory, which associated illness with an imbalance of one or more humours (four fluids which were thought to constitute the human body), was slowly losing support in the medical world. The miasmatic theory of disease, which evolved in conjunction with the humoral theory, remained popular in many medical circles, as its association of disease with "bad air" had seemed like a sound explanation for the spread of communicable disease (Anderton & Leonard 2004:112). In truth, such an association was not far off the mark, as many diseases were indeed spread in such a manner, except airborne pathogens caused infectious diseases and rather than the quality of the air itself.

The main point of contention arose with the formulation of germ theory in the late nineteenth century. The discovery of bacteria as causative agents of

disease eventually sounded the death knell for traditional humoral and miasmatic theories (Emery 1993:11). This new paradigm had great impact on the way doctors diagnosed patients, and on the ways in which symptoms were defined and recorded. To borrow an example from Emery, “Dropsy (fluid retention), for example, was a *cause* from a humoral standpoint, but only a *symptom* in the new theory of disease causation (Emery 1993:11, emphasis in original). A doctor trained under the humoral system, therefore, would likely see the symptoms of a patient differently than would another doctor trained in germ theory. Such differences in conceptualizing disease and in the language of diagnosis can lead to disparate clinical assessments of identical symptoms.

Evolution in Education: Reformation of Medical Training

Following the shift from humoral medicine to a scientific medicine centered on germ theory, medical education began to see similarly sweeping changes. Traditional training before scientific medicine often consisted of little more than apprenticeship to a physician, an education that varied greatly with the skill and precision of the teacher (Flexner 1910:3). The late eighteenth century saw the rise of formal medical training in North America, with dozens of schools established by the mid-nineteenth century. While this may seem encouraging, there was no established means of standardizing the quality of education, and some so-called “medical schools” were little more than money-making ventures, lacking the facilities, equipment and staff required to adequately train a prospective doctor (Hodgins 1917:66).

This trend continued into the twentieth century when, in 1910, a report on medical education in North America by Abraham Flexner was published at the behest of the Carnegie Foundation. Flexner visited and evaluated on its quality of education and facilities every medical school in Canada and the United States. Flexner was alarmed at the rate at which medical schools were cropping up around the country as if by “fission” or “spontaneous generation”, concluding that within a century, North America had produced “four hundred and fifty-seven medical schools, many, of course, short-lived, and perhaps fifty still-born” (Flexner 1910:6). An example of the vitality of the booming industry of medical education can be seen in the city of Cincinnati, where 20 medical schools had gestated since the mid nineteenth century. The quality of these schools varied

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greatly, as many institutions saw their first graduates, supposedly “trained” medical doctors only a year after opening. Even in other schools considered to be more professional, uniform standards were not in place, and the lack of any supervisory or administrative board meant that a medical degree also served as a license to practice. The gauntlet of exams intended to weed out candidates unsuitable for practice were often little more than oral interviews, with few failures; in essence, if you were able to pay for tuition, you were able to practice medicine (Flexner 1910:7). The situation leading up to the twentieth century had begun to ameliorate as stricter regulations on medical education were established. There were still, however, many inconsistencies in the quality of medical education that each school offered. Sixteen of 152 schools required at least one year of college before acceptance, whereas the majority of the schools accepted applicants with little or no formal school (Flexner 1910:28).

The state of medical education in Canada fared better than in American schools, upon which Flexner’s observations were largely based. The University of Toronto’s Faculty of Medicine was highly lauded by Flexner, and was found to have excellent laboratory facilities and strong clinical ties to Toronto General Hospital (Flexner 1910:323). However, some schools, such as London’s Western University, received poor ratings because of “wretched” laboratories and clinical experience that can only be described as basic, which greatly limited the level of education their students could receive.

While the standards of medical education in North America varied greatly during the decades preceding the pandemic, attempts were being made to improve the system. The Flexner report provided further impetus for change, as medical schools identified as inferior sought to improve their curriculum and facilities to regain their reputation. Despite these improvements, many of the doctors who practiced during the 1918-19 influenza pandemic would have graduated before the Flexner report was published. Depending on where and when each physician graduated, perceptions, recognition and diagnosis of influenza could vary drastically within the medical profession. The unregulated production and propagation of doctors, and “doctors” from different medical schools with drastically different standards, could factor heavily into the consistency and accuracy of diagnoses.

Of Science and Subjectivity: The Nature of Clinical Judgment

There can be no doubting the role that science played in the education of physicians, as modern medicine in the early twentieth century was inextricably focused on the biology, chemistry, and physics of the human body, and those elements in the natural world that debilitate it. One look at the curriculum of a medical school, which included courses in such subjects as histology, physiology, and embryology, should be enough to convince any sceptics (Hodgins 1917:93). That said, the realm of practicing physicians is often distant from that of the sciences in which they were trained. This transformation comes with the eventual intersection of the doctor and her patients in the highly socialized ritual known as a medical examination. Clinical judgement is the process through which a physician determines the state of a patient's health. While doctors may employ science in their diagnoses, the interaction between doctor and patient that leads to a clinical judgement is driven by the practical reasoning, clinical skill, experience, and training of the particular physician (Montgomery 2006:5). The limiting factor of time also pushed doctors towards quick diagnoses based on intuition and experience, because practicing medicine remains, in some respects, a business. Physicians rarely had the luxury of time to execute the extensive physical and chemical tests that could provide more conclusive diagnoses (Poyser 1850:780). The important role that a doctor's experiences, personal acumen and social skills play in the formation of a diagnosis can therefore not be overstated.

Differential Diagnosis in Hamilton: A Case Study

Now that the reasons behind variable diagnosis patterns between doctors have been described, I move to a case study of the different diagnoses made in Hamilton during the third wave of the 1918-19 influenza pandemic.

Death Records: Utility or Futility?

Death records represent a veritable treasure trove of information for researchers. They provide useful information on demographic factors such as sex, age, and occupation at death and, more important to this analysis, cause of death in the doctor's own words. It is from these records that epidemiologists create models of

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past pandemics. It is therefore essential to our proper understanding of the scope and magnitude of such pandemics that these figures be objective and accurate. A problem arises with the realization that death records were not composed in the absence of culture or outside of a social context. As a product of society, death records are suffused with the socio-cultural, political, and bureaucratic languages and beliefs that were held by those who created and controlled these data (Risse 1997:183). Understanding this underlying subjectivity in the death records, at least in regards to cause of death, is precisely what this chapter addresses. The cause of death listed in these death records are the same diagnoses that are shaped by the physicians' background. The one or two words listed in a space marked "cause of death" in the Hamilton death records are shaped by the socio-cultural and political forces culminating in the doctor's education and experiences. The two words preceding death modify its meaning greatly. Death is a fact. "Cause of" death is based on an opinion, which draws us out of the factual and into the subjective (Maudsley and Williams 1996:61).

Hamilton's Doctors and Causes of Death

For the purpose of this analysis of physicians' attributions of cause of death, I focus on registered deaths in Hamilton during the time of the third wave (approximately 1 January to 30 April, 1919). As influenza did not always kill people outright, and pneumonia was often the "final blow" resulting in death, both "influenza" and "pneumonia" are counted as influenza deaths (Noymer 2008:1927). This definition of influenza will likely result in exaggerated estimates, as some pneumonia deaths would have occurred in the absence of influenza. During the third wave, there are 227 deaths diagnosed as influenza or pneumonia in the division of Hamilton (which includes the city and surrounding area). A total of 84 doctors were recorded in the death register as responsible for treating these patients and determining their causes of death. Two registered deaths omitted the name of the physician who attended the deceased and these were eliminated from this study (n=225). Of particular interest is the observation that only 13 of these doctors were responsible for the diagnosis of 43% (n = 99) of all influenza and pneumonia deaths in this period (Figure 10.1).

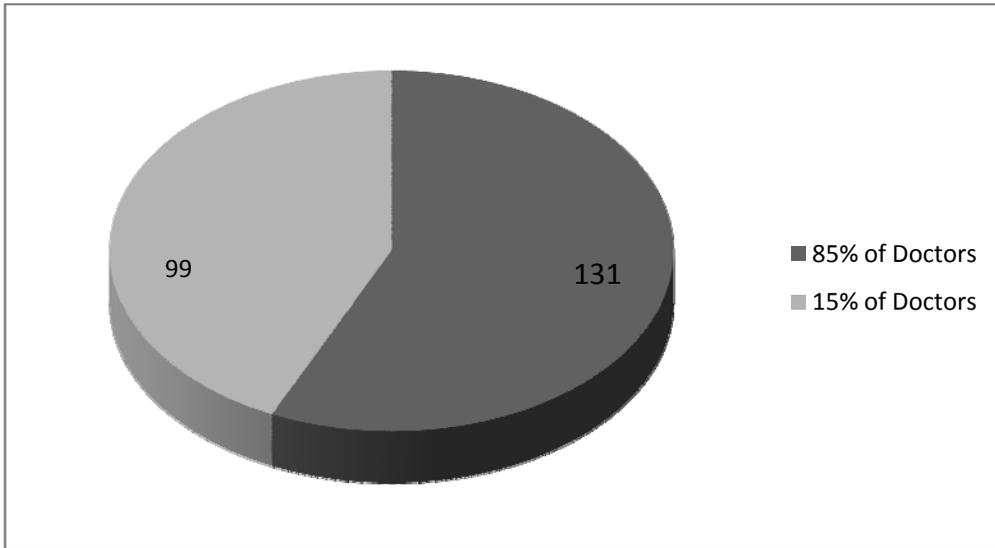


Figure 10.1 Proportion of Physicians Certifying Cause of Death as Influenza and Pneumonia (Government of Ontario 1918-19).

Sixty-one percent of these doctors diagnosed only one or two cases of influenza or pneumonia (Figure 10.2). The fact that a whopping 43% of all deaths attributed to pneumonia or influenza were diagnosed by only 13 doctors indicates a large measure of control over how the influenza pandemic was conceptualized, lay in the hands of a few individuals.

One physician by the name of W H Godfrey was responsible for diagnosing 26 cases. Thus, one man's clinical judgment was responsible for the diagnosis of 11% of all deaths attributed to pneumonia and influenza in Hamilton during the third wave. What if his diagnoses were wrong? How would the third wave of the influenza pandemic appear with a mortality rate 11% lower than first perceived? Such questions are rarely considered, however, the interpretation of death records and diagnoses are ultimately dependent upon human agency and subjective opinion.

Among the most commonly cited causes of death in the influenza/pneumonia dyad were the simple diagnoses of "influenza", "pneumonia" and "bronchopneumonia". However, some physicians chose more specific diagnoses, such as "septic pneumonia", "pneumonia phthisis" and

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“double bronchopneumonia”. These fine distinctions in terminology demonstrate the way in which similar afflictions can be interpreted differently by each physician. It is in these differences that the analysis of mortality can be confounded, and perceptions of pandemics distorted. Godfrey quite interestingly diagnosed 23 of these causes of death to “pneumonia”, with another 3 attributed to “bronchopneumonia”. How likely is it that this many cases of pneumonia would fall into the hands of one physician without the presence of influenza? This is even more compelling when we consider that Dr. Godfrey only diagnosed cause of death for nine other cases during this period. This means that Dr. Godfrey attributed 75 percent of his total causes of death to pneumonia during the four month period in which the third wave of influenza affected Hamilton. Had pneumonia deaths not been counted as part of influenza mortality, the total mortality would have again, appeared 11 percent less virulent than it possibly was.

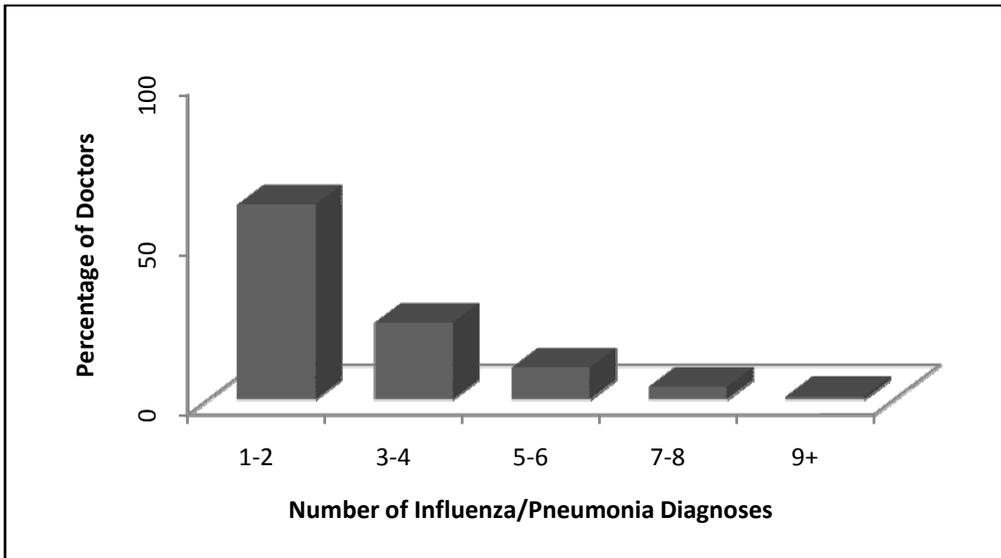


Figure 10.2 Number of Influenza and Pneumonia Diagnoses Made by Each Physician (Government of Ontario 1918-19)

Even more interesting is that the majority of the individuals supposed to have died from pneumonia fall into the 20-40 year age range, precisely the age group associated with increased susceptibility to the influenza virus (Hughes-Jones, Chapter 3; Edwards, Chapter 4). Pneumonia, on the other hand, has a mortality pattern more commonly associated with infants and the elderly, due to their less efficient immune system response (Metlay et al. 1997:1453). In one case, a young couple, aged 25 and 26, were diagnosed by Dr. Godfrey to have died of pneumonia. While there is nothing outwardly wrong with this judgment, questions arise when one considers the fact that they both died on the same day, when the likelihood of a young couple simultaneously dying of pneumonia is fairly low. The absence of any reference to influenza in Dr. Godfrey's diagnoses during an influenza pandemic is remarkable, and could be a result of his particular methods of clinical examination or his own views on the disease and its spread. It should be noted that while the medical profession was still debating the agent responsible for the pandemic (which would not be discovered until 1933), they were aware of the deadly link between pneumonia and influenza (Morens, Taubenberger & Fauci 2008:963). Perhaps Godfrey's diagnoses were simply ascribed to pneumonia because he assumed its link to influenza was common knowledge and would therefore be interpreted as such. Conversely, he might have left influenza out of his diagnosis because he believed it was not significant. Such alternative scenarios illustrate the many factors and minutiae of clinical judgment that can alter the way diseases are classified and diagnosed. While the question can never truly be answered, it is worth contemplating whether another doctor, given the same patients, might have offered different interpretations as to the cause of death.

When examining the diagnoses of specific doctors, it becomes apparent that several physicians appear to fall into idiosyncratic patterns of diagnosis, wherein all of their similar cases are given identical diagnoses. Drs. Charlton and Vanderburg, who together were responsible for diagnosing six percent (n=14) of all pneumonia and influenza deaths during the third wave, both diagnosed all of their cases in an identical manner, citing "influenza" as the disease causing death and "bronchopneumonia" as the cause of death. Such repetitive patterns of diagnosis can easily emerge from past clinical experience with similar cases (Montgomery 2006:5). The presentation of a set of symptoms similar to those in a case a physician has previously diagnosed can often preclude further diagnosis as

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it is tempting to jump to conclusions based on familiarity. While such patterns of diagnosis can be merely a matter of semantics or preferred terminology, the fact that diagnoses are often based on assumptions derived from past experiences with similar symptoms further highlights the subjective nature of clinical judgment.

Destined to Differentiate

Physicians, as highly-trained, qualified individuals, carry with them a level of esteem that often obliges the public to trust their judgment and take their word as given. However, as long as doctors are human and make mistakes and decisions based on their own experiences, training, and attitude, there will always remain some form of uncertainty as to the validity of their diagnoses. An analysis of Hamilton's death records during the third wave of the Spanish Influenza pandemic has demonstrated the variation evident in the conceptualization and classification of disease held by different physicians. These differences, however trivial, can have a drastic effect on the way such diseases are perceived in both the past and present, as mortality patterns of disease are derived primarily from these cause-of-death diagnoses.

The third wave of the 1918-19 influenza pandemic came at a time that also saw a recent and ongoing shift between conflicting medical paradigms, and a complete restructuring of the medical education system. While there is a fair amount of literature that discusses the effects of such paradigm shifts on disease classification and death record analysis (Emery 1993; Risse 1997; Anderton & Leonard 2004) there has been relatively little attention paid to the impact that diagnostic preferences have had on perceptions of mortality, specifically with regard to the influenza pandemic. This chapter has attempted to begin to fill this gap, and serve as a reminder that while mortality statistics appear to be scientific fact, they are a product of a subjective, and often mercurial, practice.

11

A Call to Action: Nursing during the Third Wave

Elyse Pipitone

Can you imagine what it meant to those people...to have a capable, willing woman appear suddenly in their midst, and without any preliminaries set to work and make them comfortable – a veritable angel of mercy in cap and apron. For nurses simply to provide comfort was an accomplishment, and one worthy of angels (Bristow 2003:63).

While many physicians were overseas dealing with the casualties of the First World War and the strain of the second wave of influenza, nurses across Canada stepped into the role of caregiver during the third wave of 1919 (Quiney 2002:12). These nurses were members of the first cohorts that underwent formalized training for large surges of casualties and illnesses. The hospitals where they worked had only just recently accepted the germ theory of disease, and were beginning to adopt the scientific technologies (Gagan & Gagan 2002:4). Nurses working in Canada during the 1918-19 influenza epidemic faced not only daily risks to their health, long hours, less than ideal living situations, and meager pay but also the challenges of being working women who bridged the gap between professional and domestic worlds (Tomes 1998:135).

This was no ordinary moment in history as many significant changes were happening that tested these new nurses, professionally, and in the eyes of the public. The role of the hospital was transforming from a place of quarantine and palliative care into a place of scientific discovery and perhaps more importantly, a place of healing (Gagan & Gagan 2002:4). In this latter regard, nurses in Hamilton had more success than their male counterparts, despite the way in which

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their jobs were continuously codified as subservient to those of the doctors (Bristow 2003:60-61). The ways in which gender roles played out in this moment in the history of Canadian medicine illustrate how the influenza pandemic transformed the lives of women in Hamilton.

Nurses essentially were under-valued, and under-documented pioneers, so personal records of their experiences are virtually impossible to find (Young 2004:2). However, by scouring the Hamilton and surrounding-area newspapers, uncovering nurses' handbooks, and investigating the development of hospital policies in Canada, this chapter presents the unique perspective of the Hamilton nurse in 1918-19, a perspective which is rarely discussed.

The “Germ”, Domesticity, and the Role of Women

How did the once “germ-infested hospitals of the poor”, become the primary place for patients to seek out health care in the twentieth century? How was influenza understood in Hamilton? Why did women leave their homes to become nurses? The transformative process behind these shifts in social and medical beliefs and practices began at home.

Nancy Tomes (1998) argues that “the gospel of germs” – an ever-changing narrative that explains the relationship between people and diseases – became prominent in the late 1800s. With the acceptance of the theory that tiny “germs” were responsible for horrific diseases in newly industrialized societies of North America and Europe, various explanations arose about how to prevent them. At this time death was an everyday occurrence, the sound of phlegm was a sign of illness, and a rash or fever was cause for panic. It was a strongly held belief that germs escaping from the household were responsible for large-scale epidemics (Tomes 1998:8). The bodily orifices, toilet bowls, and coughs that showered doorknobs and linens, had become sources of contagion. To prevent infection, it became necessary to sanitize the home and isolate the sick. During the autumn wave of the 1918-19 influenza pandemic, everyday life in Hamilton came to a halt; bans were implemented in public spaces, and ads for “bowel and blood purifying” pills filled the newspapers (The Hamilton Spectator 1919r1:7).

Although domestic hygiene had previously been dominated by men who worked as engineers, sanitary experts and physicians, the “gospel of germs” made its way into the sphere of housewives who feared that lax housekeeping and poor

domestic hygiene could make their families ill (Tomes 1998:135). Women were responsible for keeping their home sanitary by dust-proofing and sealing it from germs, screening the windows from microbe-carrying flies, and maintaining cracks in the plumbing. These responsibilities carried into her role as nurse.

As women began to enter the workforce, their knowledge was transferred to courses such as the “home economics” that we know today (Tomes 1998:135). Educated women who combined the “science” of cooking, yeasts, sanitation, and food safety into the “art of home management” were the translators of knowledge to the uneducated women at home (Tomes 1998:135). Women’s magazines published advertisements for spotting flu in children, and presented stories on how to avoid catching “germs” from public telephones by talking loudly and holding the mouthpiece to their chests (Tomes 1998:141). This meticulous attention to creating a “germless” home made housewives perfect candidates for the task of sterilizing hospitals.

The Nineteenth-Century Hospital and Nurse

A woman who entered the hospital to work as an untrained nurse was either treated as an “expert” who lacked formal training or as “one who was decidedly ignorant and unsavory” (Young 2004:2), a dual perception that continued into the turn of the twentieth century. Nurses had previously been viewed as “ward servants who had evolved from the kitchen or from the backstairs into the wards” (Gagan & Gagan 2002:130). They were essentially women who had left their homes in order to sanitize the hospital as if it were their own household. They were paid very little and were expected to carry out multiple duties, mostly keeping the hospital tidy to ensure a safe environment for doctors to care for patients (Gagan & Gagan 2002:130). Nurses filled many roles. As a “ladies’ nurse”, she cared for mothers and infants. As a “sick nurse”, she cared for patients struck down with disease. As a “private nurse”, she was paid by families to take care of wealthier patients in their own homes (Young 2004:2).

Beeton's Book of Household Management is a Victorian era example of a nursing handbook. It also doubled as a recipe book and outlined in detail how to manage a patient’s sick room, how to raise children, and offered simple ideas for treating diseases (Young 2004:8). The first page of this encyclopedia of domestic wisdom contains a quote by Milton, “Nothing lovelier can be found in Woman,

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than to study household good” (Beeton 1863:i).

Even if they had received formal training from a nursing institution, women working in hospitals were expected to carry out many of the roles of a “housewife”. In a Hamilton Herald article from 1892, Dr. Griffin referred to nurses as the “angels of the sick room” and emphasized that the most important qualities for a nurse “was strict obedience to the directions of the doctor in attendance... Unobtrusive sympathy, patience, self-forgetfulness, ingenuity of thoughtfulness, were others” (1892:n.pag.). This view of the nurse’s role mirrored conventional ideas about women’s role as experts of the domestic sphere. The push for formalized training of nurses, which began in 1874 at St. Catherine’s (Gagan & Gagan 2002:133), meant that the social role of Canadian nurses during the 1918-19 epidemic in Hamilton was also in the process of being redefined.

Out of the Home and into the Wards

Late nineteenth-century general hospitals operated during a time of social and medical transition. This was a time when industrialization and immigration forged “working class” societies. It was also a time when the education of children was formalized and in which the meaning of childhood changed dramatically. Religion and morality weighed heavily on the choices of the average citizen, shifting reform movements in and out of the margins of social mores. Between 1890 and 1920 in Canada, the location of health care moved from the home to the hospital (Gagan & Gagan 2002).

Fed by an influx of European immigrants, the population of Hamilton grew larger in the late 1800s, and the hospital was still considered to be a “halfway house” for people who were just too poverty stricken to pay for in-home health care, or who did not have families to take care of them. The hospital shed its shabby reputation by the 1920s however, when, “Canadians from all walks of

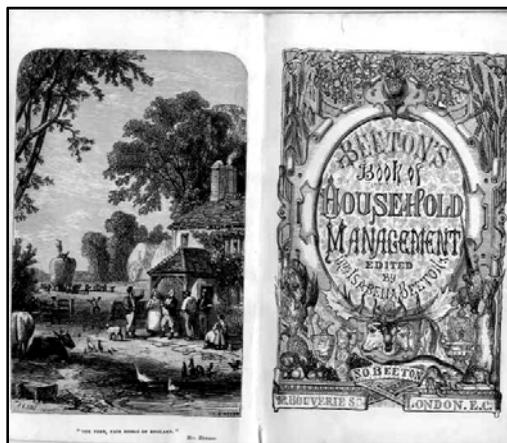


Figure 11.1: A Nursing Handbook (Beeton 1863).

life were clamoring to be admitted to public hospitals” (Gagan & Gagan 2002:4).

The Canadian hospital became, in a sense, a showcase for a series of new medical applications consistent with the new belief that science would save lives. In an era where one in every five children died before their first birthday, the medical community began to more accurately understanding germ transmission and to develop technological innovations such as x-rays and electrocardiograms (Tomes 1998; Gagan & Gagan 2002). “The successful implementation of antiseptic surgery required, “a more intelligent and conscientious type of nurse”



Figure 11.2: Hamilton Nurses Attending Lectures in Anatomy and Physiology, circa 1917. (Hill 1989).

while the accompanying wider use of anesthetics “called for a more observant one” (Gagan & Gagan 2002:132). The use of these new tools also meant that nurses gained a greater degree of respect.

With a change in public attitudes to hospital treatment and an apparent need for the help of nurses, training schools began to appear. By 1900, twenty-five nursing schools had opened their doors to students in Canada

(Gagan & Gagan 2002). To be a Hamilton nurse now meant it was necessary to have a background in health sciences; nevertheless, the public perception of nurses was a mixture pride and hesitation to treat women differently than as Victorian girls who belonged in the home. The need for nurses was especially felt during the second and third waves of influenza when there were insufficient in-hospital nurses to deal with the influx of patients.

Not Enough Nurses: “Sisters of Service” Contribute

When the influenza pandemic struck Canada, many cities became aware of just how thinly the nursing and physician staffs were stretched. The shortage of newly trained nurses during the epidemic meant that women were pulled off the streets or out of training schools to perform nurse’s duties as “Sisters of Service”

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(S.O.S.) nurses (Pope 2005:115-116).

John McCullough, chief officer of the Ontario Provincial Board of Health, emphasized the need for nursing help (McCullough 2010:2). In many cities in Ontario, hospitals were supplied with lecturers who updated the public on the epidemic, as well as supplied families with S.O.S. nurses when physicians were overworked or were short staffed due to deaths and illness (McCullough 2010:2). Toronto newspapers printed lectures created especially for these S.O.S nurses, entitled, “To Young Lady Volunteers”, in hopes that women who were not already enrolled in nursing classes would educate themselves. Many young women, including Amelia Earhart, worked in a Toronto military hospital at this time and “ladle[d] out medicine from buckets in the overcrowded wards” (Quiney 2002:12). The Mayor of Ottawa told women that, “knitting socks for soldiers is very useful work but we are now asking the women of Ottawa to get into the trenches themselves” (Quiney 2002:12), to work as nurses. Volunteer nurses in Hamilton clocked some 744 hours caring for patients (Quiney 2002:12). The value of the nurse was readily apparent to some, yet the public’s views of women in the workplace were not so quickly changed.

“Sweet Girls” and “Racy Women”: The Public Views of Woman Nurses

As nursing schools became an increasingly popular choice for women before and during the time of the influenza outbreak, the stream of graduates from Hamilton obtained some of the first jobs comparable to those of their male physician counterparts. Even though they could not perform the same operations on patients, their work to ease the pain and suffering of the influenza sufferers was important and the only effective treatment for the disease at the time. Women, however, were still depicted as “delicate” marriage material.

In 1891, Dr. Woolverton praised, and simultaneously embarrassed, the “Sweet Girl Graduates” of the first training schools: “ ‘This is a harvest festival,’ he said, ‘at which can be seen the first fruits of the training school, and very pretty fruit it looks too’, whereat the sweet girl graduates blushed furiously” (The Hamilton Herald 1891:n.pag). This type of blatant disregard for the talent of these women at a graduation ceremony for their studies reveals the values of this time. In Woolverton’s opinion, however, the school for nurses did fill a “long-felt want”, and he concluded by saying that, “...all women, especially married

women, should be trained nurses,” and he suggested, as an addition to the marriage ceremony the question “Are you a graduate of a training school for nurses?” (The Hamilton Herald 1891:n. pag.). It is interesting to note that, in fact, it was common among Canadian Nursing graduates to remain single while practicing nursing to signify their commitment to their duties in the wards (Gagan & Gagan 2002:136).

By the 1900s, the values of the Victorian era were being replaced with an obsession with cleanliness and out-smarting disease through sterilization. The gendered connection between disease and women’s position in society is perhaps most evident in the “rainy day clubs”. Cloth, especially clothing that dragged in the moist dirt, was believed to be highly susceptible to bacteria. Girls who joined “rainy day clubs” wore short skirts to bypass this problem, and were criticized for sacrificing the “skirts of their mother’s on the altar of asepsis” (Tomes 1998:157).

Gender Roles of Doctor and Nurse

The publicly acknowledged, gendered roles of both nurses and doctors influenced the way in which they perceived their own jobs during the 1918-19 pandemic. The fact that there is some indication of sex difference in mortality rates adds another dimension to the roles of men and women, both patients and caregivers, in the hospital. Noymer and Garenne (2000), argue that there was a higher incidence of men dying due to influenza, because of their greater susceptibility to tuberculosis. Women who were studying, taking care of newborn babies and other family members, or who were hired privately to care for another family, were now in charge of aiding the recovery of many men and women.

While doctors were concerned with developing answers to the problems of disease, and were often limited by gaps in prevailing scientific knowledge, nurses were charged with the task of actually treating patients. Nancy K. Bristow discusses the male physician’s self-defined role of “master of disease” (Bristow 2003). When physicians in 1918 were confronted with the fact that they did not understand influenza, they were forced to admit defeat and failure at their jobs. A Dundas Star article entitled, “Influenza needs Careful Watching”, reports that “the nature of the infection is even yet, not clearly understood,” but that “it is devoutly to be hoped that the recent epidemic has enabled students of medical science to arrive at more accurate conclusions with respect to the causes and

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remedies for influenza” (The Dundas Star 1919:n.pag.). In other words, the people of the Hamilton area had just experienced a devastating pandemic and the doctors in which the faith of the community resided had no explanation for it.

Medical journals produced evidence that good nursing reduced mortality rates yet doctors felt it was a “sacrifice in allowing the erection of nursing into a specialty, with its own ornate system of patient care seemed to amount to a surrender of power” (Gagan & Gagan 2002:29). In carrying out their roles as comforters and nurturers of the ill, women claimed success in the care of patients struck down with influenza (Bristow 2003). At the time women had a “spiritual perception of nursing as a “calling” that allowed them to follow a career that was motherly, nurturing, and selfless, so as not step on the toes of a male-run hospital, or alienate the views of the public on the subject of women in the workplace (Gagan & Gagan 2002:135). In 1919, The Hamilton Spectator published an article on what it means to be a “good nurse” which, essentially, exhorted nurses to defer to doctors. The hallmarks by which “their worth may be judged”, according to William, included that they not prescribe tonics, but that they recognize that they do not know better than the doctor “just what food should be given a baby” (William 1919:2); that they cannot diagnose; that they must get along with even their least liked physician; and that even if a physician is employing unconventional methods, she must not question him.

As the second and largest wave of influenza subsided in the autumn of 1918, newspaper headlines in Hamilton warned of a frightening recurrence and people debated removing or replacing bans on gatherings in schools and churches (Murken, Chapter 16). Meanwhile, patients and the general public were bewildered and distraught over the ravages of the disease. While vaccines were tested, and doctors were attempting to practice medicine on a “germ” they did not fully understand and for which there was no cure, it was the nurse who helped to comfort, console, and ease the pain of citizens in Hamilton during this crisis.

Nursing after the Third Wave

Although the role of the nurse changed in many subtle ways, problems remained after the influenza epidemic subsided. In 1920, Hamilton newspapers made reference to the fact that nursing salaries in Hamilton would have “No Boost Here” compared to other cities, such as Toronto (Hamilton General Hospital

Scrapbook of Clippings 1920). “The remuneration she receives is not even “pin money,” argued one Hamilton reporter, referring to the fact that during the first year of training nurses were paid only “\$5 per month, \$7 in her second year, and \$10 per month if she completed a third year” (Hamilton General Hospital Scrapbook of Clippings 1920). Sometimes nurses worked 24-hour days for a month long stretch, only sleeping for 6 hours, and spending 3 hours outside of the hospital Hamilton General Hospital Scrapbook of Clippings 1920).

Even after the epidemic, nurses received higher pay if they cared for mentally unstable patients but not when they cared for people suffering with infectious diseases that could threaten their health (Hamilton General Hospital Scrapbook of Clippings 1920). Still, nurses were badly needed, prompting the City to award scholarships to women who practiced nursing Hamilton after taking their nurses training at McGill University or the University of Toronto (Hamilton General Hospital Scrapbook of Clippings 1920). The Hamilton Spectator published “An Appeal for the Nurses”, detailing the sacrifices “not only of her immediate future, but daily risks [of] her life while seeking to relieve the suffering of others” (1920:n.pag.). The newspaper also pleaded for a nurse’s home:

DOES NOT THE PUBLIC OWE THESE GIRLS AT LEAST A DECENT HOME DURING THE PERIOD OF THEIR TRAINING FOR THE HEROIC SACRIFICES THEY MAKE? Yet, at the city hospital 170 of these girls are herded like sheep in accommodation that was meant for only 70 people – they are forced to sleep three in a room and to live and work under conditions that no self-respecting parent would tolerate in his own home.

Is this just to the nurse-in-training?

Is it just to the patients for whole they care?

Is it just to the hospital itself?

Not for the future, but to meet present requirements – a necessity that has existed for some years – a nurses’ home is urgently needed. See to it that these girls get fair play. Vote for The Nurses’ Home By-Law (The Hamilton Spectator 1920:n.pag.).

Change for Canadian Nurses in the Influenza Pandemic and Beyond

A new emphasis on hiring standards emerged for nurses in Canada. At one time, the lower the wages of the nurse the more likely she was to be sought after by hospitals. *The Canadian Nurse* demanded that nursing schools be recognized as professional institutions and that nurses show their diplomas in order to be accepted to work. “As we are such a young country,” it reads, “we get an influx of the discarded ward maid... calling themselves “trained” wearing uniforms, etc., having, it is true, a smattering of knowledge and who demand and get the prices of the regularly trained nurse” (*The Canadian Nurse Journal* 1918:45). However, the article stresses that unless the nurses are forced to show their diplomas, they are accepted as “bona-fide nurses”. Nurses across Canada were now slowly able to reap the benefits of a system of training, that in a 1932 survey of Nursing Education in Canada was finally recognized as “a profession, however immature in the attainment of professional standards” (Gagan & Gagan 2002:152). It is interesting to think that only a generation later, the nursing profession exists today without question of its legitimacy.

That Hamilton’s hospitals were filling up with patients during a time when there was no known cure for influenza begs the question why so little attention was paid to the role of nurses and their contributions to easing the burden of illness during the 1918-19 pandemic. Nurses working in Hamilton during that time are almost invisible, historically. It is only when the context of women’s lives in Hamilton is revealed through analysis of public opinion expressed in local newspaper, and through the unearthing of a past “Gospel of Germs” that turned domestic housewives into “women’s science” that we can begin to understand the social environment that created today’s nurses (Tomes 1998:8).

One of the most severe pandemics to hit Canada proved that its nurses had no special immunity against this disease, neither were they immune to other occupational hazards that came with the job (Gagan & Gagan 2002:151). Out of a “moral obligation” to serve the public, taking on great risks, without the nod of approval from those who did not agree that women should work side-by-side with men, nurses were face-to-face with the dying men and women of Hamilton, acting as surrogate mothers, trained in the art of “housewife-practitioner”. Although the pandemic had many devastating effects on humanity, it also proved to test Hamilton’s institutions, its society’s imagination, and its nurses.

12

Surviving Influenza: Systematic Relief in 1919

Tiffany Rickard

“The asymmetry of power can indeed generate a kind of quiet brutality ... But inequalities of power in general prevent the sharing of different opportunities. They can devastate the lives of those who are far removed from the levers of control. Even their own lives are dominated by decisions taken by others” (Sen 2003:xvi).

In the early twentieth century, disease frequently resulted in economic struggle through the loss of income and the accumulation of medical bills. The influenza epidemic during the winter of 1919 was no exception (Jones 2006:58). In response to the need of financially down-trodden Hamiltonians, the more privileged members of society began distributing relief. However, the distribution of relief was restricted to those who met specified social requirements. This constitutional inequality is referred to as “structural violence” (Farmer 2003). This paper explores the manifestation of structural violence through the distribution of relief in Hamilton during the third wave.

The Research Process

This research began with examinations of local newspapers, including The Hamilton Spectator, The Hamilton Herald, and The Hamilton Times. The types of relief available in Hamilton at this time were categorized as: private charity, government relief, and fraternal relief. For each of these categories primary resources, such as meeting minutes, organizational publications, and diaries, and

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secondary source publications, both historical and recent, were examined. When researching each category of relief I asked four questions: What kind of relief was provided? Who were the donors? Who were the recipients? What conditional requirements were in place for recipients?

What is Relief?

Relief was referred to as “outdoor relief” during the early twentieth century. Outdoor relief provided the needy with necessities such as food, clothing, wood, coal, and occasionally, money (Katz 1972:419; Kaplan 1978:202). Some organizations that provided outdoor relief also provided medical care and burial services, such as St. George’s Benevolent Society.

Throughout history, family, friends, and neighbours have exchanged resources in times of need. Informal exchange and mutual support is non-discriminatory and available to anyone within a basic social network. Assistance was limited by the resources that could be spared by individuals within the social network. Thus, individuals with a relatively privileged social network would have had access to more resources than those with a comparatively disadvantaged social network (Burt et al. 2001). Although this has been an important form of relief throughout history, there is little direct mention of informal relief in the historical record. Thus, while mutual support undoubtedly existed in Hamilton during the early twentieth century, there is no evidence of who exchanged which resources and when (Heron 1981:61; Beito 2000:19).

On the other hand, formalized forms of relief are generally better recorded and available for inquiry. Formalized relief is provided by structured organizations to individuals and families in need, who may or may not be known to the relief donors and distributors (Beito 2000:18). During the third wave of influenza in Hamilton, formal relief was available from private charities, the municipal governments, and fraternities.

Provisional Relief

The formal relief provided by private charities and governments was provisional. These organizations only provided relief to individuals and families judged to be socially “worthy” of assistance. Worthiness was primarily determined by

judgments about the lifestyle of the prospective recipient, which was expected to be in keeping with the values and morals of the donors and distributors (Clark 1942:392).

Private Charities

Within the category of private charities (Table 12.1), the donors and distributors of relief were middle and upper class white, Christian men and women (Clark 1942). The prospective recipients, on the other hand, were poor and working class individuals of varying ethnicities and religious creed (Heron 1981:61). Charities based the worthiness of applicants upon white, upper-class, Christian morals. Therefore, a “large section of the population upon the cultural fringe ... including slum-dwellers, transient workers, petty crooks, [and] prostitutes” (Clark 1942:392) did not qualify.

Private Charities

St. Mary’s Benevolent Society	St. Andrew’s Benevolent Society
St. Vincent de Paul Society	Sons of Scotland Benevolent Association
St. George’s Benevolent Society	Sons of England Benevolent Society

Table 12.1: Private Charities Available in Hamilton during the Third Wave of the 1918-19 Influenza Pandemic.

St. George’s Benevolent Society of Hamilton released a publication in 1913 clearly expressing the importance of distributing relief only to worthy recipients:

It too often happens that private charity is bestowed upon unworthy objects. The St. George’s Benevolent Society offers itself as a medium, and a very useful channel whereby the subscriptions of its members and the donations of charitably disposed persons may be devoted to objects worthy of and entitled to the warmest sympathies of Englishmen (St. George’s Benevolent Society 1913:6).

In addition to requiring social worthiness, St. George’s Benevolent Society also required that prospective recipients be of English or Welsh descent

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(St. George's Benevolent Society 1913:12). To ensure prospective recipients satisfied all the requirements, the organization followed an application procedure. A prospective recipient would have to complete an application from which the Board of Management would make "all necessary enquiries" (St. George's Benevolent Society 1913:7). This time-consuming and intrusive process was worthwhile for some, since the organization provided otherwise unattainable relief. The Board of Management, after approving an applicant, would allocate relief judged to be appropriate. In addition to material resources, St. George's Benevolent Society reported that it was one of the few charities that also provided medical attendance and medication (St. George's Benevolent Society 1913:17).

The relief provided by most charities, however, was meager and punitive (Jones 2006:71). It typically included food, fuel, clothing, and only occasionally, money (Katz 1972:419). It was always distributed discretionally. Charities considered their life-sustaining relief to be a gift to the recipients rather than a right (Emery & Emery 1999:419).

The record of charitable relief during the third wave mostly exists in newspaper articles, which focus on the donors rather than the recipients. Little information was uncovered about the distribution process and no information was found regarding the recipients of relief. In addition to the relationship between social hierarchy and recorded history (Wallach Scott 1999:3), this lack of information may be due to the social stigma that was associated with accepting charitable assistance (Beito 2000:18).

Government Relief

Municipal governments were another source of formalized relief. During the third wave of influenza, the City of Hamilton distributed relief through the Relief Department. This included wood, coal, shoes, food, and medication; however, in order to avoid the stigma associated with charity, relief was provided in the form of a loan. The only recorded activity of the Relief Department occurred between October 1918 and January 1919 when the City provided relief to thirty-five families and paid for one funeral, which came to a total of \$193.00 (City of Hamilton 1919:46).

The City also made provision for burials, which is another feature that distinguishes government from charitable relief. The city's Relief Department

conducted burial services for individuals whose families lacked the financial means to provide a proper burial (City of Hamilton 1919:49-50). A city-funded burial was unofficially known as a “pauper’s burial” (Jones 2006:66). In her discussion of the 1918-19 influenza epidemic in Winnipeg, Jones describes the pauper’s burial as providing only the most basic funeral features and being almost completely without ritual (2006:66). Compounding the humiliation of this experience, families had to apply for a pauper’s burial, and their need had to be established as legitimate (Emery & Emery 1999:67).

During the third wave there was only one report of the Relief Department being charged for a burial. On 30 January, 1919, a funeral for Katie C. of Hamilton was held. She, however, did not die from influenza (Dwyer Funeral Records 1919). It is likely that more pauper’s burials occurred during this time, however, payment information is only included in the Dwyer Funeral Records, and is often incomplete. Due to the significant stigma associated with private charity and the pauper’s burial, individuals sought alternatives that would provide them with assistance when it was needed while saving their self-respect. For many, this alternative was offered by fraternities.

Alternative Relief: Fraternities

In the early twentieth century fraternal organizations were community cornerstones (Table 12.2). Fraternities were organizations that emphasized ritual and secrecy (Schmidt 1980) and required members to pay regular dues (Stevens 1966). In return, fraternities stipulated the provision of relief to members as a right and not as charity (Emery & Emery 1999). Relief was such a significant part of the fraternity structure that it was categorized according to the type of relief provided: discretionary relief; sickness and burial insurance; and life insurance.

“Secret societies” provided relief on a discretionary basis. While all secret societies provided relief to members, and some to relatives of members (Stevens 1966), there was no standardized process for deciding which forms of relief were to be distributed, or how (Emery & Emery 1999:11). Instead, relief was generally distributed according to the needs of the individual and the resources at the organization’s disposal. Secret societies were similar to private charities in their relief distribution processes, however, in secret societies the donor and the recipient were generally from the same social class (Beito 2000:18), while private

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charities were more readily available to financially disadvantaged Hamiltonians. The Freemasons were the most common secret society in Hamilton during 1919 (Author Unknown 1920:943). Secret societies were less popular than “friendly societies,” fraternities that provided sickness and burial insurance, and “life insurance societies,” which provided life insurance (Stevens 1966).

Hamilton City Fraternal Societies

<i>No-Benefit Fraternities</i>	Freemasonry Dominion Council of the Royal Templars of Temperance Loyal Order of the Orange	<i>Life-Insurance Fraternities</i>	Ancient Order of Foresters Canadian Order of Foresters Independent Order of Foresters Canadian Order of Chosen Friends
<i>Friendly Societies</i>	Loyal Order of the Moose of the World Knights of Pythias Independent Order of the Odd Fellows Canadian Order of Odd Fellows Irish Catholic Benevolent Union Ancient Order of the Hibernians		Canadian Order Home Circle Order of Knights of the Maccabees Ancient Order of United Workers Royal Arcanum Canadian Order of the Woodmen of the World Catholic Mutual Benefit Association

Table 12.2: Fraternal Organizations Offering Relief in Hamilton during the Third Wave of the 1918-19 Influenza Pandemic.

Both friendly societies and life insurance societies provided standardized relief. The relief provided by a fraternity was stipulated in a fraternal code made known to members before they were initiated (Emery & Emery 1999). In the literature, sickness insurance is also referred to as a sickness benefit, a sick benefit, and sick insurance. These terms all referred to a standard financial compensation that members received if and when illness caused a loss of income (Emery & Emery 1999:9). Burial insurance is also referred to as a burial benefit, funeral insurance, and a funeral benefit. Burial insurance refers to the provision of a proper funeral and burial for members. Life insurance, also referred to as a

death benefit, was paid as a one-time endowment or as an annuity made to a member's family upon his death (Emery & Emery 1999:11). While friendly societies were associated with sickness and burial insurance, and life insurance societies were associated with life insurance, the categories were not stringent. For example, the Knights of Pythias, a friendly society, offered optional life insurance for an addition fee, and the life insurance society known as the Independent Order of Foresters also offered sickness and burial benefits to members (Emery & Emery 1999:11).

The majority of the friendly and life insurance societies established in Hamilton in 1919 had several branches to accommodate the large number of members (Vernon's City of Hamilton 1920). Although fraternities were common and membership was popular (Beito 2000:2), fraternities were not accessible nor were they offered to all Hamiltonians.

Members Only: Fraternal Requirements

All fraternities placed restrictions on membership (Stevens 1966). The vast majority of fraternities offered membership only to males (Emery & Emery 1999:18). Towards the membership peak in 1921, some organizations began to establish auxiliaries for the wives and daughters of male members, however, these women were rarely provided the same insurance benefits as men (Stevens 1966). Among most organizations, the minimum age for membership was 21 (Emery & Emery 1999:39). Some fraternities, such as the Order of Knights of the Maccabees, also had maximum age for the provision of benefits (Stevens 1966).

Most fraternities also had a "whites-only admission standard" (Beito 2000:45). The Independent Order of Foresters did not have this requirement and for 26 years was led by an Aboriginal member from the Six Nations Reserve, located west of Hamilton (Beito 2000:46). Some fraternities were only open to individuals of specific national heritage, such as the Ancient Order of Hibernians, which was limited to people of Irish nationality or descent (Stevens 1966:211).

Individuals fortunate enough to be white males of working age also had to meet the social, occupational, and physical requirements of membership. Some fraternities required a specific religious affiliation, while others required a simple acknowledgement of a "Supreme Being" (Stevens 1966). All organizations

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required that prospective members be of good moral standing (Emery & Emery 1999:42) and not seek membership for mercenary reasons (Beito 2000:60).

All organizations required members to maintain stable occupations (Emery & Emery 1999:43). Later in the fraternal heyday, life insurance societies began to limit membership to specific occupations. Occupations deemed too risky were either not permitted or practitioners were granted membership with limited or no benefits (Markley & Sisler 1923:4). In 1923, for example, the Order of Knights of the Maccabees provided full insurance to accountants, partial benefits to non-sulphuric acid makers, and excluded sulphuric acid makers and acrobats from membership (Markley & Sisler 1923:7). Friendly and life insurance societies required the prospective members to be inspected by a physician. Anyone who was “afflicted with any chronic, incurable disease, or who at the time of his admission was not in good health” would not be eligible for membership (Emery & Emery 1999:42).

Finally, membership in fraternities was accompanied by regular dues and fees. While the specific cost of membership varied between organizations, the financial commitment put membership out of reach for poor Hamiltonians (Emery & Emery 1999; Beito 2000). Therefore, fraternal membership was primarily open to healthy, religious, white males between the ages of eighteen and fifty, with safe and stable employment, and morals that coincided with the dominant social class.

All members in good financial standings were guaranteed the relief stipulated by the organization: sickness and burial insurance, life insurance, or discretionary relief, depending on the fraternity (Emery & Emery 1919:50). Friendly societies required that sickness claims be submitted and verified before relief was allotted. Members of the Independent Order of Odd Fellows (IOOF) were required to notify the local lodge of illness within one week of its onset. Upon notification, the lodge dispatched the visiting committee to offer support and verify the illness claim. Some fraternities also required that the member be examined by a physician. If the illness was judged to be caused by drunkenness, immoral behaviour, or “due to advance of age,” the claim was rejected (Emery & Emery 1919:49). A claim could also be rejected if the member was unemployed at the time of illness or receiving public assistance (Emery & Emery 1919:55).

Distribution of Fraternal Relief

Once a member's claim was verified, he was eligible for financial and in some cases, medical assistance. The compensation for missed work ranged from \$3 per week offered by the International Association of Machinists (1919), \$5- \$6.50 per week offered by the Order of Knights of the Maccabees (Markey & Sisler 1923:5), and as much as \$15 per week was offered by some organizations (Stevens 1966:122). The duration of financial compensation varied from twelve weeks, offered by the Independent Order of Foresters, to one year offered by the IOOF. Medical assistance included "round-the clock" visitations where necessary, a paid physician to attend the member at home, and when required, private hospitalization (Emery & Emery 1999:95).

These medical provisions allowed working-class Hamiltonians to receive care they otherwise would not have been able to afford. As discussed by O'Sullivan (Chapter 7), home care was preferred because it provided access to "family and other sources of support" (Jones 2005:61). Home care also allowed working-class members to avoid the unsanitary conditions and stigma associated with dispensaries (Beito 2000:124), or out-patient clinics for individuals who could not afford private hospitalization (Jardine & Weaver n.d.).

The death of a member activated his burial insurance, which required the organization to provide the member and his family with a proper funeral and burial. Some fraternities simply paid the bill, others demanded an organizational presence, and some demanded participation in the funeral proceedings (Jones 2006:64). Burial insurance was only provided for the member, but some organizations also provided a widower's benefit if the spouse of a member died. Some branches of the IOOF provided this insurance, with endowments ranging from \$30 to \$100 to cover the cost of a funeral and burial (Emery & Emery 1919:52). However, there was no evidence in the Dyer or Blachford and Wray funeral records of any fees being passed along to fraternal organizations in Hamilton between January and April of 1919. This does not mean that no members of friendly societies died during this time since, as previously mentioned, payment and billing information is often missing and may have included information regarding fraternity members.

Life insurance also became active following the death of a member. This form of relief benefited the member's family after the death of their primary

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income generator (Emery & Emery 1999:12). The amount of this insurance was determined for the individual upon his initiation, as different policies had different costs (Steven 1966:116). Upon the death of a member, his widow, children under the age of 21, and dependent relatives received either an endowment or an annuity. Some organizations provided widows' and orphans' benefits in addition to life insurance as additional financial assistance for the member's survivors (Emery & Emery 1999:52).

In the early twentieth century, fraternities varied in the types of relief they provided, but all ensured that every member with legitimate needs was well cared for in times of economic hardship. Fraternal relief was prearranged, guaranteed, and non-threatening to the recipients' self-worth – all advantages over the relief system provided by private charities and government. Also, fraternal relief was more generous, resulting in greater alleviation of the recipient's financial struggle.

Structural Violence in the Relief System

Working-class and poor Hamiltonians infected with influenza during the third wave were unable to work and some may have accumulated medical bills. These financial setbacks would have made feeding, clothing, and housing their families especially hard. Those who could afford to, and met the requirements, joined fraternities to ensure they would have access to reasonable relief if and when they required it. However, both the fees and the social requirements made fraternal relief inaccessible for poor Hamiltonians. Instead, some poor accepted relief from private charities and governments, which was less reliable, sufficient, and socially acceptable than fraternal relief. However, even the poor had to meet social requirements before they were granted food, clothes, and heat.

Middle and upper class Hamiltonians controlled the distribution of relief and, by extension, the degree of suffering experienced by the poor and working class. They controlled access to fraternal relief by setting the social standard upon which membership was based and they directly controlled the distribution of relief from private charities and governments. This asymmetry in power over the economic fate of poor and working-class influenza victims is an expression of structural violence. Structural violence is not a phenomenon unique to the influenza epidemic. Rather, these structural inequalities lead to the suffering of impoverished people everywhere.

13

Medical Roulette: Vaccines and the 1918-19 Influenza Pandemic

Cassandra Popek

A prophylactic vaccine for influenza, to be of most use, should contain not only Pfeiffer's bacillus, which is supposed to be the cause of the initial symptoms but also different strains of the pneumococcus, and streptococcus, one or both of which is the cause of the deadly complications – the different forms of pneumonia (Wetmore 1919:1076).

The purpose of this chapter is to discuss the vaccines that were produced and distributed during 1918-19 and how these were utilized during the third wave of the influenza pandemic in Hamilton. It is necessary to probe the logic behind the production and distribution of these vaccines in order to understand their overall functionality. There is considerable criticism of the effectiveness of these vaccines because the influenza virus was not identified until 13 years later. Through the use of Rosenberg's theory of epidemics, in this chapter I compare and contrast the influenza vaccine of 1918-19 with the H1N1 vaccine in 2009 in an attempt to understand the controversy surrounding both. To appreciate the circumstances surrounding vaccination in 1919, it is useful to examine the 2009 H1N1 vaccine and its release for public use.

The 2009 H1N1 Vaccine

Although vaccination has been practiced for centuries, it remains a highly contested medical intervention. There are currently two different vaccines

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available to combat influenza, one for ordinary seasonal flu called “Vaxigrip” and the new and controversial H1N1 vaccine.

The H1N1 vaccine is comprised of two component parts. It consists of a diluent or antigen, which is a suspension that must be mixed with an emulsion before being administered via injection to an individual. The adjuvant emulsion is milky in consistency. The antigen contains a/California/7/2009(H1N1) v-like virus which has been inactivated and the adjuvant emulsion is composed of squalene, DL-a-tocopherol and polysorbate (GlaxoSmithKline 2009). The concern surrounding this new vaccine is similar to worries that surrounded the 1918-19 influenza vaccine in that both were produced rather quickly, with very little testing for side effects. Both, moreover, were widely publicized by commercial corporations.

The new H1N1 vaccine developed in 2009 also received criticism because of its component parts, especially the adjuvant. Adjuvants are added to vaccines because they boost overall antibody response and increase the effectiveness of the vaccine (Nicholson et al. 2001). Because adjuvants are mainly found in chemotherapy-related pharmaceuticals, some claim that these might produce side effects and therefore be unsafe for public consumption.

The major difference between the new H1N1 vaccine of the 2009-10 season and the vaccines for influenza in 1918 is the fact that the influenza virus itself was not identified until 1933. It was impossible for physicians in 1918 to correctly treat people suffering with influenza when they did not actually know what they were dealing with. It was as if they were going in to the fight against a world renowned boxer blindfolded with both arms tied behind their backs, totally helpless and surviving only by sheer luck. Without the identification of this virus to kick-start the field of virology and immediately improve the survival rate of individuals afflicted with influenza, it is hard to imagine where the disciplines of medicine and virology would be today.

The Mood of Speculation

The exact nature of the virulent epidemic of Influenza which has been raging for several months in Europe, and is now rapidly spreading over this country has not been determined. Chief attention is focused on the streptococcus, but the pneumococcus, micrococcus catarrhalis and

bacterium influenza (Pfeiffer's bacillus) have also been noted (Canadian Journal of Medicine and Surgery 1918:xlvi).

Very little was actually known about influenza when the 1918-19 pandemic erupted. There was a great deal of speculation about how the disease was contracted, but most of this centered around the notion that influenza is a germ carried on "the lightest breath of air," which was a common belief within the miasmatic theoretical framework (Percival 1919:14). Doctors often wrote to newspapers professing new discoveries about how the flu germ works. Others believed that the "infected microorganism was given off from the nose or mouth of infected persons" (American Journal of Public Health 1919:2). None of these claims was verifiable until well after the pandemic was over and the virus itself was identified in 1933.

There was a widespread belief within the medical community that the flu was able to penetrate anything and was carried and spread by anyone who went near an influenza case, even if they had not been "taken" by the disease. It is interesting to note that a bacteriologist in Toronto "discovered that the Influenza gets in, its work only when acting in conjunction with one or more or three other varieties of germs" (Percival 1919:14). Influenza itself was believed to produce nothing more than a sneeze but, in conjunction with another "germ", could wreak havoc on an individual and ultimately an entire population (Percival 1919:14). Because of this, vaccine makers of the time decided to produce a vaccine that would work against numerous "germs" simultaneously:

"For a prophylactic vaccine for influenza to be of the most use, [it] should contain not only Pfeiffer's bacillus, but also different strains of the pneumococcus, and streptococcus, one or both of which is the cause of deadly complications – the different forms of pneumonia" (Wetmore 1919:1076).

Call for a Cure: The Scramble to Produce a Vaccine

As existing methods to prevent and eradicate influenza proved to be unsuccessful, medical officials began to scramble to develop a vaccine that would prevent influenza and cure people infected with it. In an article that first appeared in the

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Canadian Medical Association Journal in December of 1919, officials outlined three rules for the public and health officials to follow in order to prevent further cases of Influenza:

First, break the channels of communication by which the infective agent passes from one person to another; second, render persons exposed to infection immune or at least more resistant by the use of vaccines; and third, increase the natural resistance of persons exposed to the disease by augmented healthfulness (Wetmore 1919:1075).

Isolation of the sick, wearing masks, and hand washing by nurses and attendants was ineffective in stopping the spread of the disease (Wetmore 1919:1076). Officials believed that these measures were ineffective because many “light or unrecognized cases” went undetected, and therefore untreated, and ultimately carried the disease to otherwise healthy individuals, spreading the disease further (Wetmore 1919:1076). In an attempt to render those infected with influenza immune or more resistant than the uninfected, officials worldwide began to turn to various bacteriologists in the hope that a cure would be developed.

As vaccines had proven quite effective in eradicating diseases such as smallpox and preventing outbreaks of typhoid fever, bacteriologists began vigorously working away at producing a vaccine for influenza. One of the first vaccines produced was “Influenza vaccine, combined” which was put forward as “constituting a rational agent for building up resistance against infection; a wise precaution, notwithstanding the absence of proof as to the completeness of the protection” (Canadian Journal of Medicine and Surgery 1918: xlviii). It was suggested that the initial dose be 0.5ml, and that this be increased to 0.75ml on the third and subsequent injections. The vaccine was administered more than once as a therapeutic treatment for influenza. The “*catarrhal* vaccine, combined” was similar and was used for more general immunization:

Have proven very efficient for both prophylactic and therapeutic treatment of acute catarrhal infections, including those often diagnosed as Influenza which represents all of the organisms contained in the influenza vaccine, combined, in addition to others commonly associated with respiratory

infections namely, staphylococci, diptherioids, and Friedlander's bacillus (Canadian Journal of Medicine and Surgery 1918:xlvi).

During the third wave in the winter of 1919, other influenza vaccines were created and distributed to health care worker, the military, and readied for public inoculation. In Winnipeg, for example, a vaccine prepared by Dr. Gordon Bell, Chairman of the Manitoba Provincial Board of Health, was "used freely among civilians of Winnipeg and the West and found that the mortality rate was four times greater in the un-inoculated than the inoculated" (Wetmore 1919:1076). In Ontario, Wetmore himself states that "a mixed vaccine was used both for prophylactic and therapeutic treatment of influenza and was put up by Sherman of Detroit" (1919:1077). At his first visit to a case of influenza, Wetmore states, "unless the case was very mild, a therapeutic dose was given whether the temperature was high or subnormal" (1919:1077). He also states that, "the earlier in the attack the inoculation took place, the less danger of pneumonia developing later" (Wetmore 1919:1077). It appears that inoculations were given more than once depending on the severity of the symptoms and on a case by case basis.

SHERMAN'S
Influenza Vaccine No. 38

Will abort Colds, Grippe, Influenza and Pneumonia.

EACH MIL CONTAINS	
Influenza B. strains from present epidemic and others	200,000,000
Streptococci, many haemolytic and other types	100,000,000
Pneumococci, type 1, 2, 3 and 4, in proper proportions	100,000,000
Micrococcus Catalalis, leading members of the group	200,000,000
Staphylococcus Albus, many strains	200,000,000
Staphylococcus Aureus, many strains	200,000,000

This Vaccine is also used with success in the prophylaxis of these diseases.

WRITE FOR REPORT
on 300,000 INOCULATIONS of
INFLUENZA VACCINE in the present epidemic.
G. H. SHERMAN, M.D., Detroit, Mich.

Figure 13.1: Sherman's Vaccine No. 38 (Canadian Journal of Medicine and Surgery 1919).

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The vaccine discussed by Wetmore is “Sherman’s Influenza Vaccine No. 38” (Figure 13.1). Although Sherman’s No. 38 vaccine seems to have been used in the Province of Ontario during the third wave of the 1918-19 influenza pandemic, other accounts indicate that the Board’s laboratories in Toronto, Kingston and also Connaught Laboratories had set to work during the winter of 1918-20 to prepare a prophylactic vaccine for influenza for public use (Canadian Practitioner and Review 1919:xxiv).

Approximately one year after the 1918-19 influenza pandemic subsided in Canada a new series of vaccines was made available to the public. An advertisement appeared in the Canadian Journal of Medicine and Surgery in September of 1920 which outlines the “Original Brand of Detoxicated Vaccines”:

Detoxicated Vaccines (polyvalent) are now prepared for: Influenza and pneumonia. These vaccines can be given with safety not only for the prophylactic, but also for curing purposes. Their non-toxicity renders them specially suitable for administration during the course of an active infection (Canadian Journal of Medicine and Surgery 1920:xix).

Vaccines were considered dangerous forms of treatment of uncertain prophylaxis and were not used while patients were exposed to infection (Reed 1919:45). The possibility that the vaccines that were prepared and used to treat cases of influenza were, in fact, toxic raises some interesting questions. If these vaccines were actually toxic, then they may have led to a higher mortality rate. If this were the case then researching the history of the 1918-19 influenza becomes more complicated because of the effects of iatrogenesis (Goertzen, Chapter 14). Unfortunately the detoxified vaccines were released after the pandemic ended and in any event would have been useless because the real cause of influenza was unknown.

In some parts of the United States, such as California, vaccines were considered to be extremely dangerous and were generally avoided when an individual was sick with influenza or “influenzal pneumonia”. The prophylactic ability of these influenza vaccines was also questioned (Reed 1919:43). The vaccines were viewed as “shotgun mixtures” that were quickly produced and widely advertised by commercial firms when very little was actually known about the effectiveness and possible side effects that might ensue (Roblee 1919:236).

The vaccines might only add to the toxæmia experienced by individuals infected with influenza (Roblee 1919:236).



Figure 13.2: Soldiers at Embarkation Camp in Genicart, France being Inoculated against Pneumonia and Influenza (National Museum of Health and Medicine n.d.).

Who was Vaccinated, and How Effective was It?

As soon as the influenza vaccines were available they were supplied first to hospitals for the use of the medical and nursing staff, and then to medical officers of health, the military (specifically soldiers), munition and other industrial workers and then, in some cases, to the general public (Canadian Practitioner and Review 1919d).

In many parts of the world bacteriologists connected with military organizations, which in the past had done a great deal for preventive medicine, prepared similar influenza vaccines to that of Sherman, which was reported to

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have immense prophylactic benefits. Major F. T. Cadham reported in the June issue of the Canadian Medical Association Journal that of 7,600 soldiers who resided in the district of Winnipeg, 4,842 were inoculated against influenza. Of those inoculated against the “disease”, there were 282 admissions to the influenza hospital, with 17 cases of pneumonia and 5 individuals who died. Among the uninoculated, there were 238 admissions to the influenza hospital with 41 cases of pneumonia and 17 deaths (Wetmore 1919:1076). It does not appear that the influenza vaccine was very effective. One could argue that there were fewer deaths among soldiers inoculated against influenza but there were more documented admissions to the influenza hospital among those who had received the vaccine.

The influenza vaccines that were distributed in Canada were believed to lessen the incidence of both influenza and pneumonia, and render the disease much less severe. In addition, it was believed that as a therapeutic treatment, the vaccine stilled toxæmia and prevented complications from occurring. “No soldier who received two inoculations died of the disease” (Wetmore 1919:1076). Captain D.A. MacDonald, who was in charge of the hospital, stated that “in the inoculated, the disease and complications were not as severe as in the uninoculated, and the average stay in the hospital was only half as long” (Wetmore 1919:1076).

Was the Influenza Vaccine Distributed in Hamilton?

There is no evidence that the influenza vaccine was distributed in Hamilton. The fact that Connaught Laboratories at the University of Toronto aided in the development and preparation of the vaccine distributed to hospitals and the military would lead one to speculate that individuals in Hamilton could have had access to inoculation.

There is, however, no record of any widespread vaccination program for the residents of Hamilton between January and April of 1919. In his article, F.H. Wetmore discusses the situation for Ontario in general and notes that people were vaccinated for influenza on a case by case basis, with priority given to severe, complicated cases. He makes no mention, however, of Hamilton in particular (1919: 1077). There does not seem to have been a need for a widespread vaccination program in Hamilton during the months of January to April 1919, as

the identified number of deaths due to influenza is quite small at 237 cases (The Government of Ontario Records 1918-19). One would expect that a higher frequency of reported cases of death due to influenza would have sparked the implementation of some form of preventive vaccination program, but this just was not the situation faced by Hamiltonians during the third wave of the 1918-19 influenza pandemic.

Rosenberg (1992) explains that epidemics are frightening because a large number of people are suddenly seized by illness and, one by one, show alarmingly similar symptoms. Anxiety generated by an epidemic creates a need to understand and explain its origins, and measures to control its effects, which in turn brings reassurance. Each generation has a different understanding of epidemics because health or disease result from cumulative interactions between a constitutional endowment and environmental circumstance which change with each generation. In the context of any particular period, any and all measures are utilized by a physician or layperson in the hope of ameliorating or curing the symptoms of illness.

With respect to the third pandemic wave in Hamilton, it does not seem that influenza affected the day to day lives of residents and therefore did not interrupt the social network of the entire population. The sense of panic and anxiety of which Rosenberg speaks was not present in Hamilton and therefore the perceived need for extensive vaccination programs did not occur.

Controversy and the Need for Control

Although the influenza vaccine produced and circulated by Sherman of Detroit appears not to have been utilized in Hamilton during the third wave, it is important to understand the controversies surrounding the issue of vaccination during the 1918-19 pandemic. One element of concern centered on the rapid creation and circulation of vaccines; another related to the safety of the vaccines themselves. These concerns mirror the issues discussed with reference to the H1N1 vaccine developed in 2009. Both vaccination initiatives can be interpreted in terms of Rosenberg's (1992) theory of epidemics because they both represent attempts to gain control over the disease process and reassure a panicky public. The physicians of 1918-19 did just this when they created vaccines for influenza. They did not know what was causing the illness and thus created a vaccine that

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would attack every pathogen that they had identified in hopes of treating influenza as well. We now know that the vaccines were useless because the causative agent was unknown at the time and Pfeiffer's bacillus had been misdiagnosed as the "germ" responsible for influenza. That said, the administration of vaccines may have generated a sense of control over the epidemic.

Misconceptions and Mortality: Pharmaceutical (Mis)use in the Third Wave

Andrea Goertzen

“In February 1919...Edward’s fever kept getting higher and higher...aspirin...was given to him by the 1/2-handful over and over...Edward sweated through his mattress...Dr....could not save his patient” (Clella B. Gregory, cited in Starko 2009).

Aspirin has been used for over a century to treat pain and fever from injury as well as illness, such as influenza. Contemporary literature suggests that misuse of Aspirin may contribute to fluid buildup in the lungs of influenza patients, leading to complications and perhaps death (Starko 2009). The presence and diagnosis of pneumonia accompanying or following infection with influenza may be of great importance for understanding biomedical knowledge in 1919, as well as for shaping our perception of the infamous pandemic. The nineteenth-century desire to classify and categorize extended into the budding field of biomedicine, where a disease or condition was conceptualized as a distinct and bounded entity (Singer & Clair 2003) to be treated in a specific manner. This system helped make sense of chaos, conceptualize illness within a meaningful framework, and delineate new ways to treat disease through pharmaceutical means.

Limited understandings of pharmaceuticals such as aspirin, quinine, and heroin, along with rapidly emerging developments in Western biomedicine in the early twentieth century, may have exacerbated some cases of influenza, and may have implications for treatment and vaccination policies in the twenty-first century. During the 1918-19 influenza pandemic, doctors may have

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misunderstood the effects of salicylates, mistaking the symptoms of over-dosage with those of pneumonia (Shimazu 2009). Did the unregulated, and possibly excessive intake of Aspirin influence mortality rates by increasing influenza patients' susceptibility to secondary infections? Were the symptoms of salicylate toxicity confused with those of pneumonia? The foundational concept for this chapter therefore is the idea of iatrogenesis (Barr 1956; Moser 1956), which recognizes that the medical treatment of a disease or illness may sometimes have adverse consequences (Singer 2009). I examine the prevalence of newspaper advertisements for Aspirin and corresponding registered deaths from 1 January to 30 April, 1919. The purpose of this study is to determine whether there is a relationship between the frequency of Aspirin¹ advertisements and death from complications due to secondary pneumonia during this four-month period in Hamilton. Applying the iatrogenic framework of disease and illness, this chapter examines the relationship between influenza, pneumonia and the pharmacology of aspirin and pharmaceutical developments during the early twentieth century.

Influenza and Pneumonia

The intimate relationship between influenza and pneumonia has been studied for some time. McCullers and Rehg (2002) argue, for instance, that the influenza virus modifies the platelet-activating factor receptor (PAFr), which increases pneumococcal adherence to, and invasion of, the lungs. They identified a deadly association between the influenza virus and *Streptococcus pneumoniae*, and demonstrated a 100-percent mortality rate when influenza preceded this bacterial infection. When the reverse occurred and bacterial infection heralded the viral infection, a protective effect was observed and the rate of survival improved dramatically.

This pattern of interaction between influenza and pneumonia was apparent during the 1918-19 pandemic, despite the unknown origin of the ailment. This interaction caused physicians around the world to take notice, and it was not long before literature was published on the subject. Parisian doctor Louis Cruveilhier

¹ As this will be explored in the context of its development and contentious patent situation, the term Aspirin will be capitalized in reference to Bayer's Aspirin, and represented in lower case when discussing aspirin as the commonly-used trade name for acetylsalicylic acid.

remarked in 1919, “If Grippe condemns, the secondary infections execute” (Morens et al. 2008:962).

History and Pharmacology of Aspirin

To treat the twin terrors of influenza and pneumonia, doctors and the general public looked to aspirin for its efficacy in treating pain and fever. Salicylate-containing plants have been used worldwide for thousands of years in various analgesics and antipyretic preparations. In nineteenth century Europe, interest was rapidly growing in the therapeutic development of the salicylates. According to Rainsford (2004), three major advances spurred research on the subject, including the switch from natural preparation to chemical synthesis of salicylic acid, the recognition of its therapeutic properties, and finally, the synthesis and manufacture of acetylsalicylic acid for clinical use.

In 1875, Swiss and German scientists explored salicylic acid’s potential as an antipyretic. Their detailed experiments on both animals and humans (including children!) concluded that salicylic acid in varying doses effectively reduced fever owing to rheumatism and typhoid. Salicylates function as an anti-pyretic primarily through inhibitory action of PGE₂ (Prostaglandin E₂) production (Rainsford 2004). Early work also acknowledged that, while the synthesized compound was generally well tolerated, salicylic acid could cause hemorrhages of the stomach mucosa as well as “cerebral complications” and depress activity of the heart (Rainsford 2004:10).

Bayer’s well-known “Aspirin” was born of the desire to replace salicylic acid with an effective substitute that lacked unpleasant gastrointestinal symptoms. Dr. Arthur Eichengrün developed acetylsalicylic acid by acetylating phenols to control toxicity (Rainsford 2004). His protégé, Felix Hoffman, applied Eichengrün’s technique, while Dr Heinrich Dreser, for the Bayer Company, renamed the Product “A” for “acetyl” and “spirin” from the plant name “Spiricea” (Rainsford 2004:15), to pay homage to its original botanical preparation.

The Bayer Company enjoyed a monopoly on Aspirin, and profited immensely through careful protection of its patents until the beginning of the First World War. At this point, Monsanto Chemical Works built a plant to process aspirin, which sparked a battle with the Bayer Company, who fought ferociously to protect its patent rights. The US Supreme court further ruled that Bayer’s

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Aspirin had been over-advertised, to the point where it had become a common name. In November of 1918, the US Patent Office cancelled Bayer's rights to the name Aspirin, believing them to have been improperly obtained, thus ending Bayer's legal dominance. Despite conflicts, aspirin manufacturers in multiple countries capitalized on the need for pharmaceuticals during the influenza epidemics of 1918 through to the 1920s (Rainsford 2004). Canada saw several generic preparations develop out of the demand during pandemic years and times of war.

The loss of their valuable patent influenced the marketing strategies employed by the Bayer Company. With the emergence of multiple generic brands², Bayer modified its advertisements to propagate their honourable and long-standing reputation as the only trusted name in the pharmaceutical arena. The Bayer Company recognized the value of a good name, and consistently used advertisements to depict imitations or substitutes as dangerous or impure. This campaign was reasonably successful, as there was a rumored shortage of Bayer Aspirin during the second and third waves of the 1918-19 influenza epidemic (Rainsford 2004). The apparent demand for Bayer's Aspirin, combined with the legal controversy involving Monsanto and patent loss, resulted in the possible disruption of advertisements involving Bayer products. The accessibility, affordability and efficacy of aspirin as an analgesic and fever reducer resulted in a high demand during times of illness and war.

New synthetic drugs were rapidly being developed, however the complexity of their chemical names prompted the use of simpler and more memorable trade names (Rainsford 2004). Many doctors confused trade names with generic names when prescribing. To add to the confusion, many products appeared with multiple trade names (Phenacetin, Pyramidon), but without any chemical synonym, leaving doctors and the general public unaware of the identity of many medications (Rainsford 2004).

Aspirin consumption by the general public in the early twentieth century may have exceeded today's recommended dosages due to the lack of chemical knowledge and consistent recommendations. At the time, the Journal of the American Medical Association suggested a dose of 1,000 milligrams every three

² According to Rainsford (2004) there are approximately 130 different aspirin-containing preparations in Canada today!

hours, or the equivalent of almost 25 standard 325-milligram aspirin tablets in 24 hours (Haase 2009). This is about twice the daily dosage generally considered safe today. One of the rare but notable side effects of aspirin is Reyes Syndrome (Glasgow & Middleton 2001), a serious, acute encephalopathy that primarily affects children. Starko and Mullick (1983) demonstrated histopathological similarities between salicylate toxicity and Reyes syndrome. Along with other experimental work, this biologically plausible association prompted several epidemiological studies and caused Bayer to eventually publish safety warnings. These warnings were not made during the 1918-19 pandemic. In certain cases, excessive intake of aspirin resulted in hemorrhagic lungs and fluid buildup (Starko 2009). This iatrogenic condition mimics the symptoms of pneumonia and would be possible to misdiagnose in the early 1900s.

The Facts about Aspirin

*The Bayer Cross—
Your Guarantee
of Purity*



Bayer-Tablets and Capsules of Aspirin may be purchased and used with full confidence—

Because: Every officer and director of The Bayer Company, Inc., is an American.

Because: Bayer-Tablets and Capsules of Aspirin contain genuine Aspirin, which has been made in America—on the banks of the Hudson—since 1904.

Because: Every package and every tablet of genuine Bayer-Tablets and Capsules of Aspirin is invariably marked for identification and also for your additional protection with The Bayer Cross.

The trade-mark "Aspirin" (Reg. U. S. Pat. Office) is a guarantee that the monoacetic ester of salicylic acid in these tablets and capsules is of the reliable Bayer manufacture.

Bayer-Tablets of Aspirin

Figure 14.1: A Bayer Aspirin Advertisement (Baptista 2008).

In the pandemic of 1918-19, medical professionals lauded the efficacy of aspirin for the treatment and recovery of influenza patients. They valued

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acetylsalicylic acid over quinine, heroin, iodides, and morphine. Although many physicians were becoming aware of the co-occurrence of dangerous secondary pneumonias in influenza victims, no studies addressed the effects or relationship between both afflictions and the drugs used to treat them. Since the 1918-19 pandemic was fraught with diagnostic complications (Ravenscroft, Chapter 10) and inconsistencies in treatment (Edwards, Chapter 4), it is entirely possible that diagnosed cases of pneumonia may have stemmed from aspirin overdoses. The following section explores the knowledge and beliefs of the biomedical community in the early 1900s, the public it served, and how social factors contributed to the deadly results of two ubiquitous diseases.

Doctors: Knowledge, Beliefs and Authority

In both spatial and temporal contexts, the Western biomedical system in 1918-19 was in its infancy. Despite rapid advances in the professionalization of health care, up until the 1950-60s in North America, much of the primary aid in the cases of mild to moderate injury and illness still took place in the home. Home care and folk medicine was common, but on the opposing side, in the wake of the industrial revolution and ensuing dependence on, and reverence of science and technology, the public looked to doctors and other medical professionals for answers, relief from suffering and protection against death (Kinsley 1996).

In *Healing, Health, and Religion: A Cross-Cultural Perspective* (1996), David Kinsley notes that the principle role of the healer cross-culturally is to frame sickness in a meaningful context. This is important to the assessment of medical care during times of crisis and pandemic. Doctors who fail to understand and provide sociologically relevant and culturally salient frameworks for their patient's illness may be less effective in providing useful treatments. In 1919, there was a growing awareness of the public availability of aspirin and proprietary medications (Lewis 1919). The confusion among the many emerging generic pharmaceuticals and their ambiguous trade names may have influenced doctor's prescriptions and public knowledge.

In the context of a large-scale epidemic, some doctors, particularly those in busy urban centers, may have felt overwhelmed or under pressure to provide relief of any kind to panicked citizens in the absence of a vaccine or known cure. Doctors and public health nurses frequently made house calls in the cases of acute

or severe illness. The Hamilton Board of Health Reports acknowledges 27 visits by public health nurse for cases of influenza in 1919 (Hamilton Board of Health 1918-19).

Analysis of Aspirin Advertisements in The Hamilton Herald

Newspapers contain a vital source of data in the form of advertisements for aspirin (name-brand and generic). They also provide evidence of the interests, concerns and daily life of a specific time. The Hamilton Herald is most appropriate for this research because it covers the spatial and demographic scope of Hamilton in early 1919. The Herald was chosen over other newspapers because it was the most complete, preserved and consistently available source. In the following analysis, I compare the number of pharmaceutical advertisements appearing monthly in the newspaper, with corresponding monthly deaths from influenza and pneumonia during the 1919 epidemic, derived from the registered deaths for Hamilton (Government of Ontario 1918-19). If there is a relationship between aspirin and deaths by influenza or pneumonia, I expect that there will be a closer relationship between aspirin advertisements and pneumonia deaths, due to the similarity between pneumonia and aspirin overdose. Factors that may influence the results include the supply and demand of aspirin (a feared shortage may manifest as a lack of advertisements), political and economic concerns (such as the loss of Bayer's patent shortly before the influenza epidemic), and variation among and between doctor's prescriptions and also between traditional home care practices.

Newspaper Ads and Deaths

Daily issues of the Hamilton Herald from 1 January to 31 April, 1919 were examined for name brand as well as generic aspirin advertisements. These were quantified and presented as monthly totals. The Hamilton Death Registers were filtered to show deaths of influenza and pneumonia (including "lobular pneumonia", "bronchial pneumonia" and "influenzal pneumonia"). These were also organized by monthly totals. The monthly death totals are compared to the monthly total of advertisements to determine the presence or absence of a relationship between them (Figure 14.2).

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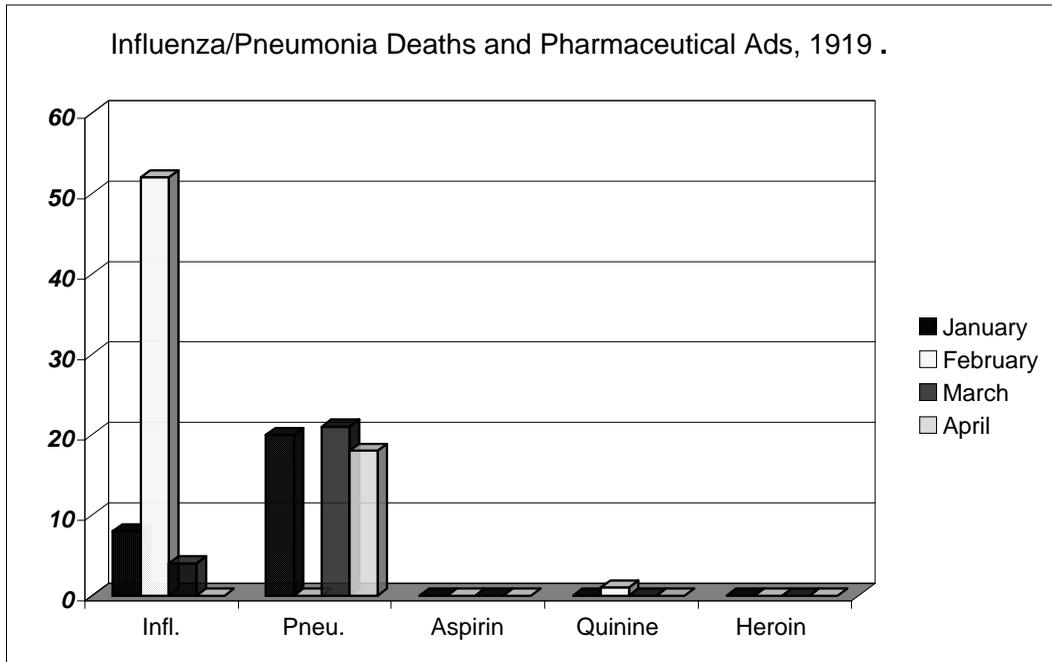


Figure 14.2: Comparison of Aspirin Advertisements and Registered Deaths from Influenza and Pneumonia during the Third Wave (Government of Ontario 1918-19).

Aspirin and Pneumonia Death: Was There a Relationship?

It was hypothesized that since the symptoms of aspirin overdose are similar to the symptoms associated with pneumonia (i.e. fluid buildup in the lungs), deaths by secondary bacterial infection would be tied to widespread, and largely unregulated, aspirin use. In spite of the literature that touted aspirin as an effective treatment for influenza during the 1918-19 pandemic, there is no evident association between advertisements for aspirin and influenza and pneumonia deaths. This is demonstrated by the complete absence of advertisements in the January through April issues of the Hamilton Herald in 1919 (Figure 14.2). The graph shows that death by influenza or pneumonia occurs even in the absence of pharmaceutical advertisements.

It is important to note, however, the historical context of the influenza pandemic and other factors that may have affected the presence, absence or content of aspirin advertising at the time. Recall that the Bayer Company had very recently lost its exclusive patent on the Aspirin name, and was in the midst of a corporate merger with Sterling Products, an American company, in December of 1918. Sterling waited until the summer of 1919 to undertake a colossal advertising campaign (McTavish 1987). The end of the war may have played a role in the nature and content of local, regional and national newspapers. According to Singer, war “interrupts economical and social infrastructure, diverting resources away from the healthcare sector” (2009:173). Nutritional advertisements and medical establishments advocated a diet full of sugars, dairy and refined starches (Reed 1919; Roblee 1919; Small & Blanchard 1919). Sugars lower the effectiveness of the immune system, leaving one vulnerable to illness. Once sick, people are less capable of fighting and recovering from viral and bacterial infections such as influenza and pneumonia (McCullers & Rehg 2002).

Stock values for Bayer and other pharmaceutical corporations would have been extremely useful for determining the role of Aspirin consumption during the pandemic. If stocks were high, and in the absence of product advertisements, it would suggest that the lack of advertisements in the newspapers was due to a high rate of Aspirin sales. Unfortunately Bayer’s history in the Toronto Stock exchange only dates back to 1952. The only irrefutable way to know the true iatrogenic relationship between influenza, pneumonia and aspirin would be to test lung tissues of every victim of secondary pneumonia for the presence of *Streptococcus pneumoniae* bacteria, separating the cases of pneumonia from those with fluid buildup attributed to over-dosage of aspirin. Morens et al. (2008) tested small samples from 1918 and 1919, however, a larger sample would be needed to establish a pattern of aspirin involvement.

Aspirin and Influenza: An Ambiguous Relationship

The influenza virus increases susceptibility to the invasion of the secondary *Streptococcus pneumoniae* bacteria by modifying platelet-activating factor receptors (Singer & Clair 2003). This viral-bacterial synergism is enhanced by eco-political and social conditions such as war, nutritional knowledge, and medical beliefs and practices of the time. During the pandemic, doctors believed

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aspirin to have beneficial qualities, however, they lacked crucial information regarding dosage and toxicity. Coroners may have mistaken the presence of hemorrhagic lungs to be symptoms of pneumonia, rather than salicylate toxicity.

The iatrogenic effects of aspirin are entwined in the relationship between influenza and pneumonia, but the exact nature and extent of their influence is not entirely known. The absence of aspirin advertisements during the third wave of the influenza pandemic is multi-factoral and inspires questions regarding pharmaceutical beliefs and uses. Further investigation is required regarding the presence of bacteria in pneumonia in victims, and in the pharmaceutical arena, in terms of economic and historical records. Long term studies on current clinical uses and trials are necessary to avoid repeating past mistakes and dosage errors, as we find ourselves deeply aware of, and reliant upon, pharmaceuticals in the treatment of illness and disease.

Winter Weather, Impure Blood, and Flu Germs: Theories of Disease Causation in Newspaper Advertisements

Rory Schafer

“The grippe leaves behind it weakened vital powers, thin blood, impaired digestion and over-sensitive nerves... Until the blood is built up there can be no complete recovery of health and strength” (The Hamilton Spectator 1919q1:18).

Richard Pollay, Professor Emeritus of the Sauder School of Business at the University of British Columbia, writes that old advertisements can be a “window onto our social history” (1984:24). Advertisements can reveal the behaviour, styles, and customs of certain people in certain time periods. They can, in a limited sense, reveal why people consumed what they did and what values they may have held. Historians, marketers, and critics from various disciplinary backgrounds have turned to advertisements to describe both the past and present, as well as changes in societies over time (McClary 1980; Pollay 1985; Lantos 1987). This is not to say that there is an academic consensus as to exactly what advertisements can reveal about people in the past. Pollay’s (1986) survey of 15 critics of advertising, which drew on figures as varied and famous as Marshall McLuhan and Margaret Mead, lists a number of the latent affects that advertising is believed to elicit. These affects, largely negative, include increases in cynicism, in the false belief that the consumption of certain goods can lead to a happy, healthy life, and the encouragement of work solely for the purpose of purchasing more goods (Pollay 1986). However, Pollay cautions against overestimating the influence of advertisements, saying, “it is not clear how to

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separate cause and effect when discussing the relations between advertising and social character” (1986:30). After all, while people may be affected by advertisements, their actions are certainly not determined by them!

With this in mind, Lantos (1986) describes three basic attitudes that may be taken towards advertisements and assessments of their social effects. The first position is found in criticisms of advertisements, which often echo the accusations already mentioned, decrying the promotion of materialism and self-indulgence. Producers and defenders of advertisements argue that advertisements are simply a product of observation, designed to appeal to values that the public already has. According to this second position, advertisements serve the sole function of matching needs with products. In other words, advertisements neither create nor influence values, but are instead merely a reflection of those that already exist. The third position suggests that the effects of advertisements are subtle. Rather than simply creating or reflecting the values of a public, advertisements instead “stimulate latent values which lie just at or below the surface” (Lantos 1987:105). Advertisements can spur patterns of consumption, but they are often created in response to an already existing taste. Most often, companies use advertisement campaigns to fight for market share, promoting a specific brand, as opposed to creating an entirely new need. There is no simple, unidirectional causal relationship between advertisements and patterns of consumption or values. To measure such a relationship would be difficult, if not impossible, due to the wide variety of influences that affect values, attitudes and behaviours (Lantos 1987:105). According to this view, advertisements are thought not so much to increase spending as to channel it in different ways.

Adopting this third position, this chapter discusses advertisements published in Hamilton during the third wave of the 1918-19 influenza pandemic, asserting that the advertisements seen by the people of Hamilton at this time reveal something about the ways in which they viewed influenza. Specifically, this chapter suggests that the advertisements reveal elements of three different theories of disease causation that may have resonated with the people of Hamilton in 1919. These theories of disease are the Hippocratic, or humoral theory of disease, the miasmatic theory of disease, and the germ theory of disease.

Theories of Disease Causation: Humoral, Miasmatic, and Germ

Living in an age in which biomedicine is the dominant medical paradigm, it is easy to forget that the current mainstream system of healing is a relatively young one. In fact, a system of medicine known as Hippocratic medicine dominated Western medical practice until the rise of alternatives some two centuries ago (Bates 2000:503). Hippocratic medicine was also known as Galenic or humoral medicine. The system of medicine was developed largely by Hippocrates and other practitioners around 400 BCE and refined by the Roman physician Galen over half a millenium later. The term “humoral” comes from the belief in the existence of “humors” within the human body. Broadly speaking, it was thought that there were four humors inside the body, each with a different set of qualities. The four humors were blood, phlegm, yellow bile, and black bile. The four qualities mirror the dichotomies of hot and cold, and wet and dry. Blood was thought to embody the qualities of heat and moisture; phlegm, of coldness and moisture. Yellow bile had the qualities of heat and dryness while black bile was characterized by the qualities of cold and dryness (Foster 1979:17).

According to the humoral system, an individual could enjoy good health if their humors were “balanced.” An imbalanced life lead to an excess or deficiency of one or more humors, and thus, ill health (Foster 1979:18). The practice of bloodletting is an example of the humoral beliefs in action. According to the balancing theory of the Hippocratic system, hot and wet conditions, such as fevers – a rise in body temperature, often producing sweating – were caused by an excess of blood. The solution, which enjoyed great popularity in Europe during the Dark Ages, and which persisted into the nineteenth century, was to cut the patient and allow the extra blood to flow out. Needless to say, a visit to the barber or surgeon to have one’s blood let often resulted in infection (Sherman 2006:233).

An alternative explanation of disease that seems to have emerged during the days of Hippocratic medicine was the miasmatic theory of disease causation. At the core of the theory is a belief that disease is caused by inhalation of and exposure to air or vapours that have been “corrupted.” The source of this corruption could be rotting plants, decomposing bodies, sewers, or even marshes (Halliday 2001:1469).

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It is unclear where and when the miasmatic theory was first developed. Hippocrates did note that malaria sufferers with enlarged spleens seemed to live near marshlands. “Malaria” comes from the Italian term *mal’aria*, meaning “bad air” (Sherman 2006:136). The Roman marshlands were thought to be the source of noxious vapours that caused malaria, just as the epidemics of cholera in Britain in the 1800s were widely believed to be caused by bad smells emanating from drains and sewers (Halliday 2001:1469). Miasmatic theory was also prevalent during the bubonic plagues that ravaged the globe over the course of the last two millennia. Surgeons in Europe wore costumes with a beak-like mask that contained perfume or spices, designed to filter the poisonous vapours that were thought to cause the disease (Sherman 2006:76).

The bubonic plague also saw a predecessor to the germ theory of disease in the writings of Girolamo Fracastoro, a Venetian physician who proposed in 1546 that disease could be transmitted via tiny “spores,” as opposed to noxious vapours (Sherman 2006:77). The concept of a tiny disease-causing agent did not see a mainstream revival until the late nineteenth century. Sterilization of surgery facilities and instruments became commonplace in the latter half of the century as invisible particles came to be suspected as the cause of infections (Sherman 2006:237). Advances in dyes and experimental bacterial growth led to the identification of various microbes. Robert Koch, one of the founders of the germ theory of disease, discovered the tuberculosis-causing *Mycobacterium tuberculosis* in 1882, and the bacterial cause of cholera in 1883 (Kolota 1999:46). Between the late 1870s and the early 1900s, the microorganisms responsible for diphtheria, typhoid, scarlet fever, pneumonia, leprosy, gangrene, tetanus, gonorrhoea, bubonic plague, dysentery, whooping cough and syphilis had all been discovered. It was through this “golden age of bacteriology” that the germ theory of disease gradually came to be accepted as orthodox within the Western medical tradition (Tomes 1998:93).

Although the germ theory of disease certainly enjoys dominance within contemporary Western medical practice, the humoral and miasmatic theories of disease causation have not fully disappeared. Anthropologists have noted the persistence of elements of the humoral system in the folk medicines of the American South (Foster 1979) and in beliefs about illness amongst Latin Americans (Hartwood 1971), as well as in many other places around the globe.

Elements of the miasmatic theories also exist within “common sense” discourses surrounding illness. Consider the belief, prevalent in North America today, that “fresh air” is thought to be good for one’s health. If this is the case today, then it is likely that such elements would have also persisted in early twentieth century Hamilton, at which point the ascendancy of the germ theory of disease would have been even more recent. Indeed, research focusing on tuberculosis in Hamilton during the early years of the twentieth century suggests that both the miasmatic and humoral theories of disease causation continued to resonate with the city’s residents as they sought explanations for the origin and transmission of the disease (Walker 2007).

Within the anthropological and social sciences literature, the prevalence of multiple theories of disease causation or medical systems within the same society is referred to as “medical pluralism.” The concept has frequently been applied to medical systems or practices that are thought to compete with or contradict each other, such as naturopathy and biomedicine (Baer 2001). The significance of the concept is that it suggests that patients actively choose between different medical narratives, both in order to cure and make sense of their afflictions. Thus, even though a medical system like biomedicine may enjoy state recognition and a certain sense of dominance, those who become ill may look to other medical systems for aid. In fact, medical pluralism is the norm, rather than the exception to the rule, in a majority of the world’s societies (Subedi & Subedi 1992:61).

Theories of Disease Causation in Newspaper Advertisements

Elements of each of the aforementioned theories of disease causation appear in advertisements published in *The Hamilton Spectator* during the third wave of influenza. The advertisements in question are those mentioning influenza that appear in *The Hamilton Spectator* from January to April, 1919. The advertisements considered for this chapter’s discussion were any that mentioned “the flu,” influenza, disease epidemics, or the euphemisms that existed for the disease at the time, such as “the grip” or “la grippe.” By and large, advertisements that mentioned influenza were those advertising health care products. Prescott (2006) noted that during the second wave in Hamilton, newspaper advertisements for health care products that mentioned the flu did not necessarily increase in frequency or size. However, influenza rhetoric seemed to

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spread to advertisements seemingly unrelated to health care, including advertisements for clothing stores and dry cleaners. Of the advertisements considered for this chapter, over 90 percent (41 out of 45) were for health-care related goods or services. This chapter presents a qualitative discussion of themes, rather than a quantitative content analysis. Advertisements were counted only once; that is, if the same advertisement reoccurred in subsequent issues, it was only transcribed and its text only considered once.

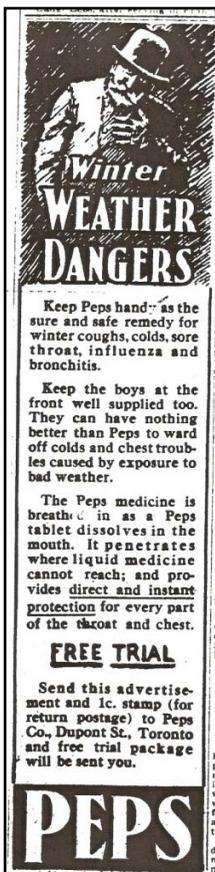


Figure 15.1:
Advertisement for
Peps Pills (The
Hamilton Spectator
1919j2:10).

Elements of the humoral system were prominent in many advertisements. The flu, after all, is a seasonal disease associated with the Canadian winter. Many advertisements warned of the dangers of exposure to the cold winter weather. Again, this is part of the “common sense” discourse surrounding disease, but it is likely that this understanding has its origins in the humoral system (Foster 1979:19).

Consider the advertisement pictured in Figure 15.1 for a pill remedy known as “Peps.” It boldly proclaims that winter weather brings danger, without specifying exactly what that danger is, or what it entails. This seems to invoke humoral notions of the dangers of an overabundance of any of the four qualities, in this case, cold. In 1919, the viral cause of the pandemic was still undiscovered, and so it would have been difficult for any advertiser for any health product to go into much detail regarding the actual cause of the disease.

This “cold” theme is prominent in other advertisements considered for this chapter. An advertisement for Parke’s Nasaline warns, “that cold in the head may develop into influenza or la grippe” (The Hamilton Spectator 1919i2:18). The makers of Bionin Grippe Tablets remind their customers that, “many people suffer from the Grippe each winter and spend sums of money on numerous untried remedies with little satisfaction” (The Hamilton Spectator 1919c1:27). An advertisement for Dr. Pierce’s Pleasant Pellets and Golden Medical Discovery boldly states, “The Spring Rain Brings

Grippe” (The Hamilton Spectator 1919o1:15). These advertisements seem consistent with Foster’s observation that the quality of cold is associated with preventive acts; the goal is usually to keep the cold away, especially from vulnerable areas like the head and chest (1979:19).

Another theme which appears to have roots in the humoral system is an emphasis on strong, pure blood. Recalling that heat is one of the humoral qualities associated with, it makes sense that a disease associated with a cold season would threaten the body’s blood supply. A testimony in an advertisement for Dr. Williams’ Pink Pills preaches the merits of the pills’ purifying power, claiming that, “they drove all the impurities from my blood, gave me a good appetite, and I have since enjoyed the best of health” (The Hamilton Spectator 1919s1:10). Likewise, the producers of Hood’s Sarsaparilla proclaim that their tonic, “expels the poisons that have weakened and depleted the blood, causing pallor, anemia, flabby flesh and lax muscles. It is the standard blood remedy...” (The Hamilton Spectator 1919w1:7).

Finally, another apparent holdover from the days of the Hippocratic system’s dominance are the references to bile that are found in the advertisements. These occur noticeably less often than attempts to explain influenza as a product of cold weather or tainted blood. Different advertisements for Dr. Pierce’s and Hood’s products refer to a condition known as “biliousness,” the root word of which is “bile” (The Hamilton Spectator 1919p1:20; The Hamilton Spectator 1919x1:7).

Unlike the advertisements that refer to the presence of cold, or impurities of the blood, the few advertisements that mention bile seem to list it as one of the symptoms of influenza, rather than its cause. In both advertisements mentioned above, biliousness is listed next to constipation. Constipation, of course, is not normally a symptom of the flu. Another feature of many of the health care product advertisements found during the third wave is that influenza is simply one of the ailments that the remedy is guaranteed to cure. A March advertisement for Dominion C. B. Q. Tablets, for example, states that the medicine is also appropriate to cure neuralgia, headaches, colds, “etc.” (The Hamilton Spectator 1919t1:19). Again, because the cause of the disease had not yet been discovered in 1919, and because no universally accepted cure existed at the time, it seems likely that advertisers threw influenza into the mix of illnesses their products were

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supposed to cure, in an effort to capitalize on what Tomes calls a “germ panic,” a period of heightened anxiety surrounding disease (2000:192).

The miasmatic theory of disease causation appears less frequently and less explicitly in the advertisements in question, but it exists nonetheless. An advertisement for a cleaning product called Pino Disinfectant suggests that, “after disease in the home, or if you detect an unhealthy odor, disinfect at once with PINO DISINFECTANT” (The Hamilton Spectator 1919k2:14). One advertisement for Parke’s Nasaline says that the remedy “clears the air passages” and “relieves the difficult breathing” (The Hamilton Spectator 1919i2:18). Similar to advertisements that invoke Hippocratic theory, these advertisements contain an intuitive sort of logic. Symptoms of the flu include coughing and congested nasal passages. It would seem to make sense for the disease to have an airborne cause, and thus, for remedies to be administered via inhalation.

By today’s standards, one of the most startling advertisement campaigns found in the spring issues of The Hamilton Spectator was for Smo-Ko Tobaccoless Cigarettes. The Smo-Ko advertisements promise to replace infected air with disinfected air, “smoking out” the grippe germs: “One of the surest and simplest ways to disinfect air passages is to inhale night and morning the smoke from Smo-Ko Tobaccoless Cigarettes” (The Hamilton Spectator 1919o2:19).

The use of the term “disinfect” in the Pino Disinfectant and Smo-Ko advertisements suggests an acknowledgement of microbes, and thus, could simply be seen as adherence to the germ theory of disease. This is not uncommon, as many of the advertisements invoke multiple theories of disease causation. The Peps advertisement displayed above, for example, warns of the dangers of the cold, but the medicine is also breathed in as the pills dissolve, allowing for a miasma-cleansing healing experience. Another advertisement for Dr. Williams’ Pink Pills describes the effects of the pills: “these pills make new, rich, red blood, which reaches every organ and every nerve in the body. Thus the lingering germs are driven from the body...” (The Hamilton Spectator 1919r1:7). The first advertisement seems to invoke both humoral and miasmatic theories, while the second appeals to the humoral and germ theories of disease.

These dualities may have been the result of advertisers’ attempts to appeal to as wide a range of customers as possible, encompassing multiple theories in each advertisement. The presence of multiple theories could also reflect the fact

that no-one at the time really knew what was causing the flu. Alternatively, it could also mean that explanations for the origins of disease do not have discrete boundaries, as other anthropological research suggests (Hartwood 1971; Foster 1979). Instead, there appears to be an ebb and flow, with elements of theories being retained while others are discarded. In the absence of scientific proof of the origins of disease, people may look to familiar, “common sense” explanations for the suffering and death they see around them. In other words, perceptions of the cause of the influenza pandemic in Hamilton, as indicated by newspaper advertisements, reveal that a degree of medical pluralism existed within the city. This was not necessarily institutional pluralism, but more a pluralism of theories of disease causation, with the Hippocratic, miasmatic, and germ theories of disease causation all resonating with the people of Hamilton.

Medical Pluralism in Hamilton

The relationship between the values communicated in advertisements and those actually upheld by the public is quite unclear. However, successful advertisements must, on some level, resonate with the people they are supposed to target. This means that the advertisements mentioned here can tell us something about perceptions of influenza in Hamilton in 1919.

The advertisements display themes that seem to invoke different theories of disease causation. These themes cross over one another, with multiple themes appearing in the same advertisements, and supposedly antiquated theories of disease causation appearing alongside the recently-ascendant germ theory of disease. This suggests that the people of Hamilton may have been looking to various medical narratives to make sense of the influenza pandemic in their midst. It could also suggest that, due to its failure to provide an explanation of and cure for influenza after its early golden years, the germ theory of disease was viewed as inadequate by the people of Hamilton at the time. While it is impossible to measure the extent to which the advertisements do reflect part of the public’s understanding of the origins of the disease, the existence of medical pluralism within the advertisements is quite intriguing. There is no way of knowing exactly what the people of Hamilton believed was responsible for the origins of influenza; like the diversity of theories found in the advertisements, it is probable that a wide varieties of views existed amongst the city’s population,

16

Everyday Life in the Third Wave: Social Response to Public Health Policies in Hamilton

Melanie Murken

“But even those who escaped the virus could not escape the effects on societies; Schools, churches and movie houses were shut down to stem the spread of infection, jobs were lost and in some places the very fabric of society seemed to be coming apart...” (Dakin 2005).

Most studies of epidemic influenza focus on medical aspects of the disease, such as morbidity, mortality, causes, and treatments for the illness. Much less information is available on the social aspects of the disease, such as how the everyday lives of afflicted populations are altered during an epidemic. Epidemics and pandemics, however, are heavily affected by social circumstances, and in turn, they affect social life and organization (Schoenbaum 2001).

The response that any society has to the presence of an epidemic is based on its history and culture. That said, the degree of panic that may occur during times of excessive illness is not proportionate to overall morbidity and mortality rates. Panic tends to occur when a disease produces a high mortality rate on a daily basis (Humphreys 2002). The social disarray created by epidemic disease, in terms of disruption to economic and social systems, often makes officials reluctant to admit a problem exists until there is no longer the option of denial. Once an epidemic emerges pressure is exerted on medical and political authorities to produce clear and decisive responses, responses that also can be used for social control (Rosenberg 1992).

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This was certainly the case during the 1918-19 influenza pandemic, which is considered to be the hardest hitting global pandemic in history. It is estimated that in just a short period of a few months the disease killed over 30 million people worldwide (Schoenbaum 2001). It caused massive disruptions in the way life was carried out in the numerous cities affected by the pandemic. The high mortality rate strained the capacity of hospitals, funeral homes, and cemeteries; concerns about bans and quarantines filled the newspapers, and volunteering became a large part of many people's lives.

During the second (autumn) wave of influenza in Hamilton, some 8,632 people were afflicted with the disease and more than 500 succumbed to death (Hamilton Board of Health 1907-1922:380). The third wave of influenza in early 1919 in Hamilton was less severe but nevertheless took 227 lives in only four months (see Hughes-Jones, Chapter 3).

Public health initiatives and government responses to disease outbreaks are attempts to change or control social behaviour in order to slow or stop the spread of disease. For these efforts to work, members of the society must believe in the necessity of the public health response and the likelihood that it will lead to a successful outcome. If not, medical authorities can be faced with resistance and a public outcry, both of which can lead to the failure of the initiatives (Schoenbaum 2001).

In this chapter I examine the ways in which the everyday lives of the citizens of Hamilton were affected by the third wave of the 1918-19 influenza epidemic from January to April 1919. During the second wave of influenza that struck Hamilton during the previous fall, public health policies had led to bans on public assembly that were intended to interrupt transmission of the disease and reduce mortality from it (Benn 2006:126). The third wave was less severe and failed to prompt a similarly high level of public concern as had the second. In light of this discrepancy, I compare the circumstances surrounding the second and third waves, public health policies, and newspaper accounts in order to examine the impact of the third wave of influenza on ordinary life in Hamilton.

Life During the Second Wave: October to December, 1918

During the second wave of the influenza epidemic in Hamilton it is estimated that 8,632 people were affected with over 500 deaths (The Hamilton Board of Health

1907-1922:380). In Ontario alone it is estimated that between 40,000 to 50,000 cases of influenza were reported and approximately 3,500 deaths occurred (McCullough 1919:1085). The abundant articles and advertisements for cures and remedies published in *The Hamilton Herald* and *The Hamilton Spectator* during this period make it readily apparent that influenza was the main concern for citizens of Hamilton (*The Hamilton Herald* 1918; *The Hamilton Spectator* 1918).

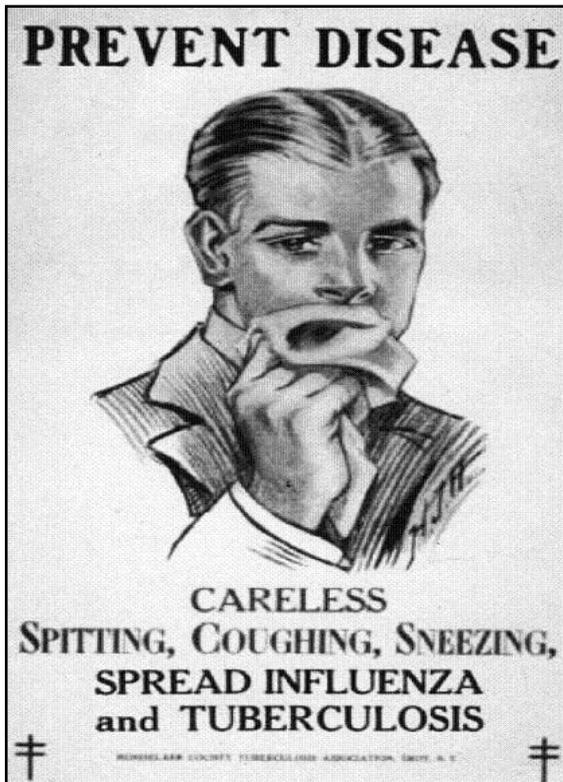


Figure 16.1: A 1918 Poster Warns Against Behaviours that Spread Disease (Joel Binder 2009).

The Hamilton Board of Health, moreover, published advice in the newspapers on how to protect oneself from influenza and on how to prevent the spread of illness; the Board also dispatched a number of public notices. One piece of advice on how to prevent the spread of illness urged citizens to avoid kissing babies and children (*Hamilton Board of Health* 1918:1) (see also Zazulak, Chapter 19). The Hamilton Board of Health suggested that people who showed signs of influenza remain indoors and away from others. The Medical Society of Hamilton advised that a 48-hour rest period be taken by people who displayed influenza-like symptoms. Closed-off and tight or busy spaces were of great concern to the Hamilton Board of Health and thus it was

recommended that people choose alternative methods of travel, such as walking, instead of riding the streetcar (Benn 2006:125).

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As the second wave of the influenza epidemic progressed through the autumn, the number of afflicted steadily grew. By mid October the Hamilton Board of Health believed that its initial attempt to prevent the spread of the illness through the methods described above had not been successful. Each Local Board of Health in Ontario had the power to decide whether closing institutions, such as schools, was a necessary step for controlling the spreading of the disease. The Provincial Board of Health considered closures and quarantines to be impractical because of the inconsistencies in which they were put in place, noting that while people could be prevented from gathering together in churches and schools, they were forced into tight quarters while shopping in stores. Stores were especially popular places for children when they were not in school, creating the perfect scenario for the spread of the disease (McCullough 1918:1084). However, the Hamilton Board of Health felt that the only way to protect the health of the city was to implement bans and quarantines.

The Hamilton Board of Health met on 16 October, 1918 to discuss the matter and the first official ban began on 20 October. All schools, churches, and theatres were ordered closed until influenza was thought to be receding. As the ban continued, residents still attended work and shops remained open. Schools, churches, theatres and pool halls remained closed. The ban was lifted on Sunday, 9 November for churches and 10 November, 1918 for the rest of the closed institutions because influenza was believed to be receding (Benn 2006:126-127).

The days following the lifting of the ban were filled with celebrations and parades for returning war veterans, which created crowded conditions. Subsequently, the number of reported influenza cases skyrocketed. This prompted the Hamilton Board of Health to reinstate a ban on gatherings in churches, schools and businesses, effective 29 November, 1918 (Hamilton Board of Health 1907-1922:380). Again, following the decline in new cases of influenza the ban was partially lifted on 16 December, 1918, allowing the reopening of churches. The Hamilton Board of Health continued to restrict the number of people allowed on a streetcar or in a pool hall and church services were only permitted on days other than Sunday (Hamilton Board of Health 1907-1922:385).

The public response to the bans was negative. Shop owners felt that restricting their hours of operation only put their customers at greater risk of catching the disease because crowds would be larger during the available

shopping hours (The Hamilton Herald 1918:12). School closures during the bans were surrounded by controversy and the public argued that children would be better off in school during the peak times of the epidemic because they would be given the latest information on how to combat the illness and thus receive better care. Dr. Roberts, the Medical Officer of Health, agreed, but the decision to close the schools nevertheless was based on a close vote by the Hamilton Board of Health (Pennell 2006:138-139). While the Roman Catholic Bishop, Rev. Dowling, declared that the churches be closed during the ban, others fought the policy. Roman Catholic priest, Rev. Kenrick, wrote a letter to the Provincial Health Inspector stating his general disapproval of the complete closing of churches while stores remain open for partial hours (The Hamilton Herald 1918:14). As the public's dislike of these policies grew, the local newspapers began to print more articles by angry residents and seemed to have adopted the generally negative view of the public toward bans, giving the Hamilton Board of Health the impression that the newspapers were against them (Pennell 2006:148).



Figure 16.2: School Children Gargling Fluid in an Attempt to Prevent Influenza (St. Louis County, 2007).

Life in the Third Wave, January to April, 1919

After the second wave subsided in December 1918, there was a resurgence of influenza in Hamilton during the winter. Although morbidity and mortality rates did not approach those of the previous autumn, the epidemic was far from over. According to the Hamilton Board of Health 3,956 cases of influenza were reported from January to the end of March, 1919 (Hamilton Board of Health 1919-1920:5-6). According to the Division of Hamilton death records there were 227 deaths (influenza and pneumonia), 124 of which were attributed directly to influenza (see Edwards, Chapter 4).

During the months of February and March, when cases and deaths began to peak, the Hamilton Board of Health paid closer attention to influenza than it had in January and April. For example, the board members discussed in detail the emergency hospital that was constructed at the Barracks on the Scott Property. The emergency hospital was opened on 8 February and closed again on 24 March, 1919 after treating 426 patients (Hamilton Board of Health 1919-1920:5-6). The Hamilton Board of Health did not seem to be overly preoccupied with the topic of influenza outside of the months of February and March. Few bans were put in place, no new health policies were created and influenza was mentioned less often at Board meetings than had been the case during the second wave the previous autumn. When the issue of influenza was broached, the meeting focused on the amount of money owed to certain locations for their use as emergency hospitals, such as the rent owed to the Jockey Club (Hamilton Board of Health 1907-1922:392).

Newspapers still printed articles on the topic of influenza, and promoted ideas about how to prevent the disease, such as the warning that kissing children should be avoided in order to avoid the spread of the disease (The Hamilton Spectator 1919:11). Schools continued to garner attention and brief school closures were mentioned. One such closure occurred at the Bungalow School house (dates unknown) after an outbreak of influenza within the school (The Hamilton Spectator 1919:23).

Considering the sparseness of newspaper articles and the lack of attention paid to influenza by the Hamilton Board of Health during the third wave, it would appear that the epidemic was not the serious concern it had been the previous fall. Newspaper articles even stated that new cases of influenza were to be expected

and therefore were not a great concern, adding that if the numbers did rise measures were in place to take care of another wave of illness (The Hamilton Herald 1919:1).

Public Health Policies in Hamilton

What then can be said about the effect that public health policies had on the daily lives of the Hamilton residents during the second wave of the influenza epidemic and what could be the reasoning behind the lack of public health engagement during the third wave?

During the second wave, public health policies focused on placing restrictions on the residents of Hamilton through the implementation of two bans on public gatherings aimed at reducing the spread of influenza in the city. The restrictions were not met with compliance, but rather with anger and disapproval. The Hamilton Board of Health used its power during a health crisis to attempt to calm public panic by responding in a manner it felt would be most effective. The public outcry in opposition to bans against public gathering was rooted primarily in economic, educational and religious concerns. Store owners did not want to lose money and business. Parents believed their children would receive better information about the epidemic by attending school. Also, clergymen felt that people were in need of the spiritual support that the religious community could provide.

During the third wave, however, the Hamilton Board of Health did not implement any new bans or initiate other restrictions on the citizenry. The only mention of influenza in the Hamilton Board of Health meetings takes place during the months in which cases of influenza grew, and these discussions dealt with economic matters and topics of epidemic preparedness (Hamilton Board of Health 1919-1920:5-6). The medical community's apparent lack of concern about the influenza epidemic during this time could be attributed to a number of reasons. Medical authorities are often cautious about identifying and naming epidemics because of the heightened panic and social disruption that this development brings (Rosenberg 1992). In other words, the Hamilton Board of Health may have consciously avoided the discussion of an influenza resurgence so as to not create anxiety amongst the citizens. This strategy would have been aided by the relatively low mortality rates that occurred between January and April compared

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to the second wave, and made it possible to deny that influenza had resurged to worrying levels. Although newspapers discussed the topic of influenza, the amount of reporting was considerably less than occurred during the second wave. In fact, much of the reporting in local newspapers focused on the First World War, international politics, and other socially important issues that occupied the public's attention (Krasulja, Chapter 17; Dewar, Chapter 18).

Public reaction to the health policies in the second wave may have influenced decisions on how to manage the third wave of influenza. The chorus of disapproval in the autumn may have convinced members of the medical community that quarantines and bans would likely be ineffective in Hamilton. In order for public policies to be effective, the public has to both agree with and follow the restrictions laid out by the policy (Schoenbaum 2001). Furthermore, the Hamilton Board of Health felt that local newspapers had shifted away from their initial support of the Board's initiatives and had begun to support the public in its resistance to the bans (Pennell 2006:148). The Board may have concluded that instituting bans during the third wave would have attracted too much resistance from many segments of society.

On the other hand, the Board may also have concluded that the bans that were instituted during the second wave had not been effective. The disapproval from the public, which led to resistance, could possibly have led to the view that it would be useless to institute bans because they did not produce the desired effects on the spread of disease. The Hamilton Board of Health may have concluded that bans and quarantines were, in fact, having more negative than positive effects on the epidemic.

Another possible explanation for the scarce coverage of the topic of influenza may relate to a belief that the epidemic was in fact receding and thus no measures were necessary. Certainly the 227 deaths caused by influenza or influenza related illness from January to April 1919 were fewer than the over 500 deaths that occurred in Hamilton between October and December 1918. This decrease in overall deaths could have been understood as the dwindling phases of the illness, despite the spike in deaths that occurred during the months of February and March (Edwards Chapter 4). This, in conjunction with the general desire to get back to a normal way of life, would have made it easier to overlook the influenza cases during these months. A number of newspaper articles discuss

the recession of the influenza epidemic and the return of ordinary life, lending support to this contention (The Hamilton Herald 1919:1).

Perhaps the Hamilton Board of Health believed that the worst of the influenza epidemic had been experienced in the autumn and that the winter outbreak was minor and receding. Perhaps the lack of interest invested in the winter outbreak was driven more by the Board's desire to keep Hamilton running smoothly without the alarm and panic of another disease outbreak. Either way, the response to public health policies implemented during the second wave in 1918 in Hamilton was characterized by resistance and disapproval, while the third wave in 1919, which saw a few school closures, hardly prompted a whimper from the public.

Daily News: War, Politics, and Occasionally, Influenza

Jovan Krasulja

“How to Fight Spanish Influenza. Avoid crowds, coughs and cowards, but fear neither germs nor Germans!” (The Hamilton Herald 1918:12).

In the early twentieth century, newspapers were the major source of information on current events. At the time of the 1918-19 pandemic they relied heavily upon theme saturated articles and photos of the First World War. Many screamed messages of victory, joy, and defiance to those who would threaten freedom and democracy, including germs that came in Petri dishes. Still, the influenza epidemic was forgotten for some time, and this omission may relate directly to the plethora of patriotic articles about the war, which relegated influenza to “last page” news (Crosby 1989:73). This “forgetting” could be linked the epidemic’s inability to physically disfigure its victims, removing the lasting visibility seen in other epidemics, such as smallpox (Hays 2005:396). However, there are other reasonable explanations for the disappearance of influenza from newspapers, or at least its disappearance from their front pages.

The accessibility and variety of today’s media is a luxury. In 1918 and 1919, newsprint was one of only a handful of media sources available. In retrospect, the First World War was so catastrophic and unimaginable that influenza, a seasonal illness, could easily have been downplayed. At the same time, the high mortality rates and its tendency to debilitate men and women in the prime of life make it difficult to understand how such a global scourge could be forgotten. By analyzing front page news we can formulate ideas as to why media sources failed to cover the influenza epidemic during the third wave of the

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influenza pandemic in Hamilton from January to April, 1919. In addition, this chapter explores the terminology employed in the descriptions of the disease and its links to war metaphors. The First World War and influenza are inseparable and therefore the relationship between the two is important for understanding the factors that led influenza to become the “forgotten pandemic” (Crosby 1989).

Soldiers and Illness

War and disease have been linked through history. Prior to the mid-twentieth century and the advent of medical marvels, such as penicillin, armies suffered more from disease than from enemy action (Crosby 1989:11; Humphries 2008:126). In 1914 a Nova Scotian physician, Colonel Guy Carleton Jones, predicted the ravages of disease that could ensue with the onset of global war:

The trail of infected armies leaves a sad tale of sickness amongst the women and children and non-combatants. Laws and regulations may govern the conduct of war, but disease and infection recognize no such laws and refuse to signal out the combatant only. Thus we see that war forces itself on the civilian, on the innocent child, on the non-combatant who stays at home...for who can tell, or count up, or even recognize the victims of war when it once places its hand on a country (Humphries 2008:126).

Other epidemics, such as smallpox, mumps, diphtheria, measles, leprosy, cholera, typhus, and bubonic plague were successfully contained in Canada in the nineteenth century – thus, little attention could be expected to be devoted to a mere seasonal illness (Humphries 2008:148). Consequently, when the influenza pandemic emerged explosively in 1918 its devastation was incommensurable (Crosby 1989:5). Its symptoms were masked by seasonal influenza, thus, health officials and citizens failed to recognize it and the epidemic killed twice as many people in the world as died in combat on all fronts during the First World War (Crosby 1989:11). In retrospect, moreover, the Canadian military failed to provide an adequate response to the epidemic, favoring instead the expansion of war efforts in the autumn of 1918 (Humphries 2008), thus highlighting the inefficiencies of the health infrastructure during this time of great need.

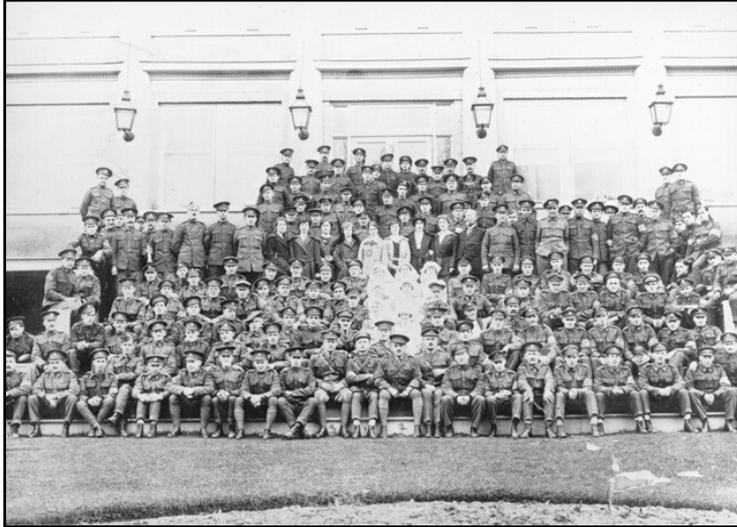


Figure 17.1: Burlington Soldiers and Medical Staff in 1918 (Black Mount Collection 1919).

In The Trenches: Front Page News

This chapter examines two media outlets, The Hamilton Spectator and The Hamilton Herald, supplemented by additional articles published elsewhere. A simple quantitative analysis of Hamilton's two leading news authorities is used to provide evidence of the kinds of articles written and the ideas projected onto readers during the third wave of the influenza pandemic. By quantifying the front page news for every day between 1 January and 30 April, 1919, a picture of the majority of headlines emerges. A study completed by Bogart (1984:771) suggests that the front page of a newspaper naturally receives the most readerships because it is the page most likely to display "big" news stories. When I started this research I expected that local (non-influenza) news and war articles would dominate the headlines, while only a minority of the headlines would be related to influenza. This expectation was based on Crosby's (1989) 1918-19 influenza research in which he observed a lack of reporting on the influenza outbreak.

To determine the relative representation of the various issues of the day represented on the front page of the newspapers, I devised three categories. Any

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article directly related to the First World War, such as war memorials, soldiers coming home, post-war politics, war economics, war fatalities, and the like was assigned to the category “war-related articles”. Articles about influenza that covered health reports, hospitals, death memorials, and other health or death related issues were assigned to “influenza related articles”. A third category, “other” simply identified news that was not war- or influenza- related, and focused on issues of political, social, or economic significance. I expected that influenza would not receive heavy coverage on the front page news during the third wave and this assumption proved to be correct.

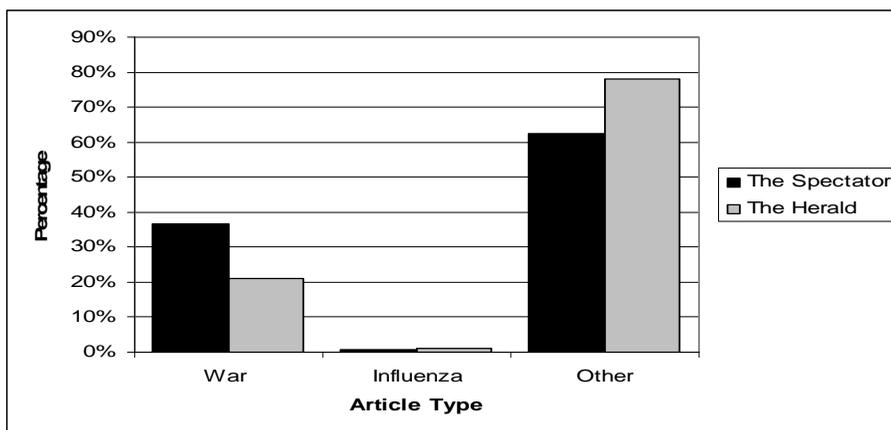


Figure 17.2: The Percentage of Types of Articles in Hamilton, 1 January to 30 April, 1919.

The Insignificance of Influenza

When the three categories of articles are compared for The Hamilton Herald and The Hamilton Spectator, the extent to which war reporting dominated the news becomes apparent (Figures 17.2, 17.3, 17.4). The average percentages for the three categories in The Hamilton Herald are 78% for “other”, 21% for “war”, and 1% for “influenza”. For The Hamilton Spectator, 63% occur in the “other” category, 37% in “war”, and 1% in “influenza”. It is obvious from these findings that influenza mattered little to daily headlines throughout this four month period, constituting a staggeringly small 1% in both newsprints, in comparison to the

other two types of articles. It is important to note that war articles were, on average, 29 times and “other” articles were 71 times more likely to appear on the front pages than stories about influenza. Why was there such a large gap in the relative representation of these three types of articles?

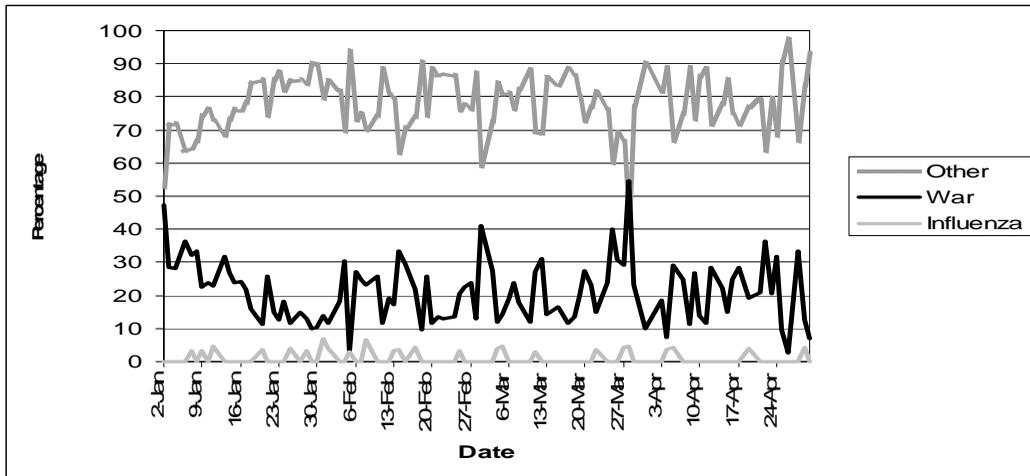


Figure 17.3: The Percentage of Front Page Articles in The Hamilton Herald, 1 January to 30 April, 1919.

Interestingly, the majority of articles that were categorized as “other”, as a result, were more readily observed than articles about the epidemic. Topics of interest over the course of the four months ranged from political, economic, social, and mundane topics. The month of January saw the end of a municipal election, creation of a hydro radial debate, squabbling between federal political parties, health board changes, sewer system issues, prohibition debates, the resignation of Burlington politicians, the death of an American legend (President Theodore Roosevelt), federal promises to develop the harbor front, Bell telephone rate increases, the adoption of an eight-hour workday, and many other stories of local interest. The later months provided more local context for the radial debate, large labor issues reaching into America and Britain, tax rate increases, the death of a Canadian icon (Sir Wilfred Laurier), and the ongoing and eventual end of the radial debate in March 1919. The news stories suggest the newspapers had moved on from the epidemic and resumed reporting on daily life.

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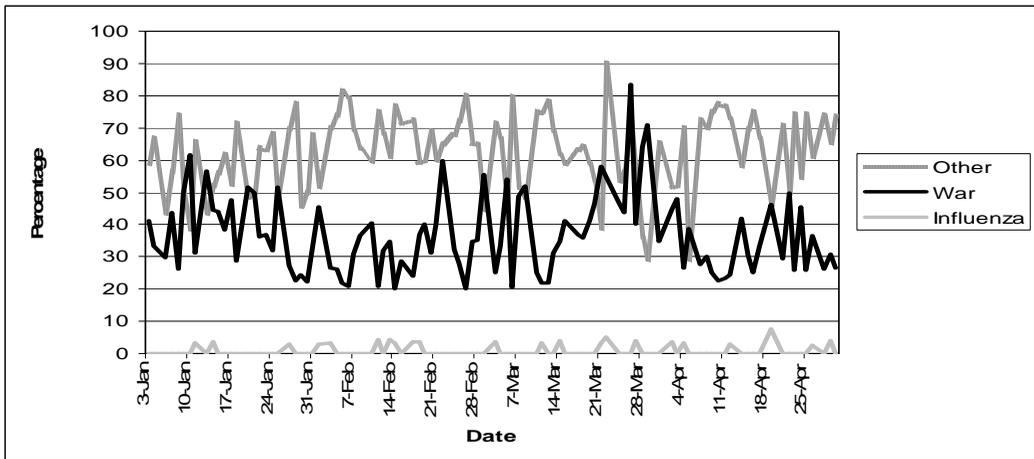


Figure 17.4: The Percentage of Front Page Articles in The Hamilton Spectator, 1 January to 30 April, 1919.

In summary, the lack of influenza related articles suggests that the epidemic was of relatively little interest to the media. Unfortunately, this form of analysis does not fully describe the public's opinion on the influenza epidemic. Still, the material gathered provides an important context for the ideas and vocabulary used to describe themes and events deemed to be important by the media. The public was buying these newspapers in droves, as evidenced by the paper circulation totals presented in the top right corner of The Hamilton Spectator, which had, on average, between 30,000 to 32,000 readers. Thus, the people of Hamilton had a vested interest in the daily news and were buying newspapers for information and entertainment purposes. They were supporting the newspapers, but whether they were subscribing to the messages presented in them cannot be answered here.

Humphries (2008:10) notes that reporting on the war was subject to censorship due to political interests. Censorship increased the risks of disease for the general population because people, including Hamiltonians, were misinformed about the three waves, the prevalence of influenza, and its spread. This would suggest that influenza, and its ability to highlight the ineffectiveness

of the medical health polices and sanitation systems, were a threat to local and federal politicians. Bilson (1980) notes, for example, that cholera in nineteenth century Canada increased popular demand for government intervention in society, specifically the demand for health reform. The influenza epidemic also highlighted the problems associated with Canadian health policies; as a result, newspaper editors may have used the war and other articles as a means of diverting attention away from the government's failure to control the epidemic. In addition, the mayor of Toronto and church representatives were opposing war efforts because of the draft and the awful conditions experienced by young soldiers. Humphries notes, "Anyone who opposed the military authority represented a threat to the war effort"; as a result, "the newspapers tended to take the mayor's side and the gulf between what the military and the public accepted as genuine wartime necessity continued to grow" (2008:270). These discussions were absent in *The Hamilton Herald* and *The Hamilton Spectator*, suggesting that the newspapers sided with military authorities.

Before 1918, there were no major epidemics to help rally public support across class, linguistic, and ethnic barriers (Humphries 2008:78). When the second wave of the 1918 influenza pandemic emerged, the medical system was overwhelmed and failed miserably due to the lack of a standardized health system across Canada. Before 1919, the Federal government controlled the borders of Canada, while the internal borders were controlled by Provincial governments, separate from the federal system. During the second wave, it was quite obvious that the Canadian Government had failed to control the epidemic, and the public health system lacked structure and direction, an issue of considerable concern prior to the epidemic. In addition, when infected troops traveled from East to West to support the opening of a new front in Siberia, the result was the spread of influenza to the Canadian public along the railway line, helping the disease to spread more quickly (Humphries 2008). In other words, the Government that was officially responsible for controlling the epidemic determined and enabled the direction in which the virus spread.

When the third wave erupted in Canada during the winter of 1919, it provided additional impetus for a more efficient and standardized health care system. Thus, plastering front pages with panicky headlines about influenza would have had devastating consequences and led to further lobbying for health reforms to the Federal Government. Hamilton's two leading newspapers

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certainly refrained from publishing inflammatory headlines about influenza, but to suggest that there was a Federal link to these editorial decisions would be merely circumstantial, even though their reportage was of great political import. Further research into this area of inquiry would be informative to past epidemics within the Canadian media context.

Fear Neither Germs nor Germans

By 1 January, 1919, influenza had already taken its toll on many at home and overseas. The battle raged both at home and on faraway fields, yet this enemy, influenza, was a fearless foe, one that did not choose its victims by race, status, or age. Naturally, it is unreasonable to disconnect the influenza epidemic and the First World War because the origins of the disease and its method of travel coincided with the movement of soldiers returning to battle and at home. Described as a “dread disease,” “scourge,” “attack of influenza,” these monikers hardly portray influenza as a light hearted topic. Yet, with the rise of influenza cases during the third wave the newspapers failed to recognize and represent the severity of the situation, as witnessed by their lack of coverage on the subject. Influenza struck fear into the hearts of men and women, fear that was amplified by a medical science that lacked the tools for accurately identifying its victims, treatment, spread, and prevention (Humphries 2008:143). As a result, it is easy to fathom why the disease was considered to be in a battle with humanity; after all, it was a foreign invader against which there was no known defense.

Some headlines linked influenza to germ warfare, using words like “attack,” “foreign,” “victim,” and “fight” and portrayed the epidemic as a battle to be fought and won, of course with casualties. After the defeat of the Germans, which occurred at the end of the second wave, health officials and citizens respectively believed that both influenza and the enemy had been defeated, “Have cornered “Flu” and Trench Fever Germs” (The Hamilton Herald 1919:1). This could explain the lack of influenza related articles on front pages, representing a miscalculation in the possibility of another wave of influenza. Furthermore, articles that discuss influenza describe the epidemic nonchalantly and in the past tense: “Epidemic Has Almost Died Out,” “Hamilton Had Good Record”, “More “Flu” but not enough to cause alarm” (The Hamilton Herald 1919:1). Although the third wave was less severe than the second wave, we do know that influenza

cases had begun to rise again, as reported in the third headline. Thus, citizens could not have been so foolhardy to believe that the epidemic had ended. They were living in the midst of the third wave on the ground and experiencing the increase in influenza “attacks”. While the media relished the defeat of the Germans and influenza, citizens continued to experience deaths from the disease. The battle had been won abroad but not at home and doctors and nurses continued their work in the cities.

Illnesses are understood as metaphors (Sontag 1979:5). Diseases that mystified nineteenth-century physicians, such as tuberculosis, became imbued with meaning associated with war, meanings that became amplified in the media context. As Martin notes, “the media coverage of the immune system operates largely in terms of the image of the body at war” (Martin 1994:62). The militarization of illness became more prevalent with the advent of microbiology and the identification of bacteria at the end of the nineteenth century (Sontag 1989:9). Sontag notes that illness was also metaphorically transformed into an individual’s moral character, “making it an expression of the inner self” (1979:47). Consequently, medical terminology adopted similar methods of description, speaking of the germ or tumor as an alien enemy, and battles that ensue within the bodies of the ill. As noted by Sontag, “It is hardly possible to take up one’s residence in the kingdom of the ill unprejudiced by the lurid metaphors with which it has been landscaped” (1979:4). Sontag objects wholly to the usage of such metaphors because such metaphors stigmatize the sick.

In the case of influenza in Hamilton, this research suggests that newspaper articles did not stigmatize people suffering with influenza; rather, articles on the subject reflected positive attitudes toward them, similar to those seen on soldier memorials. As already noted, the epidemic was depicted as a battle, with the disease as the enemy and the sick as the victim. These descriptions are reminiscent of soldiers dying in war. Byerly (2005:179-180) comments on American soldiers’ cemeteries in France, noting that there were no differences in the memorialization or tombstones of soldiers who died from war or from influenza. Similarly, in Hamilton newspapers there was little to distinguish memorials for dead Canadian soldiers who died from influenza overseas and at home. Notably, there is one article that describes a Hamiltonian nurse, serving overseas, who battled for the sick and wounded and received a medal for her duties and sacrifice. Even though she was a medical officer and not a soldier, her

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memorial parallels that of living soldiers, signifying the importance of duties provided by non-combatants during the epidemic and World War One. This reflects the media and the public opinion of medical staff and their everlasting connections to duty and sacrifice, a similar viewpoint reserved for soldiers.

A Truly Forgotten Pandemic

With the onset of the First World War, health officials worldwide were ill-equipped with the necessary infrastructure or tactics to defend the public against a microbial invader. The influenza epidemic took a large toll of life but left no more lasting marks on bodies that survived infection than the marks left by ailments regularly observed on an annual basis. The censored coverage of post-war politics and other local non-influenza news overshadowed the effects of the third wave, and therefore citizens were misinformed about influenza deaths and cases. The war afar thus raged at home, in the streets, public buildings, and businesses, as seen through bans restricting daily activities and social life, at least during the autumn wave of the influenza pandemic. The daily concern of ordinary people was for their own mortality and the death that surrounded them. The pragmatic mentality of soldiers can be seen in the minds of Hamiltonians who considered the disease to be another enemy or invader. A soldier must fight hard and battle on, for surrender is not an option, and the citizens of Hamilton subscribed to a war mentality regarding influenza. In a time where so many men had been left to rot, the world was forever changed, leaving an eternal impression of the war on those who witnessed such tragedies (Crosby 1989:9). Thus, it is not difficult to understand why influenza was forgotten in the minds of Hamiltonians, or how it became an epidemic lost in history.

Is it over Yet?: The People's Perspective

Katherine Dewar

More 'Flu' But not Enough to Cause Alarm. A number of new cases of "flu" have been reported to the Health Department during the past few days. The officials of the department stated this morning that the cases caused no surprise. They anticipate that there will be some cropping up every day or two for the next few months. No fear is entertained of the recurrence of the epidemic (The Hamilton Herald 1919:1).

It is widely accepted that the third wave of the 1918 influenza pandemic was considerably smaller than the second wave (Taubenberger 2006). As the number of deaths decreased and bans against public gathering were lifted in Hamilton at the end of the second wave, did people feel they had overcome influenza, or was the worst still yet to come? What did the survivors of the second wave of influenza in Hamilton understand about the current state of the influenza epidemic during the third wave?

The purpose of this chapter is to explore the popular public perception of the state of influenza during the third wave of the epidemic. Newspapers distributed in Hamilton from January to April of 1919 reveal what people understood about the status of influenza. Since newspapers were the main form of media at this time, a lot can be learned from reading them. Newspaper articles informed citizens of important occurrences within the city and updated them about different events or important political decisions within Hamilton. Newspapers, therefore, provide a mass of information about what the public was being told about the epidemic, ranging from recommendations from health

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officials to advertisements for remedies. An analysis of flu related articles, advertisements and obituaries provides a sense of what people in Hamilton were being told about what was happening with respect to influenza during the third wave in 1919.

Newspaper Headlines: What Were They Saying?

The way newspapers deliver information influences the reader's knowledge of a given topic. The frequency of articles about influenza, as well as their location within the newspaper, illustrates the importance ascribed to the topic at the time. Articles of higher importance tend to be printed on the front page, where they are likely to get more attention (Utt & Pasternack 1984). Newspaper headlines, moreover, give a sense of what type of message is being relayed because they provide a quick summary of the article. Enough information can often be gleaned from a headline so that the reader need not read further.

The newspaper analysis presented here is based on two major newspapers available in Hamilton in 1919, *The Hamilton Spectator* and *The Hamilton Herald*. The newspapers' choice of topics reveals their stance on influenza at the time. In order to determine what messages were most prevalent in these two newspapers, I classified articles that mention influenza into four groups: positive, negative, neutral, or flu reports (Figure 18.1). Positive articles suggest influenza is dying out. Negative articles suggest that influenza is still prominent or getting worse. Neutral articles indicate that flu is neither on the rise, nor disappearing. Flu reports are articles that report cases of flu or report deaths (excluding obituaries).

Although the topic of articles, their frequency and location are all contributors to the overall perception of the state of influenza, the headlines themselves tell a story on their own. The use of language and choice of words within headlines contribute to people's understanding of influenza and what was happening at the time, without them having to really read the newspaper at all. Articles that report statistics about the flu and use the past tense, for instance, convey the sense that the influenza epidemic has ended. A case in point is found in a front page headline from *The Hamilton Herald* which states that "Hamilton Had Good Record—Fewer deaths from 'Flu' than in other cities" (*The Hamilton Herald* 1919:1). Other articles use key words that engender a sense that the epidemic was no longer worth worrying about. Words like "disappeared", "died

out”, and “declining” are all descriptors of influenza found in Hamilton newspaper headlines.

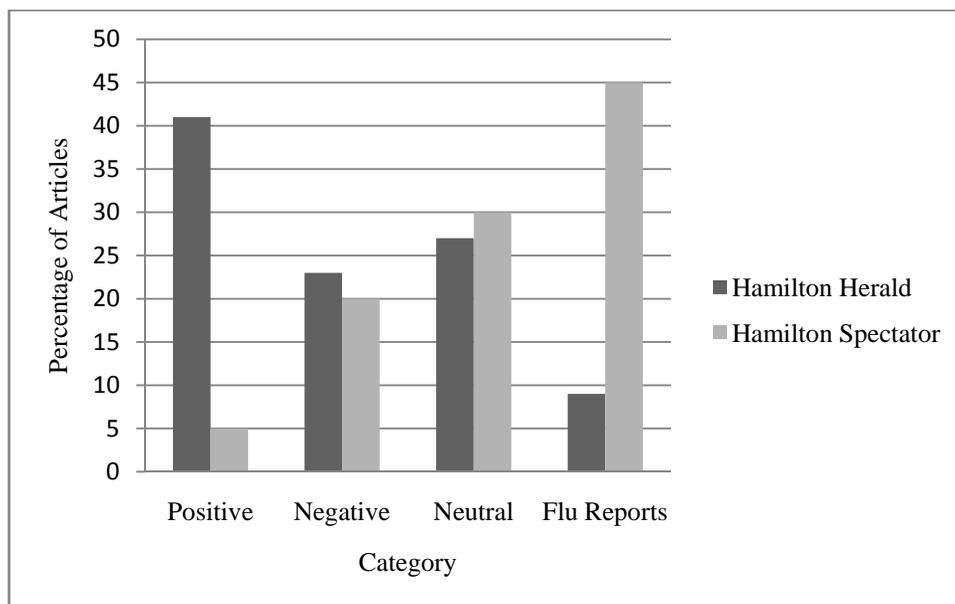


Figure 18.1: Distribution of Newspaper Headlines in The Hamilton Herald and The Hamilton Spectator between January and April of 1919.

The placement of an article within a newspaper indicates its level of importance. An analysis of The Hamilton Herald and The Hamilton Spectator shows that 73% of influenza-related articles that suggest the epidemic had ended occurred on the front page. Twenty-five percent of the articles that implied influenza was still prevalent appeared on the front page; in contrast, only 19% of the neutral articles were placed on the front page.

On the assumption that most people were unlikely to have read more than one newspaper, it is important to consider how each newspaper represented influenza within its publication. Analysis of the placement of articles in The Hamilton Herald revealed that 100% of articles that suggested influenza was abating (positive) were found on the first page of the newspaper. Articles from the

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Hamilton Herald that fall into the negative category, reporting that influenza was still present or on the rise, only appeared on the front page 50% of the time.

In contrast, The Hamilton Spectator published only 50% of its articles indicating that influenza was coming to an end (positive) on the front page. In other words, The Hamilton Herald conveyed a more optimistic view of the epidemic. It was common to see headlines from The Hamilton Herald that explicitly suggested influenza was no longer a great concern. Early into the third wave of influenza The Hamilton Herald published an article on the front page entitled “Little ‘Flu’ Now- Epidemic has Almost Died Out” (The Hamilton Herald 1919:1).

In The Hamilton Spectator, however, articles which evoked fear or suggested that there was little sign of the epidemic outnumbered articles that reported that it was abating. Furthermore, The Hamilton Spectator published positive reports in a more subtle manner than The Hamilton Herald. For example, two days after The Hamilton Herald stated that the epidemic was declining in Hamilton, The Hamilton Spectator published a short untitled article that contained the same information (The Hamilton Spectator 1919:1). Although this particular article was placed on the front page, the fact that it was not given a headline suggests that it was not considered to be an important news piece. In other words, it would seem that The Hamilton Spectator was cautious in its reporting on influenza. That said, it published more warnings about recurrences of influenza than the other newspaper and regularly provided its readers with updates from the Hamilton Board of Health. These reports were primarily categorized as negative articles, as their purpose was usually to advise citizens to proceed with caution and their headlines were alarming, likely lessening any sense that the epidemic was over.

These different representations of the epidemic show how media and editorial decisions may have influenced newspaper readers’ ideas about the progress of the influenza epidemic during the third wave. People who read The Hamilton Herald would have been more inclined to believe that the situation was improving, while Hamilton Spectator subscribers were probably more apprehensive. The Hamilton Spectator often informed readers of the state of influenza in other cities and frequently addressed issues and decisions made by the board of health. By including articles of this nature, readers of The Hamilton

Spectator were made more aware of epidemic conditions outside of Hamilton, as well as within Hamilton.

The Public's Contribution: Obituaries

Apart from what was being reported in newspapers at the time, another contributor to the public perception of the status of influenza would have been the number of people dying from influenza relative to deaths from other diseases. I conducted an analysis of obituaries and reports of deaths in the newspapers in order to explore this facet of news on the epidemic. Since obituaries report deaths within the community, are written by the citizens themselves, and are widely available to the public, they convey common ideas about influenza and other diseases prevalent at the time. Obituaries were submissions written by members of the general public and therefore express a sense of ordinary people's view of the bigger picture of the epidemic. Although most obituaries omit information on causes of death, they occasionally give some indication of sickness. Some indicate the length of time the individual was ill and some actually state the disease causing death. Analysis of obituaries presented here was restricted to The Hamilton Herald; all obituaries were recorded and categorized. An obituary that stated the cause of death as influenza or pneumonia was considered an influenza-related death (Figure 18.2).

	Hamilton Herald			Hamilton Spectator		
	Articles		Obituaries	Articles		Advertisements
	+	-		+	-	
January	3	6	12 %	6	3	36
February	2	1	8 %	0	8	42
March	1	1	12 %	0	2	30
April	1	1	13 %	2	1	10

Table 18.2: Articles, Obituaries, and Advertisements in The Hamilton Herald and The Hamilton Spectator between January and April, 1919.

Obituaries may not be an accurate representation of what was killing people at this time due to the fact that not all obituaries reported the cause of death, and not every person who died had an obituary published in The Hamilton

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Herald. The representations of death within the obituaries nevertheless would have influenced the reader's perception of what was killing people. Figure 18.2 shows the percentage of obituaries that identified influenza and pneumonia as the disease causing death. During the third wave in Hamilton, only 11% of obituaries in The Hamilton Herald were identified as being epidemic related. Since the majority of obituaries did not involve influenza or pneumonia, it is likely that readers of this newspaper would have believed that the epidemic was no longer on the rise.

In addition to obituaries, some local deaths were mentioned within an article on the subject of influenza. Articles commonly mention a recrudescence of the disease or report deaths. The Hamilton Spectator published a significant number of articles of this nature (54%) in comparison to The Hamilton Herald (10%). In other words, articles that appeared to be positive – in that their message was that influenza was on the decline – sometimes contained elements that told a different story.

Advertisements: What was Selling?

Advertisements constitute still another major contributor to the public's understanding of influenza during the third wave. In order to evaluate the public perception of influenza based on advertisements, the number of epidemic related advertisements in relation to other advertisements was assessed for The Hamilton Spectator between January and April, 1919 (Figure 18.2). Each advertisement was assigned to one of the following categories; clothing, food, health and drugs, influenza, and other. As Figure 18.2 shows, the number of advertisements associated with influenza remained approximately the same between January and March, 1919. They accounted for an average of 5 % of all advertisements. This rate dropped significantly in April, when only 0.13% of advertisements were related to influenza.

The Hamilton Spectator advertisements provide a gauge of how life in Hamilton was returning to normal during the third wave. Large advertisements promoting clothing or furniture sales often took up an entire page. Advertisements of treats for children, entertainment venues, and cooking products filled the pages of the newspaper. The majority of influenza related advertisements did not appear to be alarming. They were often smaller than the rest and were advertised to cure

influenza among other ailments. One advertisement in particular gives readers the sense that the epidemic was over by titling their advertisement “After Influenza” (The Hamilton Spectator 1919:7). As an endorsement for Dr. Hood’s Sarsparilla and Hood’s Pills, the advertisement claims to be a restorative treatment. With products advertising treatments for individuals after influenza, readers would have been given the impression that the presence of influenza was decreasing.

Influenza-related advertisements were always outnumbered by other health related endorsements. This suggests that other health conditions, such as rheumatism, coughs and headaches were just as important, if not more important, at the time. It is also interesting to note that over time a product that had been originally advertised as a remedy for influenza began to be advertised as a remedy for other ailments. For example, “Horlick’s Malt Milk — Relief for Influenza” (The Hamilton Spectator 1919:14) was advertised daily in The Hamilton Spectator from 2 January to 11 March, 1919. After 11 March, the advertisement appeared occasionally, however it was no longer advertised as an influenza remedy. On 20 March, 1919, Horlick’s Malt Milk was advertised for invalids (The Hamilton Spectator 1919:13) and on 25 March, it was advertised as a safe diet supplement for infants (Hamilton Spectator 1919:2). A similar trend can be observed for advertisements for Radway Ready Relief. Originally advertised as offering “prompt relief of influenza” (The Hamilton Spectator 1919:14), by 18 January, 1919 advertisements for this product alternated between offering relief for influenza and rheumatism (The Hamilton Spectator 1919). This shift from advertising for influenza treatments to other conditions is an indicator that the importance of influenza was diminishing during the first four months of 1919.

The Overall Perspective

It appears that although newspapers were reporting on influenza, the importance and slant accorded to the issue varied, depending on the newspaper. Readers of The Hamilton Herald and The Hamilton Spectator would have had different opinions on the current state of influenza within Hamilton during the third wave. The entire newspaper contents, including front page headlines, obituaries and advertisements, would have contributed to the readership’s understanding of the progress of the epidemic.

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Depending on which newspaper a Hamilton resident read, they might have been empowered with a sense of relief that the epidemic had passed, or concern that it was recrudescing. Alternatively, they might have subscribed to the many medications advertised in newspapers, become caught up in articles suggesting there was more to fear from influenza, or they might have been indifferent if they focused on the neutral articles presented in the local news. The reports and advertisements that targeted the influenza epidemic more often consisted of only small portions of the paper, and they were not the main focus or message of the news. This suggests that the majority of survivors from the second wave of influenza were aware of its prevalence during the third wave but they were not panicking or living in fear of death.

“The Man on the Street”: Public Ideas about Influenza

Katie Zazulak

Few medical men in the past month have had either the time or the inclination to give ear to the views put forwards by the ‘man on the street’ on the etiology, pathology, and treatment of influenza, yet some of these views have been entertaining enough (The Medical Press January 1919:xxii).

Illness is imbued with meaning, and the ways in which illness is experienced can teach us a lot about the human condition. The meaning that people attach to illness affects their everyday lives. Examining these meanings allows us to see how people deal with the suffering that is brought on by illness. From this we can also see how cultural values and social relations shape how people understand and monitor their bodies, and how symptoms are labeled and categorized (Kleinman 1988). The main focus of this chapter concerns is on the beliefs held by the residents of Hamilton regarding the origins and transmission of influenza.

During the 1918-19 pandemic, medical professionals failed to pay attention to what the “man on the street” was saying regarding the origins and transmission of influenza. Many commonly held ideas stemmed from the belief that influenza was directly caused by the First World War (The Medical Press 1919:xxii). Rosenberg’s (1992) theory for explaining epidemics helps us understand how Hamiltonians looked to the War to make sense of the epidemic in their midst.

An epidemic is a very frightening thing because a large number of people are overcome by illness and show “similarly alarming and alarmingly similar symptoms” (Rosenberg 1992:293). The fear and anxiety that is created from an

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epidemic creates a need to understand the events that are occurring. Explanations for those events, in turn, reassure the public. The perceptions that are born from these understandings tend to differ with each generation and its cultural setting, which in turn dramatically changes the nature of the understanding from epidemic to epidemic. The climate, sin, and contaminated air or water have all emerged at various points in history as generation-specific efforts to explain infectious disease (Rosenberg 1992:294).

Differences in susceptibility also affect how people think about epidemics. The fact that many infectious diseases affect particular groups in a society more than others often creates the perception that a disease or illness can in fact choose its victims (Rosenberg 1992:296). Unnatural circumstances (such as inadequate ventilation, malnutrition, and crowding) also play a part in the hysteria people may feel. These two elements, contamination and configuration, therefore are brought together to fashion a believable explanation of why some people get sick, and others do not (Rosenberg 1992:298).

A good example of this can be seen in a study conducted by Rudolf Virchow on the Upper Silesian Typhus epidemic in 1848. This epidemic struck members of the working-class Polish community in Prussia harder than any other group. Virchow held the Prussian Government accountable for allowing oppressive working conditions for the Polish workers, conditions that allowed Typhus to spread the way it did (Rosenberg 1992:298-299). He proposed a number of interventions that were political, rather than therapeutic. Such interventions included an increase in education, making Polish an official language of the country, bettering the road systems and decreasing the tax burden to those in a lower social status (Rosenberg 1992:299). Here we see how contamination (typhus) and social structures (working conditions) are linked and explain why Polish workers in Prussia were at greater risk of falling victim to this epidemic than other members of the society.

In ways similar to the epidemic of typhus in Prussia, there are a number of factors that influenced the people of Hamilton's ideas on the origin and contraction of influenza. As is discussed in Chapter 15, advertisements and articles in local newspapers can act as a "window onto our social history" (Pollay 1985:24) and reveal the behaviours, styles and customs employed by the people of certain time periods. This means that we can also extract from these ads ideas about how Hamiltonians understood influenza. Such information, which was

shared by the public in general, would have influenced how ordinary people understood where influenza originated and how it was transmitted. I therefore draw on these resources to determine the meanings attached to influenza by the people of Hamilton.

The Origins of Influenza

Between January and April of 1919, the origin of the influenza pandemic was unknown. Even today it is difficult to locate the origins of epidemics, including the origins of the 1918-19 pandemic, which is still debated (Oxford et al. 2005:941). Without a strong explanation from the medical community about the origins of the “deadly flu” there was considerable speculation about how the epidemic arose in the first place (Billings 2005).

One theory advanced the idea that influenza was a direct result of German biological warfare (Billings 2005). German spies purposefully infecting public areas worldwide with influenza were at the center of this explanation (Cummings 2007). Statements made by military officials strengthened the credibility of this theory, such as the opinion expressed on 17 September, 1919 by Lt. Col. Phillip Doane, head of the Health and Sanitation Section of the Emergency Fleet Corporation. Lt. Col Doane asserted that the epidemic likely originated from German agents coming ashore from U-Boats along many of the world’s coasts: “It would be quite easy for one of these German agents to turn loose influenza germs in a theater or some other place where large numbers of persons are assembled” (Cummings 2007: no page). He reasoned that “The Germans have started epidemics in Europe, and there is no reason why they should be particularly gentle with America.” (Cummings 2007:n.pag.).

Another theory on the origins of influenza comes has its roots in miasmatic theory. This theory dates back to Hippocrates and was the major explanatory model of disease processes before the emergence of germ theory. Miasma theory suggests that contaminated elements of the earth, like soil polluted with waste products, release poisonous substances that rise into the air. These substances are then carried on air currents, causing many of the major disease epidemics today (Bloom 1965:334). In the case of influenza, the epidemic resulted from a poisoning of the atmosphere from gasses used in the First World War, specifically from exploding munitions (Cummings 2007). The use of

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mustard gas generated smoke and fumes (Billings 2005), that were believed to have entered into the atmosphere and diffused worldwide by air currents (The Medical Press 1919:xxii). Influenza was then transmitted when a person inhaled toxic vapors carried on currents of air (Cummings 2007). It is estimated that 12,000 tons of mustard gas was used during the First World War, along with thousands of respiratory irritants such as chlorine, phosgene and twenty-three other gasses, most of which are mutagenic (Oxford et al. 2005:943). It is still unknown what affects these gasses had on the environment as a whole. There were other theories that identified poisonous gasses as the origin of the 1918-19 epidemic. One such theory is known as the cadaveric theory.

The cadaveric theory stated that the poisonous gasses responsible for influenza infection originated in the large number of dead bodies left in the battle zones of the war. These gasses emanated from the bodies, contaminating the air. Influenza was contracted when a victim breathed in this contaminated air. Another version of the cadaveric theory made use of fish as an intermediary. Dead bodies left behind from the war lined the seabeds around the coast of North America, the poison from which infected the fish that fed on them. Influenza was transmitted to the living population when the infected fish were eaten. As a result fish consumption became suddenly unpopular during 1919 (The Medical Press 1919:xxii).

To other minds, the origin of the epidemic was rooted in more mundane events. Many thought that influenza originated from the war rations, particularly bread (The Medical Press 1919:xxii). Stagnant air, coal dust, fleas, distemper in cats and dogs, and dirty dishwater were among the day-to-day occurrences blamed for the epidemic (Cummings 2007). Without clear direction from medical authorities – who also were unable to explain what was causing previously healthy people to sicken – the people of Hamilton were left to draw their own conclusions about the cause of the influenza epidemic. People were similarly unsure about how influenza was contracted.

Contracting Influenza

Newspapers are a rich source of information on beliefs about the ways in which influenza could be contracted. During the 1918-19 pandemic, their pages were full of advertisements pushing the latest influenza treatment. An advertisement in

the Hamilton Spectator for Dr. Pierce's Pleasant Pellets on 11 March, 1919, for example, blamed the spring rains for influenza. The advertisement emphasizes that this type of weather is responsible for the onset of the disease (The Hamilton Spectator 1919). Another advertisement for the product on 20 March, 1919 states that influenza was the result of getting one's feet wet, or moving rapidly from hot to cold rooms. This ad also points to a humoral understanding of influenza contraction. The humoral system sees the body as being composed of four humors: blood, phlegm, yellow bile and black bile. Each of these humors has its own characteristics and mirror dichotomies of wet, dry, hot, and cold. Blood is attributed to heat and moisture, phlegm to cold and moisture, yellow bile to heat and dry and black bile to cold and dry. Good health is achieved once all of these humors are in balance but illness occurs when an unbalance of one humor occurs (Foster 1979:17). Aspects of this system are evident in this ad as it points to the interior of the body as the source of influenza, which could be caused by stagnant blood, constipation or biliousness (The Hamilton Spectator 1919).

Other advertisements blamed poor food and undernourishment as a cause of the epidemic. An article for "Shredded Wheat" in the Hamilton Spectator on 26 March, 1919 states that the main cause of epidemic disease is under-nourishment. Another article for the same product appearing on 29 March, 1919 added poor food to its list of causes of disease and states "When the door of Food Folly is left open Disease stalks in" (The Hamilton Spectator 1919). In addition to newspaper advertisements, many editorials and articles presented ideas about how influenza was contracted.

One such article, published in The Hamilton Spectator, articulated the belief that influenza was caused by "the cimex lectular, or the common bed bug" (The Hamilton Spectator 1919). While the article states that this idea may be considered absurd, the parasite's "mean nature" made it capable of almost anything (The Hamilton Spectator 1919). Surprising though it may seem, even babies came to be viewed as potential sources of influenza.

In the Hamilton Spectator on 8 February, 1919 an article appeared called "Kissing the Baby". In this article, it was suggested that kissing a baby was a "Dangerous practice that should not be permitted" (The Hamilton Spectator 1919). People were warned to avoid kissing babies as this was a surefire way to escape influenza. According to the article, this idea was strongly promoted by female hygiene leaders. Here we see an application of domestic science to help

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explain the epidemic. Domestic science was a creation of the nineteenth century. It saw the integration of a bacteriological perspective into the chores of the everyday housewife. Science suggested that the domestic world had a vital role to play in the fight against disease, codifying the knowledge of sanitary principles into a quasi-religious code. The parallel made between sanitary practices and religion shows the importance of women's role in the discourse of disease prevention. Scientific principles were soon applied to women's traditional sphere by the 1890s and embodied the basis of this new science. The most popular way in which the doctrine of this science was disseminated was through various volunteer networks (Tomes 1998). Garbage and refuse were also seen as sources of infection with influenza. So strong was this belief that many garbage men of the time simply covered up the mounting piles of garbage with dirt (Cummings 2007).

A cadaveric theory was also proposed to explain how influenza was contracted. Many believed that influenza could be contracted from the bodies of those who had died from the illness. As a result, there was an increase in the practice of embalming. Other physical ailments, such as nervous and physical exhaustion, were viewed to be some of the primary ways in which influenza was contracted (Cummings 2007).

Public Understandings of Influenza

Like the people affected by the 1848 typhus outbreak in Prussia, the people of Hamilton found themselves in an unusual set of circumstances. The First World War had just ended, leaving much of the landscape "polluted" and a majority of the world in ruins. Influenza, moreover, had the greatest minds of the medical community stumped (Cummings 2007), leaving the public without a feasible explanation of what influenza was and why it took the toll it did, especially among young men and women in the prime of life. The elements of contamination and configuration were clearly at work, but no one could explain how. The public was left to rely on explanations contained in ads, newspaper articles, and word of mouth.

Many of the newspaper ads and articles were, and had been for some time, dominated by information on the war and military effort. As such, we see that several explanations for influenza were linked in some way to the war, whether

through the rotting bodies of soldiers on seabeds or on battlefields (The Medical Press 1919) or as a result of biological warfare (Cummins 2007). Explanations for influenza that came from military sources, moreover, would have been considered authoritative, lending credence to those theories.

The ads and articles published in newspapers occasionally created the illusion of medical authority. In other instances, their veracity was alleged to be supported by other authoritative sources, such as female leaders in the hygiene movement. These theories held by the “man on the street” in 1918-19 should not be written off as “entertaining enough”, as they were by The Medical Press (The Medical Press 1919:xxii). As Rosenberg (1992) states, the understandings of epidemics differ from generation to generation and according to cultural settings. We should therefore use the perceptions of the people of Hamilton on the origin and contraction of influenza as a tool for comparison as to how other generations have explained similar epidemics.

The Third Wave in the Hearts and Minds of Hamiltonians

Brett R. Cuthbertson

“...physical disease somehow tends to leave a lasting impression on the organism so that even after recovery, the individual's(sic) resistance to anger reactions and possibly to fear reactions is permanently lowered” (Landis 1936:585).

The third wave of the 1918-19 influenza pandemic has never been documented in the Hamilton-Wentworth region. Throughout the course of this volume, we have discussed many important aspects of the social, medical, and governmental responses to the influenza pandemic. There is little doubt that the third wave of the pandemic was less severe than the previous two, however, that does not lessen its impact on society. Individuals in Hamilton had experienced months of fear, as the “Spanish Flu” infected every facet of life. It is the human element that must be explored. There are undoubtedly medical and scientific advances made during a pandemic, however, the social toll on individuals can also be great (Stein 1990).

The individual experiences of people living in Hamilton at the time were diverse. However, there are certain psychological phenomena that are nearly universal to all people thrust into particular types of situations. Anxiety disorders, dissociation, and post-traumatic stress disorder are a few of the well-documented results of a pandemic (Lettinga 2002). Feelings of helplessness and exhaustion are not readily obvious in any society, instead, they require interpretation. Individual experience is not well documented for the 1918-19 pandemic. Some of the broad social dynamics of the period are reflected in the media. However, media can easily misrepresent the facts (Eveland & Shah 2003). Disregarding the

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severity of the outbreak, fear-mongering or omissions of information in the media are both aspects that reflect how a society understands and represents the pandemic. From the psychological model we construct of Hamiltonians at the time, we can better understand how they felt and responded to influenza. Moreover, we can understand how the pandemic itself shaped human actions. This period will be explored through a comparison of newspaper reports and death records, using a social psychological-framework.

Stress, Uncertainty, and Trauma

Traumatic circumstances such as pandemics, warfare, and endemic social instability can have far-reaching effects on peoples' psyches. The third wave of the 1918 influenza pandemic is known to have been smaller than the previous two waves. However, this does not lessen its importance in psychological terms. To better contextualize the period, the preceding two waves of the influenza are first discussed.

The first and second waves of the 1918 influenza pandemic are known to have quickly spread to become global killers. It is estimated that anywhere from 21.5 to 100 million people may have died from influenza, or from complications brought about by influenza (Johnson & Mueller 2002). Surrounded by death (Solomon 2002), and massive civil response during the second wave, the people of Hamilton bore witness to many public building closures, and an excess of deaths caused by influenza. Such circumstances can place the human psyche under great amounts of stress, which, on a long enough timeline, can have a substantial impact on behavior. According to contemporary psychological theory, people exposed to a long-lived stressor often form dissociative and anxiety disorders (Folkman & Moskowitz 2000).

These disorders form as a response to the fear of uncertainty and death that surround the individual. Dissociative disorders serve to form a psychological buffer between the person and their surroundings. In many cases, these disorders manifest themselves as though there is no stressor whatsoever, and daily life continues as usual. Conversely, dissociative disorders may take the form of careless or reckless behavior. In a situation such as pandemic, individuals may feel as though they have been under such stress and anxiety that they grow restless, and want to return to normalcy.

One of the most prominent disorders arising during times of stress is Post-Traumatic Stress Disorder (PTSD). In recent years, PTSD has gained quite a bit of notoriety through the media, specifically pertaining to war veterans. However, any traumatic experience involving helplessness and loss can easily serve to form PTSD. A noteworthy feature of PTSD is that, diagnostically, it must persist for a minimum of several months following the primary traumatic experience, according to the rubric of modern psychology, the Diagnostic and Statistical Manual (American Psychiatric Association 2000). Given the severity and widespread nature of the second wave of the influenza, the third wave during the winter of 1919 is the best time to search for evidence of post-traumatic stress.

Newspaper Headline Analysis

I examined all headlines from three newspaper sources: The Dundas Star, The Hamilton Herald, and The Hamilton Spectator for the period 1 January to 30 April, 1919. Each newspaper article was evaluated by two primary criteria: How the article represents influenza; and the accuracy of these representations compared with morbidity and mortality statistics.

The Toll of the Third Wave

The weekly deaths from influenza and pneumonia from the Hamilton Division of Wentworth County are depicted in Figure 20.1. Difficulties in diagnosing the precise cause of death can arise as pneumonia often afflicts patients at the same time as influenza (Noymer 2008).

As Figure 20.1 indicates, 227 individuals died from influenza and pneumonia during the four month period of the third wave. During this period, the peak in mortality occurred during the last week of February through the first few weeks of March. It is during this specific timeframe that the most information regarding social responses can be taken into account.

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Making Sense of the Newspapers

The analysis of newspaper headlines is a difficult and necessarily subjective task. In order to compare newspaper articles to death records. I quantified the articles pertaining to influenza.

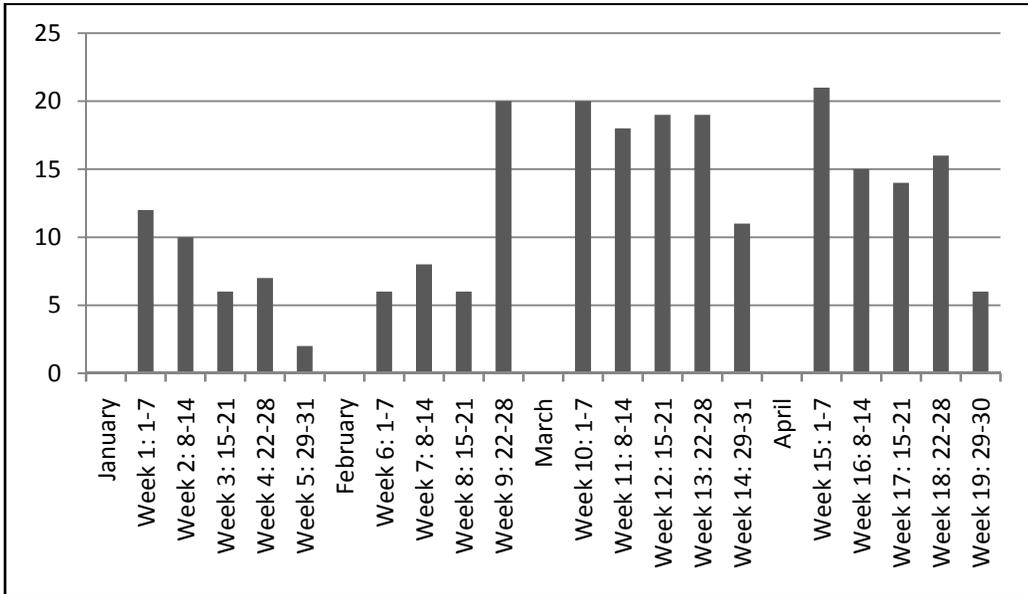


Figure 20.1: Deaths Caused by Influenza and Pneumonia from 1 January to 30 April, 1919, Wentworth County (Ontario Death Registry 1919).

Once divided into weeks, articles were then reviewed for their content. Articles were subdivided into three categories: Negative (articles which subjected to “fear mongering”) and assigned a value of negative one; neutral or objective articles were assigned a value of zero; and articles which were positive about the future were given a positive score of one. The scores of the articles were totalled, giving an overall rating for the articles that appeared that week.

Psychological Trauma

	The Hamilton Herald	The Hamilton Spectator	The Dundas Star
January	-1	-8	1
Week 1: 1-7	1	0	1
Week 2: 8-14	0	-3	-
Week 3: 15-21	-2	-2	0
Week 4: 22-28	-2	-3	-
Week 5: 29-31	2	0	-
February	-1	-7	-2
Week 6: 1-7	0	0	-1
Week 7: 8-14	-1	-3	-
Week 8: 15-21	-	-1	-
Week 9: 22-28	-	-2	-1
March	-1	9	-4
Week 10: 1-7	-1	3	-2
Week 11: 8-14	-1	1	-1
Week 12: 15-21	-	1	-1
Week 13: 22-28	1	2	-
Week 14: 29-31	-	4	-
April	-1	0	1
Week 15: 1-7	-1	1	1
Week 16: 8-14	-	-1	-1
Week 17: 15-21	-	-	=
Week 18: 22-28	-	-	1
Week 19: 29-30	-	-	-
Total:	-4	-4	-4

Figure 20.2: Relative Ratings of Influenza Headlines, 1 January to 30 April, 1919.

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As can be seen by the scores in Figure 20.2, newspapers took two primary responses to the social situation with influenza – aversion from influenza, or focusing on the lighter side of the pandemic. It is important to note, however, that the Hamilton Spectator had the largest circulation, and in all cases the positive scores are the result of advertisements selling remedies for influenza. Regardless of the validity of these claims, they certainly could have eased the minds of the public if they believed the remedies would work (Snyder 2002).

All three newspapers report the most negative news prior to the largest death toll of the third wave. During March, which sustained the highest mortality rate, the newspapers reported the best news. Similarly, advertisements aimed at selling remedies and prevention techniques also soared in frequency.

The Juxtaposition of Behaviour and Facts

The most negative news stories were reported in February, one month before the worst point of the third wave which had relatively positive articles, which is in keeping with dissociation from the actual events. Dissociative behaviours can be thought of as the way the mind can cope with stresses or traumas which might otherwise be overwhelming. By focusing negative attention on influenza during one of the least virulent months, a certain preoccupation with the pandemic becomes clear. The notable presence of positive articles during the most deadly month of the flu outbreak is an example of how an obsession with a stressful event can cause many people to disengage with their surroundings (Wright & Loftus 1999). Though March had the highest death toll, newspapers reported the most positive news, and articles selling remedies and preventive measures grew in frequency. These features of reporting the news are strongly indicative of avoidance. I suggest that the absence of articles referring to the influenza pandemic during April is consistent with attempts to forget the past incidences of disease. Avoidance and dissociation play primary roles in constructing a psychological profile of Hamilton during the pandemic. These features suggest that the public was exhausted, and perhaps contemplating the possibility of another flu pandemic. Furthermore, avoidance of the topic following the bulk of fatalities implies that there was a significant amount of post-traumatic stress felt by the community at large. It is important to note that the relative stress of the population is not as important as the stress individuals feel. The stress which the

Hamilton people underwent was relative, and compared to their previous experiences. Though there were regional differences in the virulence of the pandemic, these stressors play a negligible role is psychological stressors of the time.

Putting it All Together

Understanding the social atmosphere of the times is a critical dimension to fully understanding the effect of the 1918 influenza pandemic in Hamilton. Not only did the psyche of the people during the pandemic affect their own lives, but their experiences became that of Hamilton as a whole. The social paradigms, concerns, and fears of the individual can be extrapolated to be representative of the broader social dynamics as a whole. The development of social phobias (Heimer 1988) brought about through exposure to the previous influenza wave, when coupled with a stronger immune-response by the populace as a whole (brought about through deaths and previous exposure) could have significantly decreased the potential spread of the H1N1 virus. The largest contributing factor to the mitigation and prevention of the virus's spread comes from the social response. Though from the outset, psychological stress appears to be no more than an acute response to a traumatic experience, it can also serve to help the people.

Mounting social phobia, dissociative feelings, and post-traumatic stress are all factors that contributed to the return to daily life and some degree of regularity in Hamilton. Given the shortcomings of medical treatment at the time, the primary factor preventing the large-scale spread of the virus comes from the lack of social interaction. Prohibition of social gatherings during the second wave served to prevent the gross effects of the virus, but individuals shying away from crowds and seeking out any means by which they could avoid the flu, was a pivotal point in curbing the spread of the disease. Moreover, those people feeling dissociated from the situation, a kind of exhaustion from stress, returned to their typical behaviours, such as work, school, and religious affiliations (Yung & Keonig 2006) which had been suspended during the second wave of the pandemic.

Obituaries and Memorialization during a Pandemic

Chih Chen

“Mrs. Abraham was stricken with the dreaded disease on Friday, Dec 27, and although every medical aid was given, yet without avail in spite of loving hands and two nurses and doctor’s care, the bright and useful life ended on Wednesday morning, January 8” (The Hamilton Spectator 1919:27).

The third wave is often considered the least severe in the 1918-19 pandemic (Duncan 2003:16). It is depicted as a time when influenza-related illnesses were on the decline, stringent health policies were loosened, and death rates steadily tapered off. By January 1919, health workers had witnessed the worst of the pandemic and individuals had long been made aware that the deadly disease was among them. Contingent health policies were not developed in response to the sudden rise in influenza deaths experienced in March, 1919 and even the closing of schools at the emergence of influenza cases had been momentarily phased out (The Hamilton Spectator 1919:1). If influenza had in fact continued to claim lives, its paucity of coverage in the media seems to indicate that its localized severity was negligible at best. Indeed, it did appear that the epidemic was over.

From January to April, newspaper coverage shifted away from influenza toward long-term municipal problems, such as election tensions, unemployment, and war pensions as well as emerging issues, such as the introduction of daylight savings time. One explanation for this shift is that local papers were reacting to the public’s growing sense of compassion fatigue, the documented tendency to become jaded and indifferent toward extended news coverage of epidemics, famines, wars, and natural catastrophes (Moeller 1999).

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The desensitization that follows compassion fatigue diminishes the public's empathy for victims of disastrous circumstances. "It takes more and more dramatic coverage to elicit the same level of sympathy as the last catastrophe" (Moeller 1999:14). For this reason, media outlets are hard pressed to follow a prolonged calamity to its end. They are unable to retain an audience if their content becomes predictable, for they are a source of public entertainment even more than they accurately convey the truth of the times. Reportable events rarely become increasingly more severe in *new ways* over time. Thus there is little enthusiasm for documenting the resurgence of an event that resonates too closely to a previously reported tragedy. Such stories fail to appeal to an audience's thirst for the novel, and often it is in the media's interest to literally move on with the news.

The systematic study of compassion fatigue was not developed until the late twentieth century and care must be taken before imposing modern theories based on modern evidence upon historical data; nonetheless, The Hamilton Spectator does appear to have decided to curtail its reports on influenza. Despite the fact that it was one of the deadliest pandemics in history, by the third wave, Spanish Influenza had ceased to be interesting or new to the majority of residents in Hamilton. If this is the case, how then did the deaths caused by influenza register with people whose livelihoods did not revolve around influenza?

The dearth of attention paid to everyday conditions from January to April necessitates a look beyond headlines in order to better understand the feelings, attitudes and opinions that surrounded the pandemic. After the mass reporting of death tallies and countrywide statistics subsided, obituaries became one of the few consistent sources of information on the influenza pandemic. Though inherently selective and biased toward the more prosperous segments of Hamilton society, obituaries nonetheless reflect valuable cultural information about norms that while not shared by all members of society, act upon and affect the lives of everyone. Thus, this chapter focuses on the individualization of death and proceeds from the perspective that, as purchased social announcements, obituaries both reflect and actively reinforce socially contingent values, norms and beliefs.

Searching for Influenza

Obituaries used in this analysis were extracted from the Hamilton Spectator, where daily obituaries from the "Deaths and Funerals" column were recorded

from January to April 1919. Funerals themselves were not recorded. Obituaries that explicitly stated Spanish Influenza as the cause of death or as the illness that contributed to another cause of death were transcribed in their entirety. The details for nonspecific obituaries (e.g. “died of short illness”) and non-influenza entries were only partially transcribed. These details included, whenever available, the description of the illness, the age of the individual, his or her place of residence, and occupation and close kin when included. Both influenza and pneumonia deaths and obituaries are included in this discussion, and reference to influenza deaths implies both influenza and pneumonia deaths.

These records were compared to the Ontario Registered Deaths for Wentworth County (Government of Ontario 1918-19:n.pag.). The goal of this task was to find out how many nonspecific cases found in the obituaries were actually influenza deaths. The explicit influenza deaths were then compared to the total number of influenza deaths represented in obituaries.

Early Obituaries and the Commemoration of Virtue

As cultural products, “obituaries make sense of death and dying through available perspectives” (Phillips 2007:326). These brief biographies of decedents are not only elaborated in order to celebrate the life that once was; they also reinforce societal values that determine the qualities that make any life a success, one that is worth remembering.

Phillips’ 2007 study of the changing nature of written memorialization in the United States from 1899 to 1999 is of particular interest to the influenza obituaries in Hamilton of 1919. Phillips argues that during the twentieth century the control of human life (and death) shifted from being the domain of God and nature to become a matter of individual authority. With this transition came transformations in social conceptions of death, a transformation preserved in the language of obituaries. These forums of public memorialization did not just honour the individual life; they also praised commendable character traits while omitting less desirable ones (Phillips 2007:328).

The enforcement of norms, however, went deeper than commemorating one’s ties to the Church or one’s practice of religious devotion. Obituaries from the early 1900s depicted individuals naturally expressing their religious virtues through everyday actions. Phillips provides a poignant example in the obituary of

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a banker, George Smith, who died at the turn of the nineteenth century: “He had a constant and intense desire to rest, but continued to see his secretary daily, and occupied himself with the management of his property until within a few days of his death” (Phillips 2007:327). Smith’s habits are depicted as direct manifestations of unwavering religious values of duty and endurance that underlie his very character (2007:328). Though his physical body was wrought with illness, his dutifulness spurred him on to fulfill his obligations until his last days.

The acceptance of human mortality also distinguished traditional obituaries from modern ones and the biophysical processes and behaviours that accompany failing health are described. “Although he had recovered almost entirely from the effects of the paralytic stroke, he resisted all attempts of his friends to induce him to leave his room” (Phillips 2007:327). The onset of old age, illness, and the gradual progression towards the cessation of life are publicly elaborated as natural processes in the life course. Though Smith’s endurance and duty to obligation are valorized, it is his acceptance of imminent death that is the true focus of the obituary. This type of “death-affirming” language praises the individual for carrying on regular obligations in spite of illness, a view firmly grounded in the acceptance of God’s plans.

Reorienting Toward the Successes of Life

The ideas of struggle against death and disease familiar to obituaries today were far from central to the language of memorialization. It was not until the period of rapid medical innovation of the mid twentieth century that “death-resistant” rhetoric emerged. With the successful utilization of penicillin and the control over once fatal bacteria (*streptococci*, *staphylococci*, and *pneumococci*), death-resistant metaphors gradually replaced death-affirming language (Phillips 2007:342). Long-accepted ideas about the certainty of death in the face of bacterial infections were renegotiated with the development of antibiotic treatments in the mid twentieth century. The potential of the human life to deteriorate prematurely was no longer inevitable in the way that it had been before the medical application of penicillin. This was a time of profound transition.

By 1959, medical technology had become increasingly entwined with human biology and, in terms of memorialization, the traditional valorization of enduring pain in particular changed significantly. With the development of

medical pain management, physical suffering became a problem that was treated by physicians. As a result, human endurance in the face of illness and pain became devalued in the rhetoric of memorialization (Phillips 2007:329-332). Through time, obituaries focused less on the experience of death and pain and increasingly lauded the successes garnered in life, which had come to be viewed as the true accomplishments of the human condition.

In reality, death-affirming and death-resistant metaphors are not mutually exclusive in their utilization, and commemoration across time has inevitably borrowed from both. Nonetheless, by using Phillips' broad framework as a basic guide, the concepts of death-affirming and death-resistant language can be used to elucidate the attitudes that Hamiltonians held toward the Spanish Influenza.

Obituaries of the 1919 Spanish Influenza

The significance of the influenza obituaries from Hamilton 1919 must be understood in relation to how popular or how important a practice purchasing an obituary was for the families of victims stricken with influenza. Table 21.1 estimates the relative representation of individuals who died from influenza whose deaths were memorialized by obituary.

Influenza Deaths	January	February	March	April
Obituaries in The Hamilton Spectator	27	29	41	35
Wentworth Death Registry	35	37	84	71
Percentage of Influenza Deaths Represented in Obituaries	77.14%	78.38%	48.81%	49.30%

Table 21.1: Percentage of Registered Influenza Deaths Represented in Obituaries, January to April, 1919.

In January, 27 cases of influenza and pneumonia are represented in obituaries out of the total of 35 registered deaths from influenza and pneumonia (77.14%). In February, this proportion rises slightly to 29 of 37 (78.38%). There was a decline in March to 41 of 84 entries (48.81%), and this levels off in April to 35 of 71 (49.30%). The representation of influenza in the public record decreased from more than 75 percent in January to just under 50 percent by April.

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From the numbers alone, it appears that making a public announcement about the death of a loved one was considered to be a priority among most afflicted families during the first half of the third wave. More than 75 percent of influenza fatalities were memorialized. By March and April, fewer than 50 percent of influenza victims were given obituaries even though deaths from influenza had more than doubled from 37 to 84 cases from February to March. This period represents the largest increase in flu cases observed between two consecutive months of the third wave. In spite of the impression that the third wave was a uniform period of disease decline, a period when public concern about its affliction was steadily decreasing, the nuanced relationship between the death toll and public commemoration presents a situation that is more ambiguous.

But, what caused the notable decline in influenza obituaries? The afflicted demographic group, the priority of memorialization, or the practical circumstances around purchasing an obituary must have changed during the latter months of the third wave. Did obituaries become more expensive to purchase? Had the third wave, which compounded the deaths from the previous autumn, so greatly affected Hamilton that as entire families fell ill, deceased loved ones actually lacked the immediate and extended families that normally made obituary arrangements? Or had close family members moved away in hopes of escaping the dread disease? Another possibility is that growing unemployment exacerbated by the deaths of family wage-earners created an economic situation so dire that obituaries became an unaffordable luxury for lower-middle class residents. Investigation of the reasons why the representation of influenza in the obituary record dropped so drastically in March is beyond the scope of this chapter, but it would be a fruitful avenue for future research.

Obituaries Commemorating Influenza Deaths

Comparing the obituaries to registered deaths reveals that most obituaries for individuals who died from influenza do not in fact list influenza as the cause of death (Table 21.2).

In January, less than 30 percent of influenza obituaries explicitly mentioned the disease as the cause of death. In February, this figure dips to about 28 percent, then falling to 24 percent in March. But by April, explicit influenza obituaries nearly double to 49 percent of all flu obituaries. The remaining are

considered “implicit” influenza obituaries because they do not specifically indicate influenza as the cause of death. Among them, there appears to be little commonality in regards to how illness is described. The duration of illness ranges from “illness of one day” (The Hamilton Spectator 1919:19) to “illness of twenty-one weeks” (The Hamilton Spectator 1919:14), with “brief duration,” “several days illness,” and “short illness” being other common descriptors. Roughly 15 percent of influenza obituaries do not mention the existence or duration of sickness at all. These notices seldom list surviving kin or the decedent’s affiliations with the Church, some also excluding address of residence. The most basic obituaries usually indicate the age of the deceased and often mention the time and place of the funeral and interment.

Obituaries	January	February	March	April
Explicitly Stating Influenza as Cause of Death	11	8	10	17
Total Number of Influenza Obituaries	37	29	41	35
Percentage of Explicit Influenza Obituaries	29.73%	27.59%	24.39%	48.57%

Table 21.2: Obituaries Stating Influenza as Cause of Death from January to April 1919.

Language of the Obituaries

Despite the range in length and detail of the obituary record, the framework laid out by Phillips (2007) is a convenient point of departure for analysis. In total, there are 21 obituaries in The Hamilton Spectator from January to April 1919 that explicitly list influenza as the cause of death. By compiling the most frequently found characteristics of individual obituaries that concerned the perceptions of influenza, life and death, it was possible to infer the ideas and beliefs that circulated among individuals in the midst of the third wave in Hamilton.

The most notable recurring characteristic of the obituaries is the valourization of the deceased’s commitment to large circles of friends, to family life, and to community work for the Church. In addition to this rendering of an accomplished life, the language of obituary tends to juxtapose extremely lively, bright and energetic descriptions of the deceased against the grave event of his or her death. One rich example is the memorialization of Mrs. George Abraham,

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whose “bright and useful life ended on Wednesday morning, January 8” (The Hamilton Spectator, January 17, 1919:27). She is described as having:

a bright, cheery disposition, and beloved by a large circle of friends. Before her marriage she took an active part in the work of the Baptist Sunday school and mission band Springford, she having the honor of being made a life member of the foreign missionary society (The Hamilton Spectator 1919:28).

The phrase “bright and useful” is used three times to describe her life, the last of which was uttered by the clergyman who conducted services at home and at the cemetery. The persistent evocation of Mrs. Abraham’s bright spirit and the lengthy dedication to her popularity enforce how untimely her death was and how much suffering it inflicted on the numerous individuals affected by it. The unusually elaborate character of her obituary is accented by additional comments on the “impressiveness” of the funeral procession and a list of the musical band members. These colourful details read more akin to the description of a meeting or celebration than a death notice. Perhaps it reflects the attempt of an evidently prosperous family to endow the memorialization with the same vibrant spirit that the deceased had once possessed in life, as her last impression upon society.

The notion of death unexpected is another frequent feature. Despite the fact that Stanley Spera had been ill for seven weeks, “it was thought that he would recover” (The Hamilton Spectator 1919:19). Similarly, Mrs. Emmet Twiss’ death “came suddenly, owing to the resulting weakness” (The Hamilton Spectator 1919:n.pag.). The unanticipated nature of death is commonly expressed in the phrases, “the community has sustained a great shock and loss in the sudden and untimely death” (The Hamilton Spectator 1919:27), and “it will be with great surprise that many friends will read of the death of...” (The Hamilton Spectator 1919:25). Though these remain stock formulations, their repeated usage suggests that Spanish influenza deaths continued to be met with stunned distress.

There is lastly a general tendency to include information on surviving family members also afflicted with the flu. James Arnold’s “death is made doubly sad by the fact that his wife, Mrs. Florence Madge Arnold, and his three daughters Misses Grace, Eleanor and Elsie, are all critically ill with influenza, and will be unable to attend the funeral” (The Hamilton Spectator 1919:14).

Cornelius Fray “leaves a wife and three small children who are at present ill with influenza” (The Hamilton Spectator 1919:27). Arthur Wilbert Kirby is survived by “his wife, one son... and a daughter... all sick with influenza” (The Hamilton Spectator 1919:14). Within a week of Arthur’s death, his father is memorialized after having suffered four days of the same illness and it is reiterated that “several members of the family are seriously ill” (The Hamilton Spectator 1919:30). This volunteering of information supports existing literature that little if any stigma was attached to the disease. The announcement of family members afflicted with influenza may have been a call to the deceased’s friends, family, and neighbours to volunteer aid, contributions and prayer for the family in need.

Surprisingly, the deaths of frontline workers were rarely memorialized in the obituaries. Miss Louisa Jane Paradine, a trained nurse living in Chicago who had contracted the disease in the course of her duties, was the only health-care worker whose work was memorialized in this fashion (The Hamilton Spectator 1919:16). By virtue of being prominent public figures, the influenza deaths of physicians likely warranted greater attention than typical obituaries could afford.

As advocates and mediators of health, physicians deliver cures, reassure patients, and are assumed to be morally obligated to devote to the recovery of their patients; an expression of this understanding is found in the quote that introduced this chapter. Doctors provide a sense of order by confronting and keeping illness at bay so that ordinary citizens do not have to. Thus their deaths, especially when premature, are not only tragic but are also perceived as minute unravelings of societal order. Dr. L. A. Jones, a prominent house surgeon was given an amply detailed memorialization, wherein many of Phillips’ traditional, death-affirmative obituary characteristics are directly seen.

Deceased was a popular young man, much liked by all who knew him, his genial and unassuming manner and kindly disposition making him a favorite with a large circle of friends, who admired him for the pluck with which he fought years of ill-health, and his uncomplaining demeanor in the face of personal discomfort (The Hamilton Spectator 1919:15).

Dr. L.A. Jones’ noble endurance is exalted, his agreeable and kindly character is highlighted, and it is only with a sense of fortitude that Jones is able to “relinquish the duties of his profession” (The Hamilton Spectator 1919:15) as

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his ailing health forced him to retire. Even as he neared his death, close family retained “hopes of an ultimate complete recovery,” (The Hamilton Spectator 1919:15). Despite his history of illness, his death was a shock to the community.

Coping with Death

Influenza obituaries during the third wave of Hamilton in 1919 embody primarily death-affirming characteristics. Dutifulness and concern for the community are evident in the fact that obituaries acted as public calls for aid from friends and neighbours in the event that an entire family fell ill. Religious virtue was expressed in terms of the practice of devotion and the endurance of long-term social commitment. The apparent shock that surrounded influenza deaths suggests that despite the recent memory of the severe epidemic of 1918, flu fatalities had not become commonplace and they had far from become mundane. Influenza continued to claim victims, and despite the lessened affliction of the disease, those victims’ deaths were mourned as untimely and severe losses to society.

Modern understandings of the Spanish Influenza have often glossed over the elucidation of mechanisms through which people coped with death. The incurring of this deficit has perhaps been a consequence of the sway toward the investigation of how specialists and laypeople treated the disease, and how death tolls fluctuated between cities and through time. Nonetheless, the understanding of death has much to do with both of those preoccupations. The priorities, experiences and lives of the people who survived the pandemic had undoubtedly changed, but the severity of the death toll did not lessen the public’s desire for a return to normalcy; neither did it prepare them any better for the loss of a loved one. They simply continued to live in hopes of seeing the end of influenza.

Economies of Death in the Third Wave

William Lucas

Feb 12 Gertrude Wakeham 31 yrs; Influenza/Labour Pneumonia; Dr. Orr; To 6/0 Heliotrope Covered Casket; Style Shrine Grey base; Outside Case; \$60 for Lining; Hearse and Attendance \$150; Embalming \$12; Grave charge \$15; Ladies Robe; Candles; 6 cabs \$4.50 each \$27.00; 1 car for priest \$4; Total \$214 (Dwyer Funeral Records 1917-19).

During the 1918-19 influenza pandemic in Canada, funerals became “commodities, markers of class, racial, and ethnic distinction. With the commercialization and professionalization of death, the markers of a respectable funeral — an appropriate funeral procession, a hearse, clothing, an elaborate casket and headstone — became consumer products affordable for some and not for others” (Jones 2006:60). Burial records not only provide excellent information on the ways in which people were buried and treated after death (Cannon, 1995), but they also offer a fascinating view of the financial burden of death and the economies that revolved around it in Hamilton in 1919.

For this chapter, I examine funeral records for people who died from influenza and pneumonia in Hamilton in 1919 and ask whether they were treated differently from people who died from other causes, as viewed from their funeral arrangements. In particular, I ask whether there any difference in the cost of burying someone who died from influenza, compared to someone who died from some other cause. To answer these questions I analyze funeral records from the Dwyer Funeral Home and the Blachford and Wray Funeral Home between

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January and April 1919. My analysis builds on previous research by Venus and Persaud (2005) who studied the funeral records for the autumn outbreak (September to December) of the 1918 pandemic in Hamilton. I use an archaeological perspective on the topic, however, and view the funeral records as cultural artifacts that capture the memory of those events (Jones 2007). The records mediate between the past and present. They involve people, actions and material culture to paint a picture of the past, illustrating norms and rituals that were being preformed for the deceased. Historical records make it possible to link the past to the present and to see the present within the past (Olivier 2004).

Funeral Homes in Hamilton in 1919

Figure 22.1 depicts the location of the funeral homes, churches, and cemeteries mentioned in this chapter. The Blachford and Wray funeral home is located in the west end of the city, while the Dwyer funeral home is located in the east. There was another funeral home at the time, the Robinson Funeral Home, which was located in downtown Hamilton but their records are unavailable for study. There were many more churches at the time, but only those mentioned in the funeral records are marked on the map. It is also worth noting that both the Blachford and Wray and Dwyer funeral records list other locations because bodies were shipped for burial to other towns and cities.

Mortuary practices are the “material dimensions of death” and the “backdrop to practices and beliefs” (Dubisch 1989:189). Funeral homes are, in fact, cultural resources that offer a service for a major event in end of life experiences. Funeral homes offered different services to patrons, such as full package services that supported family members during decision making in periods of grief. Such packages often included services such as putting a death notice in the newspaper, ordering a grave and arranging for a priest to preside over the service. Dwyer Funeral Home offered customized services, where a package service could be augmented by additional items, each of which had a specific cost. Blachford and Wray may have offered similar services but there is no information on this in their records.

When planning a burial service, a representative closely related to the deceased would consult with a funeral director to discuss the preparations needed and type of ceremony to be performed. Funeral records therefore constitute

cultural artifacts that record the direct transaction between two or more individuals as they discuss death, the performance of ceremonies, and negotiations of elaborations to the ceremony, such as the addition of flowers, music, or rituals such as a Mass, to accompany the dead. Mortuary practices reveal the process through which the living decide how the dead will be remembered. Funeral directors act as cultural keepers of knowledge about the acceptable practices of death in society. Not only could there be conflicting beliefs about death but also limitations in the services the funeral home provided.

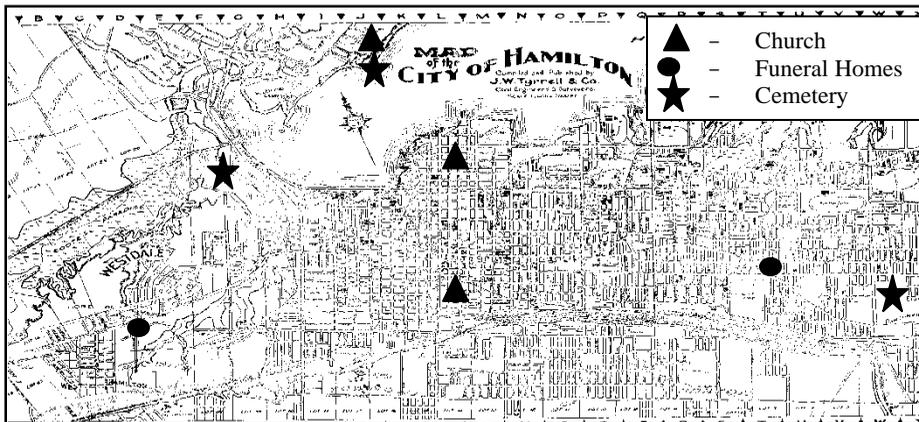


Figure 22.1: Map of Hamilton 1920 (Lloyd Reeds Maps Collection, Mills Memorial Library, McMaster University).

Funerals in Hamilton

There is considerable variation in the funeral services described by the records used in this study. Each funeral is independent of each other but together they show the array of considerations and costs involved in organizing a burial service. Common items include a range of caskets or coffins, types of cloth to cover the casket, attendants and hearses, grave charges, embalming, candles, gloves, death notices, performing a mass, and having a priest preside at the funeral. Not all costs were the same for every individual. For example, attendants and hearse costs were always placed together and the cost varied from \$3 to \$175, with an average of about \$56 (Table 22.5). The two most common destinations for the

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dead were Hamilton Cemetery and Holy Scripture Cemetery. Blachford and Wray has an almost complete record of burial destinations, while the Dwyer funeral records rarely mention them.

The type of ceremony shows considerable variation, in terms of elaboration and cost, depending on the age of the deceased (Table 22.5). Youths received a casket or coffin that was covered with white cloth, while adults usually received caskets covered in black; the most expensive covering was a heliotrope (purple) cloth. The price for an infant burial (under one year) ranged from \$10 to \$94. Some people paid upfront a large amount of money for a funeral, while others bought a large funeral but made multiple smaller payments that were noted in the margins of the funeral record. This suggests that even people who lacked money were willing to pay for an elaborate funeral.

Individuals of higher status or place in society are often treated to elaborate funerals (Cannon 1995). For example, a Reverend passed away in January of 1919; the total cost of his funeral was \$433.90. This included a 6'3" polished oak casket with carved pillars and antique copper handles, a large attendance cost that included 22 rental cars, with an additional car for a bishop fitted out with special vestments and lace. There are also examples of youths receiving more expensive funeral services than adults during this time.

Even though the deceased was brought to a funeral home, sometimes the service was held elsewhere, such as at a chapel (Figure 22.2), at home (Figure 22.3), at the cemetery or at the train station if the deceased was being sent elsewhere for burial. The location of the funeral service influenced the overall cost because more money was needed to pay to transport materials and people to other locations, which added to the cost for renting locations, such as churches. When a church or chapel was rented, the cost for a Mass was often added. In the Blachford and Wray records for January to April of 1919, 39 of 142 (27%) individuals had funerals conducted in a chapel. The most affordable funerals took place at home with 69 out of 142 ceremonies, almost one-half, conducted there. The remaining 34 individuals either never had a funeral because they lived in institutions like the Hamilton Insane Asylum or their bodies were shipped to Chicago, New York, or to other towns in Ontario.

The funeral records for Hamilton show instances where whole families were wiped out either by influenza or pneumonia. In one case a mother and infant died three days apart due to pneumonia (Wright, Chapter 8). In another case a

husband, wife and stillborn child passed away due to pneumonia, dying a few days after each other. As Jones states, “when the epidemic struck, many workers lost income because of their own illness or because they stayed home to care for ill family members. Quite virulently contagious through droplet infection, the flu had a habit of running through entire families. In this way, families temporarily lost all potential sources of income” (2006:61). There are instances in the Dwyer funeral records in which insurance companies, such as City Relief Debt, Life Ind. Co., and Rolling Mills Insurance helped alleviate funeral costs (Rickard, Chapter 12).



Figure 22.2: St. Luke's Anglican Church, Burlington. Location for Jane Emma Stephenson's Funeral on 22 March, 1919 (Hamilton Public Library PreVIEW Online 2010).

Families sometimes had difficulty paying for funerals and tried to reduce the cost. One infant received a free service because the father obtained papers necessary to indicate that the family was eligible for insurance or for social assistance like City Relief Debt. In another instance a father paid \$18.21 for death registration, attendance and a hearse for his premature four day old son but decided to dig the grave himself. Some of the funeral records are virtually empty of information. The empty pages tell just as much about a person's last days as do pages full of details about the deceased. Such empty records are often characteristic of individuals whose place of death or residence was recorded at the Hamilton Insane Asylum or other similar institutions. Ninety-one of the 265

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records were incomplete (Table 22.1). In these cases no one was listed as having paid for the funeral, which suggests the possibility that no next of kin were notified about the death; no funeral date is listed; no destination of the remains was recorded; and no lavish expenses were spent on the burials for these people. This was the fate of people marginalized through inequalities in economic status. As Jones notes, “Poor influenza victims suffered a dehumanizing denial of socially symbolic and communal rituals” (2006:66). Immigrants and widows of newly deceased individuals were particularly affected by funeral costs and are less likely to be represented through regular mortuary practices (Jones, 2006), illustrating the bias toward the representation of individuals of higher status and wealth in death (Cannon 1995), as seen in the elaborate funeral for the Reverend, mentioned above. “Burial was simply less often disrupted for the wealthy, who had the resources to afford inflated funeral expenses and who could avoid a pauper’s burial with its attendant loss of social standing and respectability” (Jones 2006:67).

Funerals for People Who Died from Influenza

For my analysis I partitioned the records from the two funeral homes into similar categories including name, age, sex, date of death, cause of death, place of death, residence address, religious presence, cemetery destination and completeness of records. Each funeral home kept records of different types of information. The Dwyer funeral records provided prices for each service, such as the cost of attendants, embalming, grave charges, death notices, candles and gloves. The Blachford and Wray records provided the exact time of the funeral and noted the presence of a clergyman.

There were 265 funerals recorded from January to April, 1919 that are suitable for analysis. The reader is reminded that this study does not include all deaths from influenza in Hamilton, simply those buried through these two funeral homes. Table 22.1 divides the records into influenza and non-influenza deaths and shows complete versus incomplete records. A record was deemed complete if the name, age, sex, cause of death, date of death, residence, cost, and time of funeral were noted. Influenza and non-influenza deaths were almost equally likely to be complete, showing that there is no particular bias in either category.

	Flu Deaths	% of Total	Non-Flu Deaths	% of Total	Total
Complete Records	34	61	140	67	174
Incomplete Records	22	39	69	33	91
Total	56	100	209	100	265

Table 22.1: Complete versus Incomplete Funeral Records (Dywer Funeral Records 1917-19; Blachford and Wray Funeral Records 1918-20).

Table 22.2 shows the age distribution of funerals for January to April, 1919 and indicates how many were influenza related deaths. To improve the sample size, three age categories were created: youths, including stillborns (age 0-19), prime of life (age 20-49) and golden age (age 50+). There does not appear to be an age-related pattern to the burial treatment of people who died from influenza, largely because of the small sample of influenza related deaths per month. Table 22.3 considers the breakdown of influenza and non-influenza deaths, based on sex. There is little variation in the number of funerals for males and females when cause of death is considered.

Month	Age 0-19				Age 20-49				Age 50+			
	Flu	%	Non-Flu	%	Flu	%	Non-Flu	%	Flu	%	Non-Flu	%
January (60)	1	6	11	17	3	12	18	35	3	25	24	26
February (70)	2	11	17	26	10	38	10	19	3	25	28	31
March (70)	7	39	19	29	8	31	13	25	2	17	21	23
April (65)	8	44	19	29	5	19	11	21	4	33	18	20
Total (265)	18	100	66	100	26	100	52	100	12	100	91	100
Total (265)	84				78				103			

Table 22.2: Age Distributions Influenza and Non-Influenza Deaths (Government of Ontario 1918-19).

Table 22.4 compares the number of days between death and burial. It is interesting to note that the average period between death and burial for influenza and non-influenza deaths is virtually the same. Influenza deaths averaged 2.60 days between the time of death and time of funeral; non influenza related deaths averaged 2.56 days. There are examples of delayed services for both influenza

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and non influenza deaths, although the maximum duration between death and burial was eight days. Delaying a funeral meant that it was necessary to preserve the deceased's body, either by placing it on ice or by embalming it. This would have added to the cost of the burial, which makes it likely that this process would have been more common among prosperous families.

There are several reasons why a funeral might be postponed. In some cases, out of town family members needed time to travel to Hamilton to attend the ceremony; in others, extra time was needed to make the arrangements because another member in the family had died recently. In the latter instance, the family held a single funeral instead of having two separate ones, as was the case for the mother and infant mentioned earlier. Some were given funerals immediately because their bodies were being shipped via the Canadian Pacific Railway. People whose bodies had not been claimed by kin, such as those that lived alone or at the Hamilton Asylum received quick, simple funerals (Jones 2006).

	Flu	%	Non-Flu	%	Total
Male	26	48	106	54	132
Female	28	52	91	46	119
Total	54	100	197	100	*251

Table 22.3: Total Deaths in Funeral Records Male versus Female (Dywer Funeral Records 1917-19; Blachford and Wray Funeral Records 1918-20).³

	Average Days	Min	Max	Individuals
Flu Deaths	2.6	1	6	23
Non-Flu Deaths	2.56	1	8	117

Table 22.4: Average Time From Death Until Funeral (Blachford and Wray Funeral Records 1918-20).

³ *Some individuals omitted because of ambiguous names; others, such as stillborns, were only listed with surnames.

Table 22.5 shows the average cost of a funeral for the three age groups. There is a slight difference in cost between the groups, not only relative to each other but also in terms of influenza- and non-influenza-related deaths. In general, the average cost increased with age with slightly more expensive ceremonies for individuals who died from influenza before they reached age 50. The price for a funeral may seem small by today's standards but to individuals coming home from a war or out of work due to sickness in the family, money spent on burials would have been of great concern. To put this in perspective, one Canadian dollar in 1919 was the equivalent of \$12.12 in 2010 (Bank of Canada 2010). Thus, spending an additional 30 dollars then would be equal to an extra \$363.47 in today's dollars!

Age	Flu Deaths				Non Flu Deaths			
	N	Min	Max	Average	N	Min	Max	Average
0-19	16	\$10	\$94.00	\$42.48	46	\$10.00	\$179.50	\$36.28
20-49	14	\$23	\$230.45	\$130.21	21	\$38.50	\$215.00	\$106.66
50+	3	\$50	\$123.20	\$95.32	23	\$35.00	\$433.90	\$140.00

Table 22.5: Average Cost of Funeral by Age Group.

Reflecting Life in Death

There is little evidence that individuals who died from influenza were treated differently in death from those that died from other causes. There appears, however, to have been a tendency to spend more money on funerals for people who died from influenza under the age of 50. The older the individual, the greater the chance that they were a productive member of society and had established social ties to people, places and material goods. It only makes sense that the older the person the more they accumulated over the life cycle. Since stillborns and infants have not contributed to the society, less money was spent on them. In cases where children in the 0-19 age group received an elaborate funeral, this demonstrates the wealth of the family and the desire for an elaborate funeral equal to that of adults. Likewise, when we see adults who were barely given a basic funeral, such as those who died in the asylums, they were denied, symbolically, their last rights as members of Hamilton society (Jones 2006).

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The funeral records in this study are cultural artifacts that present only a snapshot of what actually happened during the early months of 1919 (Prown 1982). Funeral directors acted as moderators and negotiators of acceptable burial practices. The records have proven to be valuable artifacts, nevertheless, because they convey cultural information about death in Hamilton; its cost and the economy in which the funeral directors participated; and the institutions with which funeral directors collaborated, such as the hospitals, cemeteries, Hamilton asylum, and families caring for their dead relatives. Most importantly, the funeral records describe the relationships in which the people of Hamilton were enmeshed during this epidemic. They are tangible objects of ideas, economies and interactions that happened during January to April in 1919. Many of the places mentioned are still present, and actively used, in Hamilton. It is in this sense that these events become part of our identity, “these are the monuments and objects, but also landscapes and places, which make up the materials that make it possible for societies to construct their identity” (Olivier 2004:204). The past is linked to us now, as much as the present resides in the past.

Even though the statistics provided in this chapter demonstrate that people who died from influenza were unlikely to have been treated differently from those who died from other causes, another perspective becomes clear: families in Hamilton did not commemorate influenza, at least in terms of burial ceremonies, in special or unusual ways. That said, it is evident that the poor were under-represented both physically and symbolically (Cannon, 1995; Jones, 2006) compared to the more prosperous members of Hamilton society. By remembering and acknowledging these past events we connect people of all social standings to the present and recognize similarities in practice and identity.

Recurrence and Resilience

References Cited

Anonymous

2007 My Dear Mother. *Canadian Medical Association Journal* 176(4): 500.

Author Unknown

1920 *Vernon's City of Hamilton 47th Annual Street, Alphabetical Business and Miscellaneous Directory for the Year 1920*. Hamilton: Henry Vernon & Son, Publisher.

The American Journal of Public Health

1919 A Working Program Against Influenza. *The American Journal of Public Health* IX(1): 1-13.

American Psychiatric Association

2000 *Diagnostic and Statistical Manual of Mental Disorders*. 4th Rev. Edition. Washington, DC: American Psychiatric Association.

Anderton, Douglas L.; and Leonard, Susan Hautaniemi

2004 Grammars of Death: An Analysis of Nineteenth-Century Literal Causes of Death from the Age of Miasmas to Germ Theory. *Social Science History* 28: 111-143.

Archives of Hamilton Health Sciences and Faculty of Health Sciences

2005 Henderson Hospital: Hamilton Health Sciences. Electronic Resource. <http://www-fhs.mcmaster.ca/archives/histinfo/hhsc/hamhend.htm>, Accessed March 20 2010.

Author Unknown

1920 *Vernon's 47th Annual Street, Alphabetical Business and Miscellaneous Directory for the Year 1920*. Hamilton: Henry Vernon & Son, Publisher.

Recurrence and Resilience

Baer, Hans A.

2001 The Sociopolitical Status of U.S. Naturopathy at the Dawn of the 21st Century. *Medical Anthropology Quarterly* 15(3): 329-346.

Baker, Maureen

2008 Improving Child Well-Being? Restructuring Child Welfare Programs in the Liberal Welfare States. *Canadian Journal of Family and Youth* 1(1): 3-26.

Bank of Canada

2010 Rates and Statistics, Inflation Calculator. Electronic Resource. http://www.bankofcanada.ca/en/rates/inflation_calc.html, Accessed March 2 2010.

Baptista, Robert J.

2008 "Spies and Dyes." Electronic Resource. http://www.colorantshistory.org/images/Bayer_aspirin, Accessed March 2 2010.

Barr, D. P.

1956 Hazards of Modern Diagnosis and Therapy-The Price We Pay. *Journal of the American Medical Association* 159: 1452-1456.

Barrett, R.; Kuzawa, C. W.; McDade, T.; and Armelagos, G. J.

1998 Emerging and Re-Emerging Infectious Diseases: The Third Epidemiologic Transition. *Annual Reviews of Anthropology* 27: 247-271.

Bates, Don G.

2000 Why Not Call Modern Medicine Alternative? *Perspectives in Biology and Medicine* 43(4): 502-518.

Beeton, Isabella

1863 *The Book of Household Management*. London: Oxford University Press.

Beito, David T.

2000 *From Mutual Aid to the Welfare State: Fraternal Societies and Social Services, 1890-1967*. Chapel Hill: The University of North Carolina Press.

Benn, A.

2006 Steel City Shutdown: The 1918 Quarantine in Hamilton. In *Anatomy of a Pandemic: The 1918 Influenza in Hamilton*. D. Ann Herring, ed. Pp. 120-134. Hamilton: Allegra Print and Imaging.

Biddlecom, Ann E.; Jensen, Leif; and Felicia, Leclere B.

1994 Health Care Utilization, Family Context, and Adaptation Among Immigrants to the United States. *Journal of Health and Social Behavior* 35(4): 370-384.

Billings, Molly

2005 The Influenza Pandemic of 1918. Electronic Resource. <http://www.stanford.edu/group/virus/uda/>, Accessed February 25 2010.

Binder, J.

2009 US Swine Outbreak is an "Influenza"? Not So Fast, Says Lawrence Broxmeyer MD. Electronic Resource. <http://www.24-7pressrelease.com/press-release/us-swine-outbreak-is-an-influenza-not-so-fast-says-lawrence-broxmeyer-md-99097.php>, Accessed March 29 2010.

Blanchford and Wray Funeral Records

1918-1920. Book #395, May 28 1918-Jan 29 1920. Hamilton Central Library Archives, Hamilton.

Bloom, Bernard L.

1964 The "Medical Model", Miasma Theory, and Community Mental Health. *The Journal of Community Mental Health* 1(4): 333-338.

Bogart, Leo

1984 The Public's Use and Perception of Newspapers. *The Public Opinion Quarterly* 48(4): 709-719.

Recurrence and Resilience

Bristow, Nancy K.

2003 'You Can't do Anything for Influenza': Doctors, Nurses, and the Power of Gender During the Influenza Pandemic in the United States. In *The Spanish Influenza Pandemic of 1918-19; New Perspectives*. Howard Phillips and David Killingray, eds. Pp. 58-70. New York: Routledge.

Burt, Ronald; Cook, Karen; and Nan, Lin

2001 *Social Capital: Theory and Research*. New Brunswick, New Jersey: Transaction Publishers.

Byerly, Carol R.

2005 *Fever of War: The influenza Epidemic in the U.S. Army during World War I*. New York: New York University Press.

Canadian Genealogy Centre

1911 Enumeration District 28: Tuscarora, Brant, Ontario. [Transcribed census record]. Census of Canada Indexing Project. Library and Archives Canada. <http://automatedgenealogy.com/census11/EnumerationDistrict.jsp?sdid=4825>.

Canadian Lung Association

2010 Tuberculosis. The Lung Association. Electronic Resource. http://www.lung.ca/diseases-maladies/tuberculosis-tuberculose/what-quoi/index_e.php, Accessed March 18 2010.

The Canadian Journal of Medicine and Surgery.

1918 "Spanish Influenza." *The Canadian Journal of Medicine and Surgery* XLIV(6): xlviii.

The Canadian Journal of Medicine and Surgery

1919 Sherman's Influenza Vaccine No. 38. *The Canadian Journal of Medicine and Surgery* XLV(4): xlv.

- The Canadian Journal of Medicine and Surgery
1920 The Original Brand of Detoxicated Vaccines. *The Canadian Journal of Medicine and Surgery* XLVIII(3): xix.
- The Canadian Nurse
1918 Canadian Nurses' Association. *The Canadian Nurse* 14: 45.
- The Canadian Practitioner and Review
1919a Original Communications: The Epidemic of Influenza, Statement of the Provincial Board of Health. *The Canadian Practitioner and Review* XLIV(1): 1-4.
- The Canadian Practitioner and Review
1919b Psychotherapy in Influenza. *The Canadian Practitioner and Review* XLIV(3): 88.
- The Canadian Practitioner and Review
1919c "The Man in the Street" on Influenza. *The Canadian Practitioner and Review* XLIV(1): xxii.
- The Canadian Practitioner and Review
1919d The Treatment of Influenza. *The Canadian Practitioner and Review* XLIV(4): xxiv.
- Cannon, Aubrey
1995 Material Culture and Burial Representativeness. In *Grave Reflections: Portraying the Past through Cemetery Studies*. Shelley R. Saunders and Ann Herring, eds. Pp. 3-18. Toronto: Canadian Scholars' Press Inc.
- Chan, Andrew H. W.; and Kluge, Hagen F.
2006 The Epidemic Spreads through the City. In *Anatomy of a Pandemic: The 1918 Influenza in Hamilton*. D. Ann Herring, ed. Pp 41-57. Hamilton: Allegra Print and Imaging.

Recurrence and Resilience

City of Hamilton

1918-1920 Hamilton City Directory. 1918 Hamilton City Directory. Map Library M-Film FC 3098.2 .V47.

City of Hamilton

1919 *City Council Minutes*. Hamilton: City of Hamilton.

Clark, S. D.

1942 *The Social Development of Canada: An Introductory Study With Select Documents*. Toronto: The University of Toronto Press.

Cook, G. C.; and Webb, A. J.

2002 Reactions from the Medical and Nursing Professions to Nightingale's "Reform(s)" of Nurse Training in the Late 19th Century. *Postgraduate Medicine* 2002(78): 118-123.

Cox, N. J.; and Subbarao, K.

2000 Global Epidemiology of Influenza: Past and Present. *Annual Reviews of Medicine* 51: 407-421.

Crosby, Alfred W.

1976 *Epidemic And Peace, 1918*. Connecticut: Greenwood Press.

Crosby, Alfred W.

1989 *America's Forgotten Pandemic: The Influenza of 1918*. New York: Cambridge University Press.

Cummings, Sarah

2007 The Spanish Influenza Outbreak, 1918. International World History Project. Electronic Resource. http://historyworld.org/spanish_influenza_of_1918.htm, Accessed February 25 2010.

Dakin, P.

2005 The Social Chaos of the Spanish Flu. Radio: The Current. Electronic Resource. <http://archives.cbc.ca/health/disease/clips/12721/>, Accessed February 12 2010.

D-Maps.com

2007-2010 Canada. [Map]. Electronic Resource. http://d-maps.com/carte.php?lib=canada_map&num_car=1544&lang=en, Accessed April 19 2010.

Doescher, Mark P.; Fiscella, Kevin; Franks, Peter; and Saver, Barry G.

2002 Disparities in Health Care by Race, Ethnicity, and Language among the Insured: Findings from a National Sample. *Medical Care* 40(1): 52-59.

Dodd, Diane

1991 Advice to Parents: The Blue Books, Helen MacMurchy, MD, and the Federal Department of Health, 1920-34. *Canadian Bulletin of Medical History* 8: 203-230.

Doucet, Michael J.

1976 Working Class Housing in a Small Canadian City. In *Essays in Canadian Working class History*. Gregory S. Kearsley and Peter Warrian, eds. Pp. 83-105. Toronto: McClelland and Stewart Limited.

Dubisch, Jill

1989 Death and Social Change in Greece, the Uses of Death in Europe. *Anthropological Quarterly* 62(4): 189-200

Duffy, J.

1971 Social Impact of Disease in the Late Nineteenth Century. *Bulletin of the New York Academy of Medicine* 47(7): 797-810.

Duncan, Kristy

2003 *Hunting the 1918 Flu: One Scientist's Search for a Killer Virus*. Toronto: University of Toronto Press.

Recurrence and Resilience

The Dundas Star

1918 The Latest and, to a Woman, the Most Attractive Profession is that of Postal Censor. *The Dundas Star*, November 14: 5.

The Dundas Star

1919 Influenza Needs Careful Watching. *The Dundas Star*, January 17: NO PAGE.

Dwyer Funeral Records

1917-1919 Book 19. Hamilton Local History & Archives, Hamilton Public Library: Hamilton.

Emery, George

1993 *Facts of Life: The Social Construction of Vital Statistics, Ontario 1869-1952*. Montreal and Kingston: McGill-Queen's University Press.

Emery, George; and Emery, J. C. Herbert

1999 *A Young Man's Benefit: The Independent Order of Odd Fellows and Sickness Insurance in the United States and Canada, 1860-1929*. Montreal: McGill-Queen's University Press.

Eveland, William P. Jr.; and Shah, Dhavan V.

2003 The Impact of Individual and Interpersonal Factors on Perceived News Medical Bias. *Political Psychology* 24(1): 101-117.

Farmer, Paul

2003 *The Pathologies of Power: Health, Human Rights, and the New War on The Poor*. Berkeley: University of California Press.

Farmer, Tracy

2004 *Putting Health in its Place: Women's Perceptions and Experiences of Health in Hamilton's North End*. Ph.D thesis, Department of Anthropology, McMaster University.

- Flexner, Abraham
1910 *Medical Education in the United States and Canada*. New York: Carnegie Foundation.
- Folkman, Susan; and Moskowitz, Judith Tedlie
2000 Stress, Positive Emotion, and Coping. *New Directions in Psychological Science* 9(4): 115-118.
- Foster, George M.
1979 Humoral Traces in United States Folk Medicine. *Medicinal Anthropology Newsletter* 10(2): 17-20.
- Foster, Sir George E.
1920 *Canadian Dominion Bureau of Statistics*. Ottawa: F.A. Acland Printer.
- Franks, Antony J.; Sheldon, Trevor A.; and Watt, Ian S.
1994 Health and Health Care of Rural Populations in the UK: Is it Better or Worse? *Journal of Epidemiology and Community Health* 48: 16-21.
- Freidson, Eliot
1988 *Profession of Medicine: A Study of the Sociology of Applied Knowledge*. Chicago: University of Chicago Press.
- Frost, W. H.
1919 The Epidemiology of Influenza. *Journal of American Medical Association* 73(5):313-318
- Gagan, David; and Gagan, Rosemary R.
2002 For Patients of Moderate Means – A Social History of the Voluntary Public General Hospital in Canada, 1890-1950. Montreal and Kingston: McGill-Queen's University Press.
- Gagan, Rosemary Ruth
1981 *Disease, Mortality and Public Health, Hamilton, Ontario, 1900-1914*. M.A. thesis, Department of History, McMaster University.

Recurrence and Resilience

Gagan, Rosemary Ruth

1989 *Disease, Mortality and Public Health, Hamilton, Ontario 1900-1914*. PhD thesis. Department of History: McMaster University

Gagan, Rosemary Ruth

1989 *Mortality Patterns and Public Health in Hamilton, Canada, 1900-14*. *Urban History Review* 17(3):163-177.

Glasgow, J. F. T.; and Middleton, B.

2001 *Reye Syndrome: Insights on Causation and Prognosis*. *Archives of Disease in Childhood* 85: 351-353.

GlaxoSmithKline

2009 *Pre-Pandemic Pandemic Influenza Vaccine* [Leaflet].

Government of Ontario

Wentworth County Death Registrations. Hamilton Death Registrations 1918-19 M-film MS 935, Reel 250.

Grafe, Alfred A.

1991 *History of Experimental Virology*. New York: Springer-Verlag.

Guralnik, David B., ed.

1982 *Webster's New World Dictionary of the American Language*. 2nd College Ed. New York: Simon and Schuster.

Haase, C.

2009 *Influenza or Aspirin Overdose?* Environmental, Health and Safety News. Electronic Resource. <http://ehsmanager.blogspot.com/2009/10/influenza-or-aspirin-overdose.html>, Accessed March 30 2010.

Halliday, Stephen

2001 *Death and Miasma in Victorian London: An Obstinate Belief*. *British Medical Journal* 323(7327): 1469-1471.

Hallman, Stacey

2009 The Effect of Pandemic Influenza on Infant Mortality In Toronto, Ontario, 1917-1921. Paper presented at the International Population Conference, Marrakech, Morocco, September 27-October 2.

Hamilton Board of Health

1907-1922 *Minutes of the Hamilton Board of Health*. Hamilton: City of Hamilton.

Hamilton Board of Health

1915-1916 *Report*. Hamilton: City of Hamilton.

Hamilton Board of Health

1916-1917 *Report*. Hamilton: City of Hamilton.

Hamilton Board of Health

1917-1918 *Report*. Hamilton: City of Hamilton.

Hamilton Board of Health

1918-19 *Report*. Hamilton: City of Hamilton.

Hamilton Board of Health

1919-1920 *Report*. Hamilton: City of Hamilton.

Hamilton Board of Health

1920 *Annual Report 1919-1920*. Hamilton: The Griffin & Richmond Co. Ltd.

Hamilton Board of Health

1921-1922 *Report*. Hamilton, Ontario, Canada

Hamilton General Hospital Scrapbook of Clippings – 1857 – 1953

1920 Graduate Nurses Presented with their Diplomas. May 8: NO PAGE.

Hamilton General Hospital Scrapbook of Clippings – 1857 – 1953

1920 No Boost Here. June 4: NO PAGE.

Recurrence and Resilience

Hamilton General Hospital Scrapbook of Clippings – 1857 – 1953
1920 Retain Services of Nurses Here. Sept 30: NO PAGE.

Hamilton General Hospital Scrapbook of Clippings – 1857 – 1953
1920 An Appeal For The Nurses. The Hamilton Spectator, December 31: NO PAGE.

The Hamilton Herald
1891 Sweet Girl Graduates. Nurses and Nursing Scrapbook V.1, N.D-1997: The Hamilton Herald, Oct 2.

The Hamilton Herald
1892 Angels of the Sick Room. Nurses and Nursing Scrapbook V.1, N.D-1997: The Hamilton Herald, Nov 22.

The Hamilton Herald
1918a Dr. Pierce's 'Ironic' Advertisement. The Hamilton Herald, November 12: 5.

The Hamilton Herald
1918b Rev. C. B. Kenrick's Protest. The Hamilton Herald, December 7: 14.

The Hamilton Herald
1918c Want Longer Hours. The Hamilton Herald, December 7: 12.

The Hamilton Herald
1919a Hamilton Had Good Record—Fewer deaths from 'Flu' than in other cities. The Hamilton Herald, March 28, 1919: 1.

The Hamilton Herald
1919b Little 'Flu' Now- Epidemic has Almost Died Out. The Hamilton Herald, January 9: 1.

The Hamilton Herald

1919c More Flu But Not Enough to Cause Alarm. The Hamilton Herald, February 14: 1.

The Hamilton Herald

1919d Radway Ready Relief, January 2: 14.

Hamilton Public Library PreVIEW

2010 Online Gallery. Electronic Resource.

<http://preview.hpl.ca:8080/Cumulus/ng/index.htm>, Accessed March 2 2010.

The Hamilton Spectator

1919a1 Battling Influenza: Health Authorities Report 100 Cases in the City. The Hamilton Spectator, March 14: 11.

The Hamilton Spectator

1919b1 Bionin Grippe Tablets. The Hamilton Spectator, March 29: 27.

The Hamilton Spectator

1919c1 Brief Local Items. The Hamilton Spectator, January 5: NO PAGE.

The Hamilton Spectator

1919d1 Deaths and Funerals: Arthur Wilbert Kirby. The Hamilton Spectator, April 15: 14.

The Hamilton Spectator

1919e1 Deaths and Funerals: Cornelius Fray. The Hamilton Spectator, March 28: 27.

The Hamilton Spectator

1919f1 Deaths and Funerals: James Arnold. The Hamilton Spectator, March 21: 14.

The Hamilton Spectator

1919g1 Deaths and Funerals: Miss Louisa Jane Paradine. The Hamilton Spectator, April 3: 16.

Recurrence and Resilience

The Hamilton Spectator

1919h1 Deaths and Funerals: Mrs. Emmet Twiss. The Hamilton Spectator, January 30, 1919: NO PAGE.

The Hamilton Spectator

1919i1 Deaths and Funerals: Mrs. Geo. Abraham. Hamilton Spectator, January 17: 27.

The Hamilton Spectator

1919j1 Deaths and Funerals: Mrs. J.M. Alderson. The Hamilton Spectator, January 17: 27.

The Hamilton Spectator

1919k1 Deaths and Funerals: Stanley Spera. The Hamilton Spectator, March 25: 19.

The Hamilton Spectator

1919l1 Deaths and Funerals: Thomas Moore. The Hamilton Spectator, March 15, 1919: 14.

The Hamilton Spectator

1919m1 Deaths and Funerals: Whitty Kirby. The Hamilton Spectator, April 11: 30.

The Hamilton Spectator

1919n1 Dr. L. A. Jones Dead. The Hamilton Spectator, March 3: 15.

The Hamilton Spectator

1919o1 Dr. Pierce's Pleasant Pellets and Golden Medical Discovery. The Hamilton Spectator, March 11: 15.

The Hamilton Spectator

1919p1 Dr. Pierce's Pleasant Pellets and Golden Medical Discovery. The Hamilton Spectator, March 20: 19.

The Hamilton Spectator

1919q1 Dr. Williams' Pink Pills. The Hamilton Spectator, January 24: 18.

The Hamilton Spectator

1919r1 Dr. Williams' Pink Pills. The Hamilton Spectator, January 27: 7.

The Hamilton Spectator

1919s1 Dr. Williams' Pink Pills. The Hamilton Spectator, March 7: 10.

The Hamilton Spectator

1919t1 Dominion C. B. Q. Tablets. The Hamilton Spectator, March 13: 19.

The Hamilton Spectator

1919u1 Fatal Flu. The Hamilton Spectator, January 9: 10.

The Hamilton Spectator

1919v1 Flu is Very Serious. The Hamilton Spectator, February 26: 11.

The Hamilton Spectator

1919w1 Hood's Sarsaparilla. The Hamilton Spectator, January 28: 7.

The Hamilton Spectator

1919x1 Hood's Sarsaparilla and Hood's Pills. The Hamilton Spectator, January 4: 7.

The Hamilton Spectator

1919y1 Horlick's Malt Milk—Relief for Influenza. The Hamilton Spectator, January 2: 14.

The Hamilton Spectator

1919z1 Horlick's Malt Milk—Relief for Invalids. The Hamilton Spectator, March 20: 13.

The Hamilton Spectator

1919a2 Horlick's Malt Milk for Infants. The Hamilton Spectator, March 25: 2.

Recurrence and Resilience

The Hamilton Spectator

1919b2 Influenza Again: Beach Commissioner Orders Bungalow School Closed. The Hamilton Spectator, January 31: 23.

The Hamilton Spectator

1919c2 Influenza Spreading. The Hamilton Spectator, February 15: NO PAGE.

The Hamilton Spectator

1919d2 Influenza to Stay in Hamilton in Modified Form. The Hamilton Spectator, February 21: 22.

The Hamilton Spectator

1919e2 Kissing The Baby. The Hamilton Spectator, February 8: 11.

The Hamilton Spectator

1919f2 The Little Lost Child. The Hamilton Spectator, February 1: 6.

The Hamilton Spectator

1919g2 Many Succumb to King Death. The Hamilton Spectator, January 10: 3.

The Hamilton Spectator

1919h2 Moose Die from Flu. The Hamilton Spectator, January 23: 7.

The Hamilton Spectator

1919i2 Parke's Nasaline. The Hamilton Spectator, January 3: 18.

The Hamilton Spectator

1919j2 Peps. The Hamilton Spectator, January 21: 10.

The Hamilton Spectator

1919k2 Pino Disinfectant. The Hamilton Spectator, January 7: 14.

The Hamilton Spectator

1919l2 Radway's Ready for Rheumatism Relief. January 18: 12.

The Hamilton Spectator

1919m2 Shredded Wheat. The Hamilton Spectator, March 26: 17.

The Hamilton Spectator

1919n2 Shredded Wheat. The Hamilton Spectator, March 29: 18.

The Hamilton Spectator

1919o2 Smo-ko Tobaccoless Cigarettes. The Hamilton Spectator, January 31: 19.

The Hamilton Spectator

1919p2 Spanish Influenza: 76 New Cases Reported, But M. H. O. Is Not Alarmed. The Hamilton Spectator, March 22: 1.

The Hamilton Spectator

1919q2 Untitled. January 11: 1.

The Hamilton Spectator

1920 An Appeal For The Nurses. The Hamilton Spectator, December 31: NO PAGE.

The Hamilton Spectator

1927 Tuberculosis: Annual Death Rates Since 1905 Per 100,000 Population. The Hamilton Spectator, June 29: NO PAGE.

The Hamilton Spectator

2009a H1N1 Vaccine Set to Go as Soon as it is Approved. The Hamilton Spectator, October 19: A10.

The Hamilton Spectator

2009b Hamilton and area H1N1 flu shot clinics. The Hamilton Spectator, November 26: A6.

The Hamilton Spectator

2009c Nurses Brace for Surge of H1N1: Some Reminded of Anger, Pain Left by SARS. The Hamilton Spectator, September 5: A8.

Recurrence and Resilience

The Hamilton Spectator

2009d Worst Yet to Come for H1N1: WHO. *The Hamilton Spectator*, November 5: A18.

The Hamilton Spectator

2010a Prime-Time Tips for Cold and Flu. *The Hamilton Spectator*, February 17: G6.

The Hamilton Spectator

2010b Seasonal Flu Shots Available Soon. *The Hamilton Spectator*, January 6: A4.

The Hamilton Spectator

2010c We're Free of Flu: H1N1 and Seasonal. *The Hamilton Spectator*, February 3: A6.

Hartwood, Alan

1971 The Hot-Cold Theory of Disease: Implications for the Treatment of Puerto Rican Patients. *Journal of the American Medical Association* 16(7): 252-258.

Hays, J. N.

2005 *Epidemics and Pandemics: Their Impacts on Human History*. Santa Barbara, California: ABC-CLIO.

Health Canada

2009 Healthy Living: Tuberculosis. Her Majesty the Queen in Right of Canada, represented by the Minister of Health. Electronic Resource. <http://www.hc-sc.gc.ca/hl-vs/iyh-vsv/diseases-maladies/tubercu-eng.php>, Access February 10 2010.

Health Canada

2010 H1N1 Update, Memorandum. Electronic Resource. <http://www.pandemic.knet.ca/node/97>, Accessed April 6 2010.

Healthy Ontario

2009a Conditions: Childhood Vaccination. Queen's Printer for Ontario.
Electronic Resource. http://www.healthyontario.com/ConditionDetails.aspx?disease_id=147, Accessed February 10 2010.

Healthy Ontario

2009b Conditions: Rheumatic Fever. Queen's Printer for Ontario. Electronic
Resource. http://www.healthyontario.com/ConditionDetails.aspx?disease_id=112, Accessed February 10 2010.

Heimer, Carol A.

1988 Social Structure, Psychology, and the Estimation of Risk. *Annual Review of Sociology* 14(1): 491-519.

Heron, Craig

1981 Working Class Hamilton 1895-1930. Ph.D thesis, Department of History, Dalhousie University.

Herring, D. Ann

1994 There Were Young People and Old People and Babies Dying Every Week: The 1918-19 Influenza Pandemic at Norway House. *Ethnohistory* 1(1): 73-105.

Herring, D. Ann.

2009 Viral Panic, Vulnerability, and the Next Pandemic. In *Health, Risk, and Adversity: Volume 2 of Studies of the Biosocial Society*. Catherine Panter-Brick and Augustin Fuentes, eds. Pp. 78-98. New York: Berghahn Books.

Hicks, Lanis L.

2008 Availability and Accessibility of Rural Health Care. *The Journal of Rural Health* 6(4): 485-506.

Hill, Peter

1989 *Memories—An Informal Story of the Hamilton Civic Hospitals*. Hamilton: Griffin Printing Ltd.

Recurrence and Resilience

Hodgins, The Honourable Justice

1917 *Report and Supporting Statements on Medical Education in Ontario*.
Toronto: A.T Wilgress.

Hollenbeck, J. E.

2009 Lessons Learned from the 1918–1919 Influenza Pandemic. *Indian Journal of Microbiology* 49: 348–351.

Humphreys, Margaret

2002 No Safe Place: Disease and Panic in American History. *American Literary History* 14(4): 845-857.

Humphries, Mark Osborne

2008 The Duty of the Nation: Public Health and the Spanish Influenza in Canada, 1918-19. Ph.D. thesis, The University of Western Ontario.

International Association of Machinists

1919 *Minute Book: January 1918 to February 1921*. Hamilton: City of Hamilton.

Illinois Health News

1918 “Flu.” *Illinois Health News* 9(1): 203

Jardine, Pauline; and Weaver, John

Date Unknown. *An Examination of Motives for Health Reform: The Mountain Sanatorium, 1902 to 1916*. Hamilton: The Hamilton Health Association.

Johnson, Neil; and Mueller, Juergen

2002 Updating the Accounts: Global Mortality of the 1918-1920 “Spanish” Influenza Pandemic. *The Bulletin of the History of Medicine* 76(1) 105-115.

Jones, Andrew

2007 *Memory and Material Culture*. New York: Cambridge University Press.

Jones, Esyllt

2005 Contact Across a Diseased Boundary: Urban Space and Social Interaction During Winnipeg's Influenza Epidemic, 1918-19. *Journal of the Canadian Historical Association* 13(1): 119-139.

Jones, Esyllt

2006 Politicizing the Laboring Body: Working Families, Death, and Burial in Winnipeg's Influenza Epidemic, 1918-19. *Labor* 3(3): 57-75.

Kaplan, Barry J.

1978 Reformers and Charity: The Abolition of Public Outdoor Relief in New York City, 1870-1898. *Social Science Review* 52(2): 202-214.

Katz, Michael

1972 The People of a Canadian City 1851-52. *Canadian Historical Review* 53: 402-426.

Kelsay, Isabel Thompson

1984 *Joseph Brant 1743-1807: Man of Two Worlds*. Syracuse, New York: Syracuse University Press.

Kilbourne, Edwin D.

2003 A virologist's perspective on the 1918-19 pandemic. In *The Spanish Influenza Pandemic of 1918-19: New Perspectives*. Howard Phillips and David Killingray, eds. Pp 29-46. London: Routledge.

Killingray, David and Phillips, Howard

2003 *The Spanish Influenza Pandemic of 1918-19: New Perspectives*. New York: Routledge.

Kinsley, D.

1996 *Healing, Health, and Religion: A Cross-Cultural Perspective*. New Jersey: Prentice Hall Inc.

Recurrence and Resilience

Kleinman, Arthur

1988 *The Illness Narratives: Suffering, Healing & the Human Condition*. New York: Basic Books.

Kolota, Gina

1999 *Flu: The Story of the Great Influenza Pandemic of 1918 and the Search for the Virus That Caused It*. New York: Simon & Schuster.

Kudzma, Elizabeth

2006 Florence Nightingale and Healthcare Reform. *Nursing Science Quarterly* 19: 61.

Landis, Carney; Ferrall, Sarah; and Page, James

1936 Fear, Anger, and Disease: Their Inter-Correlations in Normal and Abnormal People. *The American Journal of Psychology* 48(4): 585-597.

Langford, Christopher

2002 The Age Pattern of Mortality in the 1918-19 Influenza Pandemic: An Attempted Explanation Based on Data for England and Wales. *Medical History* 46:1-20.

Lantos, Gregory P.

1987 Advertising: Looking Glass or Molder of the Masses? *Journal of Public Policy & Marketing* 6: 104-128.

Larsen, John W. Jr.

1982 Influenza and Pregnancy. *Clinical Obstetrics and Gynecology* 25(3): 599-604.

Lettinga, Kamilla D.; Verbon, Annelies; Nieuwkerk, Pythia T.; Jonkers, Rene E.; Gersons, Berthold P. R.; Prins, Jan M.; and Speelman, Peter

2002 Health-Related Quality of Life and Posttraumatic Stress Disorder among Survivors of an Outbreak of Legionnaires Disease. *Clinical Infectious Disease* 35(1): 11-17.

Lewis, M. M.

1919 Drugs and their Relation to the Physician. *Journal of the National Medical Association* 11(4): 153-155.

Library and Archives Canada

2005 Passenger Lists, 1865-1935. Research at Library and Archives Canada. Electronic Resource. <http://www.collectionscanada.ca/genealogy/022-908.003-e.html>, Accessed March 25 2010.

Lisowska, Anna D.

2006 Healing and Treatment: Who Answers the Call of the Sick? In *Anatomy of a Pandemic: The 1918 Influenza in Hamilton*. D. Ann Herring, ed. Pp. 89-103. Hamilton: Allegra Print and Imaging.

Lux, Maureen

1996 Beyond disease: Disease and its Impact on Canadian Plains Native People 1880-1930. Ph.D. thesis, Department of History, University of Saskatchewan.

Markley, D. P.; and Sisler, L. E.

1923 *Manual of Occupations*. Port Huron, Michigan: The Knights of the Maccabees of the World.

Martin, Emily

1994 *Flexible Bodies: the Roll of Immunity in American Culture from the Days of Polio to the Age of AIDS*. Massachusetts: Beacon Press.

Maudsley, G.; and Williams, E. M. I.

1996 'Inaccuracy' in Death Certification: Where are We Now? *Journal of Public Health Medicine* 18: 59-66.

Mausner, J.; and Bahn, A.

1974 *Epidemiology: An Introductory Text*. Toronto: W.B. Saunders Company.

Recurrence and Resilience

McClary, Andrew

1980 Germs are Everywhere: The Germ Threat as Seen in Magazine Articles 1890–1920. *Journal of American Culture* 3: 33-46.

McCullers, J.; and Rehg, J.

2002 Lethal Synergism between Influenza Virus and Streptococcus Pneumoniae: Characterization of a Mouse Model and the Role of Platelet-Activating Factor Receptor. *Journal of Infectious Diseases* 186(3): 341-350.

McCullough, John W. S.

2010 The Control of Influenza in Ontario. The Canadian Medical. Electronic Resource. <http://www.cmaj.ca/cgi/data/172/8/967/DC1/1>, Accessed March 1 2010.

McCullough, John W. S.

1919 Control of Influenza in Ontario. *The Canadian Medical Journal*: 1084-1086.

McGinnis, J. P. D.

1977 The Impact of Epidemic Influenza: Canada, 1918-19. *Historical Papers* 12(1): 120-140.

McTavish, J. R.

1987 What's in a Name? Aspirin and the American Medical Association. *Bulletin of the History of Medicine* 61: 342-366.

Merler, Stefano; Poletti, Piero; Ajelli Marco; Caprile Bruno; Manfredi, Piero.

2008 Coinfection Can Trigger Multiple Pandemic Waves. *Journal of Theoretical Biology* 254: 499–507.

Metlay, Joshua P.; Schulz, Richard; Li, Yi-Hwei; Singer, Daniel E.; Marrie, Thomas J.; Coley, Christopher M.; Hough, Linda J.; Obrosky, Scott D.; Kapoor, Wishwa N.; and Fine, Michael J.

1997 Influence of Age on Symptoms at Presentation in Patients With Community-Acquired Pneumonia. *Archives of Internal Medicine* 157(13): 1453-1459.

Mitchinson, Wendy

2000 The Sometimes Uncertain World Of Canadian Obstetrics. *The Canadian Bulletin of Medical History* 17: 193-207.

Moeller, Susan D.

1999 *Compassion Fatigue: How the Media Sell Disease, Famine, War and Death*. London: Routledge.

Montgomery, Kathryn

2006 *How Doctors Think: Clinical Judgment and the Practice of Medicine*. New York: Oxford University Press.

Morens, David M.; Taubenberger, Jeffery; and Fauci, Anthony S.

2008 Predominant Role of Bacterial Pneumonia as a Cause of Death in Pandemic Influenza: Implications for Pandemic Influenza Preparedness. *Journal of Infectious Diseases* 198: 962-970.

Moser, R. H.

1956 Diseases of Medical Progress. *New England Journal of Medicine* 255: 606-614.

National Museum of Health and Medicine

Date Unknown Inoculation for influenza and pneumonia being administered at Embarkation Camp, Genicart, France. Electronic Resource. <http://www.nlm.nih.gov/washingtondc/museum/collections/archives/agalleries/1918flu/Rve1566.jpg>, Accessed March 14 2010.

Recurrence and Resilience

Natural Resources of Canada

2010 The Atlas of Canada. [Map]. Electronic Resource. <http://www.nrcan-rncan.gc.ca/com/index-eng.php>, Accessed March 10 2010.

Nicholson, K. G.; Colegate, A. E.; Podda, A.; Stephenson, L.; Wood, J.; Ypma, E.; and Zambon, M. C.

2001 Safety and Antigenicity of Non-Adjuvanted and MF59-Adjuvanted Influenza A/Duck/Singapore/97 (H5N3) Vaccine: A Randomized Trial of Two Potential Vaccines Against H5N1 Influenza. *The Lancet* 357(9272): 1937-1943.

Noel-Weiss, Joy

2007 Maternity Care in Canada in the 1920s and 1930s. Medicalizing Motherhood. Electronic Resource. http://www.asklenore.info/parenting/resources/maternity_care.pdf, Accessed February 2 2010.

Noymer, Andrew; and Garenne, Michel

2000 The 1918 Influenza Epidemic's Effects on Sex Differentials in Mortality in the United States. *Population and Development Review* 26(3): 565-581.

Noymer, Andrew

2008 Influenza analysis should include pneumonia. *American Journal of Public Health* 98(11): 1927-1928.

Oldstone, Michael B. A.

1998 *Viruses, Plagues, and History*. New York: Oxford University Press.

Olivier, Laurent

2004 The Past of the Present. Archaeological memory and time. *Archaeological Dialogues* 10(2): 204-213.

Ontario First Nations Pandemic

2009 First Nation H1N1 Situational Update. Electronic Resource. <http://www.pandemic.knet.ca/node/50>. Accessed April 2, 2010.

Oxford, J.S.

2000 Influenza A Pandemics of the 20th Century with Special Reference to 1918: Virology, Pathology and Epidemiology. *Review of Medical Virology* 10: 119-133.

Oxford, J.S.; Lambkin, R.; Sefton, A.; Daniels, R.; Elliot, A.; Brown.; and Gill, D.

2005 A Hypothesis: the Conjunction of Soldiers, Gas, Pigs, Ducks, Geese and Horses in Northern France during the Great War Provided the Conditions for the Emergence of the "Spanish" Influenza Pandemic of 1918-19. *Vaccine* 23(4): 940-945.

Pasteur, L.

1881 On the Germ Theory. *Science* 2(62): 420-422

Patterson, David K.

1986 *Pandemic Influenza 1700-1900*. United States: Rowman & Littlefield.

Pearl, Raymond

1919 Influenza Studies. 1. On Certain General Statistical Aspects of the 1918 Epidemic in American Cities. *Public Health Reports* 34(32): 1743-83.

Pennell, M. R.

2006 "The Relics of Barbarism": Resisting Public Health. In *Anatomy of a Pandemic: The 1918 Influenza in Hamilton*. D. Ann Herring. Hamilton: Allegra Print and Imaging. 135-148.

Percival, C. A.

1919 Discovery of the Way the Flu Germ Works: Simple Practise Will Render it Harmless. *The Globe*, January 11: 14.

Phillips, Howard; and Killingray, David

2003 Introduction. In *The Spanish Influenza Pandemic of 1918-19: New Perspectives*. Howard Phillips and David, Killingray, eds. Pp. 1-26. London: Routledge.

Recurrence and Resilience

Phillips, Jason B.

2007 The Changing Representation of Death in the Obituary, 1899-1999. *Omega* 55(4): 325-346.

Pollay, Richard W.

1985 The Subsidizing Sizzle: A Descriptive History of Print Advertising, 1900-1980. *Journal of Marketing* 49(3): 24-37.

Pollay, Richard W.

1986 The Distorted Mirror: Reflections on the Unintended Consequences of Advertising. *Journal of Marketing* 50(2): 18-36.

Pope, Mara

2006 The Essence of Altruism: The Spirit of Volunteerism in Hamilton during the 1918 Influenza Pandemic. In *Anatomy of a Pandemic: The 1918 Influenza in Hamilton*. D. Ann Herring, ed. Pp. 105-119. Hamilton: Allegra Print and Imaging.

Poyser, Thomas

1850 Illustrations of the Difficulties Which Beset the Diagnosis of Some Cases of Disease. *London Journal of Medicine* 2(20): 730-733.

Prescott, Alexandra

2006 Hamilton's Response to the 1918 Influenza Pandemic: Advertisements, Stigma and War Metaphors. In *Anatomy of a Pandemic: The 1918 Influenza in Hamilton*. D. Ann Herring, ed. Pp. 149-158. Hamilton: Allegra Print and Imaging.

Preston, David L.

2009 *The Texture of Contact: European and Indian Settler Communities on the Frontiers of the Iroquoia, 1667-1783*. University of Nebraska Press: Lincoln, Nebraska.

Prown, Jules David

1982 Mind in Matter: An Introduction to Material Culture Theory and Method. *Winterthur Portfolio* 17(1): 1-19.

Public Health Agency of Canada

2009 H1N1 in Aboriginal, First Nations, and Inuit Communities. Electronic Resource. http://www.phac-aspc.gc.ca/alert-alerte/h1n1/faq/faq_rg_h1n1-anic-eng.php. Accessed April 1, 2010.

Public Health Agency of Canada

2010 FluWatch. Electronic Resource. <http://www.phac-aspc.gc.ca/fluwatch/index-eng.php>. Accessed February 28, 2010.

Quiney, Linda

2002 Filling the Gaps: Canadian Voluntary Nurses, the 1917 Halifax Explosion and the Influenza Epidemic of 1918. *The Canadian Bulletin of Medical History* 2(19): 351-373.

Rainsford, K. D., ed.

2004 *Aspirin and Related Drugs*. New York: Taylor & Francis Inc.

Reed, A. C.

1919 Pathology and Treatment of Influenzal Pneumonia. *California State Journal of Medicine* XVII(2): 43-49.

Reid, Alice

2005 The Effects of the 1918-19 Influenza Pandemic on Infant and Child Health in Derbyshire. *Medical History* 49(1): 29-54.

Reid, Ann H.; Hanning, Thomas G.; Hultin, Johan V.; and Taubenberger, Jeffery K.

1999 Origin and Evolution of the 1918 "Spanish" Influenza Virus Hemagglutinin. *Gene* 96: 1651-1656.

Recurrence and Resilience

Risse, Gunter B.

1997 Cause of Death as a Historical Problem. Continuity and Change. Bank of Canada, 2010 Rates and Statistics, Inflation Calculator. Electronic Resource. http://www.bankofcanada.ca/en/rates/inflation_calc.htm, Accessed March 2 2010.

Roblee, W. W.

1919 Treatment of Post-Influenzal Pneumonia in an Army Hospital. *California State Journal of Medicine* 17(7): 236-238.

Rosenberg, C. E.

1992 *Explaining Epidemics and Other Studies in the History of Medicine*. New York: Cambridge University Press.

Rosenberg, C. E.; Golden, J. L.; and Clark, F.

1992 *Framing Disease: Studies in Cultural History*. Philadelphia: The State University.

Schmidt, Alvin J.

1980 *The Greenwood Encyclopedia of American Institutions: Fraternal Organizations*. Westport, Connecticut: Greenwood Press.

Schoenbaum, S. C.

2001 The Impact of Pandemic Influenza, With Special Reference to 1918. *International Congress Series* 1219: 43-51.

Schriever, J. B.

1909 Complete Self-Instructing Library of Practical Photography Vols. 6-10. American School of Art and Photography. Electronic Resource. <http://chestofbooks.com/arts/photography/Practical-Photography-2/Child-Photography-Part-5.html>, Accessed April 8 2010.

Sen, Amartya

2003 Foreword. In *The Pathologies of Power: Health, Human Rights, and the New War on The Poor*. Paul Farmer, ed. Pp. xi-xvii. Berkeley: University of California Press.

Shen, Lynn W.

2006 Origins and Spread of the 1918 Influenza Pandemic. In *Anatomy of a Pandemic*. Herring, D. Ann, ed. Pp. 5-16. Hamilton: Allegra Print and Imaging.

Sherman, Irwin W.

2006 *The Power of Plagues*. Washington, D.C.: ASM Press.

Shimazu, Tsunetoshi.

2009 Aspirin in the 1918 Pandemic. *British Medical Journal* 338: 2398.

Singer, Merrill

1994 AIDS and the Health Crisis of the U.S Urban Poor; The Perspective of Critical Medical Anthropology. *Social Science and Medicine* 39(7): 931-948.

Singer, Merrill; and Clair, Scott

2003 Syndemics and Public Health: Reconceptualizing Disease in Bio-Social Context. *Medical Anthropology Quarterly* 17(4): 423-441.

Singer, Merrill

2009 *Introduction to Syndemics: A Systems Approach to Public and Community Health*. San Francisco: Jossey-Bass.

Slonim, Karen

2004 Differences in the Experience 1918-19 Influenza Pandemic at Norway House and Fisher River. M.A. thesis, Department of Anthropology, McMaster University.

Small, W. D.; and Blanchard, W. O.

1919 The Treatment of Influenza. *The British Medical Journal* 1: 241-242.

Recurrence and Resilience

Snyder, C. R.

2002 Hope Theory: Rainbows in the Mind. *Psychological Inquiry* 13(4): 249-275.

Solomon, Sheldon; Greenberg, Jeff; and Pyszczynski, Tom

2002 Pride and Prejudice: Fear of Death and Social Behavior. *New Directions in Psychological Science* 9(6): 200-204.

Sontag, Susan

1979 *Illness as Metaphor*. London: Penguin Books Ltd.

Sontag, Susan

1989 *AIDS and its Metaphors*. Toronto: Collins Publishers.

Spencer, J. W.; and Triche, E.

1994 Media Construction of Risk and Safety: Differential Framings of Hazard Events. *Sociological Inquiry* 64(2): 199-213.

St. George's Benevolent Society

1913 *By-Laws: Adopted at a General Meeting of Members on the 13th May, 1912*. Hamilton: Times Printing.

St. Louis County

2007 St. Louis County Health. Electronic Resource.

<http://www.poly.edu/library/blog/page/3/>, Accessed March 29 2010.

Starko, Karen M.; and Mullick, F. G.

1983 Hepatic and Cerebral Pathology Findings in Children with Fatal Salicylate Intoxication: Further Evidence for a Causal Relation Between Salicylate and Reye's Syndrome. *The Lancet* 1: 326-329.

Starko, Karen. M.

2009 Salicylates and Pandemic Influenza Mortality, 1918-19 Pharmacology, Pathology, and Historic Evidence. *Clinical Infectious Diseases* 49: 1405-1411.

Statistics Canada

2006 Community Profiles: Six Nations (40) Reserve. Electronic Resource.
[http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/prof/92-591/details/Page.cfm?Lang=E&Geo1=CSD&Code1=3529020&Geo2=PR&Code2=35&Data=Count&SearchText=Six%20Nations%20\(Part\)%2040&SearchType=Begins&SearchPR=01&B1=All&Custom=](http://www12.statcan.gc.ca/census-recensement/2006/dp-pd/prof/92-591/details/Page.cfm?Lang=E&Geo1=CSD&Code1=3529020&Geo2=PR&Code2=35&Data=Count&SearchText=Six%20Nations%20(Part)%2040&SearchType=Begins&SearchPR=01&B1=All&Custom=). Accessed April 29, 2010.

Statistics Canada

2009 Vital Statistics- Stillbirth Database. Electronic Resource.
<http://www.statcan.gc.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDS=3234&lang=en&db=imdb&adm=8&dis=2>. Accessed February 2 2010.

Stein, Howard F.

1990 Adapting to Doom: The Group Psychology of an Organization Threatened with Cultural Extinction. *Political Psychology* 11(1): 113-145.

Stephens, Christianne V.

2008 "She was weakly for a long time and the consumption set in": Using Parish Records to Explore Disease Patterns and Causes of Death in a First Nations Community. In *Multiplying and Dividing: Tuberculosis in Canada and Aotearoa New Zealand*. Judith Littleton, Julie Park, Ann Herring, Tracy Farmer, eds. Pp. 134-148. Auckland: Department of Anthropology, University of Auckland.

Stevens, Albert C.

1966 [1923] *The Cyclopedia of Fraternities*. 2nd Edition. Detroit: Gale Research Company.

Subedi, Janarda; and Subedi, Sree

1992 Institutional Pluralism: The Incomplete Differentiation of Health Care in Nepal. *Central Issues in Anthropology* 10(1): 61-66.

Recurrence and Resilience

Taubenberger, Jeffery K.

2005 Characterization of the 1918 influenza virus polymerase genes. *Nature* 437: 889-893.

Taubenberger, Jeffery K.

2006 The Origin and Virulence of the 1918 “Spanish” Influenza Virus. *Proceedings of the American Philosophical Society* 150(1): 86-112.

Taubenberger, Jeffery K.; Hultin, Johan V.; and Morens, David M.

2007 Discovery and Characterization of the 1918 Pandemic Influenza Virus in Historical Context. *Antiviral Theory* 12(4 Pt B): 581-591.

Taubenberger, Jeffery K.; and Morens, David M.

2008 The Pathology of Influenza Virus Infections. *Annual Reviews of Pathology* 3: 499-522.

Times Scrapbook

1920 *Social Work in Various Phases Was Discussed*. Hamilton Local History & Archives, Hamilton Public Library: Hamilton.

Titus, Paul; and Jamison, J. M.

1919 Pregnancy Complicated by Epidemic Influenza. *Journal of American Medical Association* 72(23): 1665-1668.

Tomes, Nancy

1998 *The Gospel of Germs: Men, Women, and the Microbe in American Life*. Cambridge: Harvard University Press.

Tomes, Nancy

2000 The Making of a Germ Panic, Then and Now. *American Journal of Public Health* 90(2): 191-198.

Tomes, Nancy

2002 Epidemic Entertainments: Disease and Popular Culture in Early-Twentieth-Century America. *American Literary History* 14(4): 625–652.

Utt, S.; and Pasternack, S.

1984 Front Pages of U.S. Daily Newspapers. *The Journalism Quarterly* 6(4): 879-884.

The U.S. National Library of Medicine and the National Institutes of Health
2010a Diphtheria. Medline Plus. Electronic Resource.

<http://www.nlm.nih.gov/medlineplus/ency/article/001608.htm>, Accessed March 1 2010.

The U.S. National Library of Medicine and the National Institutes of Health
2010b Scarlet Fever. Medline Plus. Electronic Resource.

<http://www.nlm.nih.gov/medlineplus/ency/article/000974.htm>, Accessed March 1 2010.

Venus, Cheryl; and Persaud, Kiran

2006 Hamilton's Epidemic Wave. In *Anatomy of a Pandemic: The 1918 Influenza in Hamilton*. D. Ann Herring, ed. Pp. 31-40. Hamilton: Allegra Print and Imaging.

Walker, Elizabeth

2007 "Consumption is Contagious": Germ Theory, Media and Changing Perceptions of Tuberculosis in Hamilton. In *Before 'The San': Tuberculosis in Hamilton at the Turn of the Twentieth Century*. D. Ann Herring, ed. Pp. 55-64. Hamilton: Allegra Printing and Imaging.

Wallach Scott, Joan

1999 *Gender and the Politics of History*. New York: Columbia University Press.

West, Sarah C.

2007 Foreign Undesirables: Hamilton's Immigrant Population and Tuberculosis In *Before 'The San': Tuberculosis in Hamilton at the Turn of the Twentieth Century*. D. Ann Herring, ed. Pp. 21-30. Hamilton: Allegra Print and Imaging.

Recurrence and Resilience

Wetmore, F. H.

1919 Treatment of Influenza. *The Canadian Medical Association Journal* 9(12): 1075-1080.

William, Brady

1919 Health Talks: Good Nurses. *The Hamilton Spectator*, March 29: 2.

Williamson, R.

1955 The Germ Theory of Disease: Neglected Precursors of Louis Pasteur. *Annals of Science* 11(1): 44–57.

Willigan, J. Dennis.; and Lynch, Katherine A.

1982 *Sources and Methods of Historical Demography*. New York: Academic Press.

Wiselka, Martin

1994 Influenza: Diagnosis, Management, and Prophylaxis. *British Medical Journal* 308(6940): 1341-1345.

World Health Organization

2010a Director-General Statement Following the Seventh Meeting of the Emergency Committee. Electronic Resource. http://www.who.int/csr/disease/swineflu/7th_meeting_ihr/en/index.html, Accessed February 28 2010.

World Health Organization

2010b What is a pandemic? Electronic Resource. http://www.who.int/csr/disease/swineflu/frequently_asked_questions/pandemic/en/index.html, Accessed March 20 2010.

Wright, Daniel B.; and Loftus, Elizabeth F.

1999 Measuring Dissociation: Comparison of Alternative Forms of the Dissociative Experience Scale. *The American Journal of Psychology* 112(4): 497-519.

Young, Judith

2004 “Monthly” Nurses, “Sick” Nurses, and Midwives in 19th-Century Toronto, 1830-1891. *Canadian Bureau of Medical Health* 21(2): 281-302.

Yung, Y. Chen; and Koenig, Harold G.

2006 Traumatic Stress and Religion: Is there a Relationship? A Review of Empirical Findings. *Journal of Religion and Health* 45(3): 371-381.

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