Anatomy of a Pandemic: The 1918 Influenza in Hamilton

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1

Why Study the 1918 Flu?

D. Ann Herring

The 1918 influenza pandemic has fascinated scholars ever since it swept around the world in three waves in the spring and fall of 1918, and the winter of 1919. Although the origins of the epidemic are still debated, it spread in conjunction with troop movements associated with World War I and along trade routes. No matter where it struck, large numbers of people fell ill. The pandemic may have killed anywhere from 50 to 100 million people (Johnson and Mueller 2002), but there are no reliable estimates of its devastation, not only in terms of human life, but also in terms of social disruption, the fracturing of families, and the loss of friends.

In Canada, one in six people are believed to have fallen ill with influenza during the fall and winter of 1918-19 and some 50,000 of them died (Dickin McGinnis 1977:128). It took less than one month for the epidemic to cross the country from east to west (Herring 2000:7). Surprisingly, there has been little research on its impact on communities, villages, towns and cities in Canada. This is certainly true for the City of Hamilton. How many people died? Who were they? What did city officials do to try to stop the frightening epidemic? How did the public respond to the growing numbers of ill and dying in its midst?

These questions prompted a fourth year class of Anthropology students at McMaster University to study the 1918 influenza epidemic in Hamilton. This book is the result of that research. It tells the story of how people, daily life and society in Hamilton were affected by the crisis and how citizens and city officials responded to the spread of infection -- and to the mounting death toll -- in the fall of 1918.

Our study begins with the origins of the epidemic itself, which Lynn Shen explores in chapter 2. She reviews current theories about where the epidemic began, and traces its spread to Canada. Samantha Meyer and Peter Mayer pick up the story in chapter 3 and consider the role that soldiers may have played in the movement of the virus from place to place, and in the appearance of influenza in Hamilton in the fall of 1918. Cheryl Venus and Kiran Persaud scrutinize the death registers and funeral records for Hamilton and chart the rise and fall of the epidemic wave from September through December (chapter 4). Andrea Chan and Hagen Kluge map the movement of the epidemic and its eventual spread to all parts of the city. In chapter 6, Katherine Wood shows how Hamilton's epidemic had the same tendency to carry off adults in the prime of life as has been observed elsewhere.

Next we turn to consider the impact the 1918 flu had on social groups and social life in Hamilton. In chapter 7, Ellen Korol considers the effect of socio-economic status on mortality rates in Hamilton and asks whether the 1918 flu was a socially neutral disease. Two chapters focus on the impact of the epidemic on children. Kirsty Bond (chapter 8) wonders why so little research has been done on this question, and suggests that children have been forgotten in discussions of the 1918 influenza. Laura Fuller and Nurit Vizcardo analyse school attendance records to determine what can be learned about the role of children in the spread of influenza (chapter 14).

There was no effective treatment for influenza in 1918, yet a variety of treatments and preventive methods were used to ease suffering and prevent death. Anna Lisowska (chapter 9) examines the systems of healing and explanatory models for health and disease prevalent at the time, along with the role of hospitals and medical personnel in dealing with the pandemic. In chapter 10, Mara Pope discusses the spirit of volunteerism in Hamilton and the crucial role of ordinary women in reducing the death toll by caring for and feeding the sick.

The Board of Health planned and coordinated the public health response to the epidemic in Hamilton. The controversial measure of quarantine, which was imposed twice during the epidemic, is discussed and critiqued by Adam Benn (chapter 11). Michael Pennell discusses the ways in which the people of Hamilton actively resisted public health measures deemed misguided or detrimental to the economic and spiritual survival of the city (chapter 12). And Alexandra Prescott shows how shifts in the content of newspaper advertisements convey changes in the way the public perceived the epidemic in its midst, and

how advertisers shaped and manipulated public perception (chapter 13).

Finally, epidemics inevitably alter the societies in which they occur and have repercussions well beyond the period of crisis. Caitlin Hoffman (chapter 15) shows how conceptions fell during the 1918 pandemic and how fertility rebounded in the aftermath of the epidemic. Vanessa Manning (chapter 16) argues that, in revealing the inadequacies of the Board of Health, the 1918 flu acted as an agent of transformation of public health care in Hamilton.

We have tried to enliven the chapters with photographs of Hamilton and its institutions, newspaper excerpts that capture the flavour of the times, and brief anecdotes that put the people of Hamilton into the story of the 1918 epidemic. We are grateful for the support and kindness of the many people who made it possible to complete this project in a mere three months – about the time it took for the fall epidemic to sweep through Hamilton. In particular, we would like to thank the Experiential Education office in the Faculty of Social Sciences at McMaster, especially Ruthann Talbot and Dean Susan Elliott, for providing the funds needed to print the book. Archivists and librarians in Hamilton and Toronto helped us pull together the primary sources used for the analyses in each chapter. We would like to thank for their wonderful help and generosity Margaret Houghton and the staff at the Hamilton Archives; John Aikman and the staff at The Educational Archives and Heritage Centre of Hamilton-Wentworth; the staff and veterans at the Hamilton Military Museum; Cathy Moulder and Gord Beck, ever-patient librarians at the Lloyd Reeds Map Collection at McMaster's Mills Memorial Library; Dr. Edward A. W. Smith from the History & Archives Committee of the Hamilton Academy of Medicine; and, Ken Heaman, Curator at Whitehern Historic House and Garden. Taylor Ellis spent the better part of the summer of 2005 creating an extensive library of articles for our course website. Professors Janet Padiak and John Weaver provided their time, expertise and ideas.

Jeremy Widerman designed our beautiful book cover; Greg Stayman and Jim Gladun at Allegra Press made sure that everything got printed out properly. Without the editing, proofing, and indexing done by Ellen Korol, Lynn Shen, Andrea Chan, and Hagen Kluge, we never would have finished the job.

A big thank you to all of you!

2

Origins and Spread of the 1918 Influenza Pandemic

Lynn W. Shen

The 1918 influenza pandemic was the most devastating pandemic of all time (Barry "The Site of Origin…" 2004: n.pag). Although the total number of deaths that resulted is undetermined, estimates of the death toll range from 20 to over 100 million deaths in the span of about one year (Kolata 1999: 7). In this article, I examine the various hypotheses regarding the origins of the 1918 influenza pandemic and its worldwide spread. I also focus on its impact in Canada and more specifically, Southern Ontario. Finally, I discuss how and when the virus reached Hamilton, Ontario.

The virus

All influenza viruses belong to the virus family *Orthomyxoviridae*. There are three different types of influenza viruses: influenza A, influenza B, and influenza C. They are distinguished by antigenic differences in the nucleoprotein and the matrix protein. Type A influenza viruses can be further subtyped by the various combinations of two surface glycoproteins known as Haemagglutinin (H) and Neuraminidase (N) (see Figure 2.1). All type A influenza viruses are believed ultimately to come from an avian source which spread to humans usually by means of an intermediary species or "mixing vessel", like a pig (Horimoto and Kawaoka 2005: 591-592). Pigs can contract both human and avian influenza strains. Given the high mutation rates of influenza viruses, a purely avian strain can mutate in a pig and then infect humans (Reid and Taubenberger 2003: 2286).

Only types A and B influenza viruses cause epidemics but type A is most commonly the culprit in pandemics. This is because of the different behaviour of the surface antigens Haemagglutinin and Neuraminidase, making influenza viruses less stable. As Cliff, Haggett, and Ord (1986: 12) explain "[i]n the case of the A virus, these antigens undergo infrequent but major changes termed *shifts* and more frequent but minor changes called *drifts*". It is through these shifts that a relatively mild form of a virus can mutate into a devastating one.

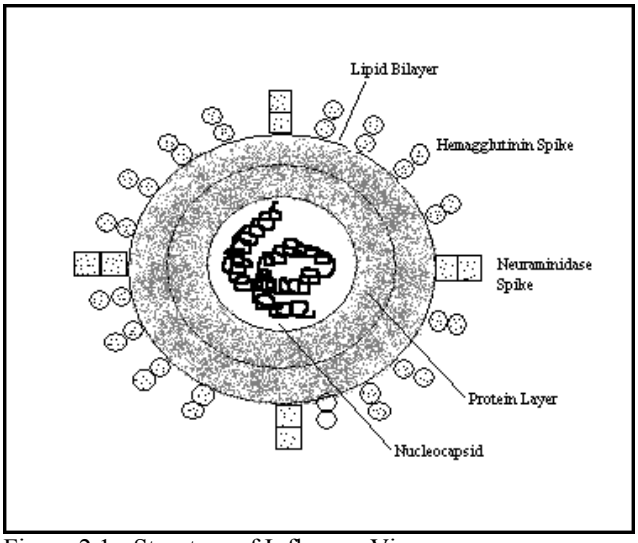


Figure 2.1 - Structure of Influenza Virus
(http://www.arn.org/docs/odesign/od191/designevil191.htm)

The 1918 influenza pandemic was caused by a type A influenza virus known as an H1N1 virus. Reid and Taubenberger were the first to genetically sequence the H1N1 virus. The H1N1 sequence has many features similar to avian forms (Reid and Taubenberger 2003: 2288). Recent genetic testing has shown that the H1N1 virus was not like other influenza viruses that mutate and transmit to humans using an intermediary species to serve as a "mixing vessel". Genetic comparisons with avian sources show numerous similarities which suggest to researchers that the 1918 flu virus came directly from an avian source, jumping

the species barrier, soon before the global outbreak (Taubenberger et al. 2005: 889).

Origin and spread of the virus

There are numerous theories circulating about the geographic epicentre of the 1918 influenza pandemic. The 1918 flu is generally understood to have occurred in three waves. Some areas like Europe or the United States experienced all three waves, while others waves like Canada or Russia only experienced two or one (Patterson and Pyle 1991: 4). Since influenza is an endemic disease, it is probably impossible to determine an exact location for its onset (Barry "The Site of Origin…" 2004: n.pag). Numerous theories about the origins of the 1918 outbreak have surfaced, nonetheless.

China has long been considered the epicentre for most influenza outbreaks. This conclusion is based on the farming practices used in China where ducks, pigs and people are placed in close proximity to one another. Langford (2005: 473) argues that the 1918 influenza pandemic originated in China just as other more recent influenza outbreaks do. Langford notes that certain parts of China experienced only mild outbreaks compared to the rest of the world. This is surprising because the high poverty and poor sanitation practices of China would have suggested the opposite outcome. He attributes this to acquired immunity to H1N1 among the Chinese due to previous exposure to a benign form or to a similar virus. He speculates that the more benign Chinese form of the virus must have mutated into the highly virulent and contagious form that caused the 1918 influenza pandemic (Langford 2005: 473-475).

Langford also suggests that the spread of the virus can be partly attributed to Chinese workers who travelled to Europe in search of work. The British and the French recruited Chinese labourers to work behind the front lines or digging trenches. Their jobs in France would have also put them in close proximity to soldiers from Europe, as well as Canada and the United States, who could then carry the virus home. Chinese migrant workers also travelled to other parts of the world looking for work. They found work at British coaling stations in Sierra Leone, or in Canada and the United States. During their long travels, the workers would often stop to rest along the way thereby coming into contact with local people, creating the potential to spread the virus. (Langford 2005: 473, 492).

An alternate theory has the 1918 flu originating in France during the winter of 1916. According to Oxford (2001: 1857), a smaller outbreak occurred in 1916, at a large British Army base in Etaples, France. During this outbreak sufferers displayed many of the symptoms seen in the 1918 influenza pandemic, such as acute respiratory infection, fever, cough, and sometimes heliotrope cyanosis, a characteristic of the H1N1 pandemic. High mortality rates were also present in the 1916 outbreak of "purulent bronchitis" which distinguishes it from typical influenza outbreaks. As Oxford reasons, "[t]he very wide geographical spread of these deaths in such a short period, in the absence of air travel at that time, [suggests] that the disease had spread around the globe prior to this time and that earlier 'seeding' had occurred" (2001: 1857). In other words, the rapid global spread of the 1918 flu would have been impossible without air travel. This suggests to Oxford that the virus was present and spread before the actual outbreaks in 1918. The overcrowded conditions in European military camps would have provided ideal conditions for person to person transmission of the virus. The constant influx of new recruits and the interchange of men to the front lines would have provided the virus with a steady stream of bodies to infect. The continuous movement of these troops would have spread the virus wherever soldiers went (Oxford 2001: 1857-1859).

In addition, the military camp in Etaples had its own farm and historical evidence shows that the soldiers there came into contact with live chickens, turkeys, and geese. Based on what is known about the behaviour of the H1N1 virus, these circumstances provided the perfect conditions for a direct species jump to occur (Oxford 2001:1859). This close contact with farm birds would help to support Taubenberger et al.'s (2005: 889) conclusion that the H1N1 virus came directly from avian sources.

One of the most widely accepted theories places the origin of the 1918 influenza pandemic in the United States. According to Fincher (1989: 131), the first wave began at Fort Riley, also known as Camp Funston, a military training camp and cavalry post in Kansas. In March 1918 the first case of influenza was reported at Fort Riley when Private Albert Gitchell, a mess cook, reported to the hospital with chills, fever, aches and sore throat. By the end of the week, there were 522 more admissions of soldiers with similar symptoms to the hospital. This first wave of the pandemic was relatively mild, resulting in only 46 deaths at Fort Riley (Fincher 1989: 131). The flu also spread to a number of other military camps in other Midwestern and South-eastern states. This first wave of the

pandemic was mainly confined to military training camps, but by late spring it began to spread to the rest of the U.S., including the civilian populations (Patterson and Pyle 1991: 5). By the early summer of 1918, U.S. troops travelling to France brought the virus with them (Fincher 1989: 131).

Since influenza viruses are known to have high mutation rates, it was only a matter of time before the milder form of the Fort Riley virus mutated into a more severe form. Some hypothesize "that the new strain arose in early August by genetic mutation or recombination in western France" (Patterson and Pyle 1991: 8). By the fall of 1918, the second wave of the pandemic struck with more severe symptoms, spreading around the globe to civilians who cam in contact with military men (Fincher 1989: 131).

Figure 2.2 - World Wide Diffusion of Influenza, First Wave, Spring 1918
Modified from http://www.washburn.edu/cas/history/stucker/WorldOutlineMap.html
(Patterson & Pyle 1991: 6)

Another theory suggests that the 1918 influenza pandemic actually originated in Haskell County, Kansas, not Fort Riley. Barry ("The Site of Origin…" 2004: n.pag) argues that the first wave of the pandemic actually began in late January or early February of 1918. Records kept by Dr. Loring Miner, who practiced medicine and resided in Haskell County, show curious cases of influenza that struck down the area's healthiest and strongest people at alarming rates (Barry 2004: 93).

The epidemic continued to worsen until it suddenly disappeared from Haskell County. It is interesting to note that Haskell County is a mere 300 miles west of Fort Riley. With new recruits travelling to Fort Riley, and soldiers visiting home, it is possible sick people from Haskell County had come into contact with men from Fort Riley, bringing the virus to the military base just before the March 1918 outbreak. When the second wave of the pandemic arrived with full force in the fall of 1918, the mortality rates in Haskell County were only a fraction of those in the rest of the United States. Perhaps prior exposure to the milder form of the virus offered the people of Haskell County immunity to the virulent form of the virus (Barry 2004: 94-95).

Regardless of the origins of the pandemic, the virus spread to highly populated areas in Europe, Canada, and the United States, and also found its way to more remote areas like Tanzania, Senegal, and Alaska (Oxford 2001: 1857).

Influenza arrives in Canada

It is unclear when and where the virus first arrived in Canada but the first cases of the disease occurred in the fall of 1918 in Quebec where troops first landed home. All infected soldiers were treated at Quebec army hospitals and this helped to keep the virus isolated for a short period of time. In due course, the virus spread to civilians and to replacement soldiers heading overseas to the Western Front (O'Keefe and MacDonald 2004: 57-58). Returning troops were not the only way the virus entered and spread across the country. The virus also seemed to enter and spread through the country by shipping down the Saint Lawrence, along the Atlantic coast, and along the Canadian Pacific Railway, as well as overland from the United States (see Figure 2.3) (Patterson and Pyle 1991: 10).

The first major outbreak occurred on September 8, 1918 at Victoriaville College in Quebec. Because the college did not have the necessary resources to deal with such an outbreak, those who were well enough to travel were sent home

Figure 2.3 - Influenza Arrives in Canada
Modified from http://www.washburn.edu/cas/history/stucker/WorldOutlineMap.html
(Patterson & Pyle 1991: 12)

aiding in the spread of the disease (Pettigrew 1983: 8). Pettigrew writes "[h]istorically, epidemics travel along lines of communication", this must be true because "[w]ithin weeks cases were appearing, almost simultaneously, right across the country" (1983: 13). By early October, cases of influenza were being reported in British Columbia. According to O'Keefe and MacDonald (2004: 61), the railway was an efficient spreader of the disease. "During their days-long journeys, even healthy military personnel were often taken ill, some of them dying en route, while other soldiers, seemingly on the mend, took the disease home with them" (O'Keefe and MacDonald 2004: 61).

The Pandemic and Southern Ontario

By the end of September in 1918, the influenza virus had reached southern Ontario. Toronto did not record its first official cases until October 3 when fifty

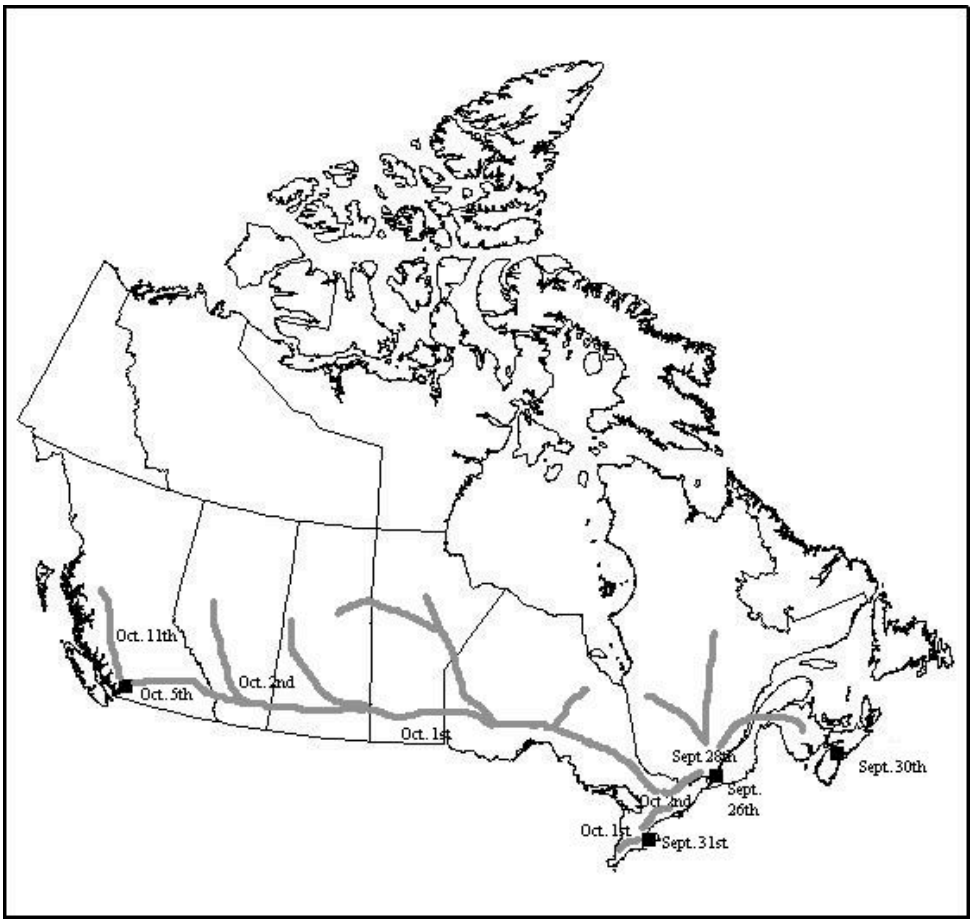


Figure 2.4 - Influenza Sources and Spread in Canada, autumn 1918
Modified from http://z.about.com/d/geography/1/0/U/K/canada1.jpg
(Johnson 1993: 89)

soldiers were quarantined at a local hospital (Pettigrew 1983: 48). "On October 5 the Toronto *Globe and Mail* ran the headline "Spanish Flu Spreading" and reported that "the disease has a firm hold on other municipalities and there have been 500 to 600 cases in Toronto with nine deaths" (O'Keefe and MacDonald 2004: 62). Local hospitals were overrun with patients, and hospital staff members were also falling ill. The city used two hotels, the Arlington and the Mossop, as

temporary hospitals to try to house and nurse the sick back to health. By October 9, over 1000 cases of the virus were believed to be present in Toronto alone. In a span of 18 days, there were 502 deaths from the disease. (Pettigrew 1983: 51-52) By the end of the pandemic, it is estimated that a total of 2284 Torontonians lost their lives due to the 1918 flu (Johnson 1993: 134).

By the end of September, the virus had hit Kitchener. The large factory city was one of the first places struck in Southern Ontario. By October 10th, there was an estimated 2429 cases of the flu. Confined factory conditions aided in the rapid and frequent transmission of the virus through the city. Hospitals were overcrowded and Kitchener lost a good number of health care workers who came down with the disease themselves. In the span of about two months, Kitchener lost almost 130 of its citizens to the 1918 flu pandemic (Johnson 1993: 99, 102, 127).

When did it reach Hamilton and how?

The first cases of H1N1 influenza were reported in Hamilton on September 30, 1918 at the Armament School of the Royal Air Service in West Hamilton. This suggests that there may have been a direct link to the war (Henley 1996: 76). The military hospital was strained with the overwhelming number of cases and the camp was placed under quarantine. A special meeting of the Board of Health commenced to prepare for the devastating pandemic that had just arrived in Hamilton (Hamilton Board of Health Report 1918: n.pag.). The spread of the pandemic through Hamilton will be addressed in Chapter 5.

Discussion

The 1918 influenza pandemic had a devastating impact on the world. Little is known about how and why this pandemic happened and people to this day are still searching for answers to some very basic questions, such as where the outbreak began. The actual origins of this pandemic may never be known because influenza is an endemic virus; it is always present in the population. With its high mutation rates, a pandemic form could arise anywhere. Despite this fact, the desire for an answer continues to drive researchers to comb historical and scientific evidence for clues to the geographic epicentre of the 1918 flu.

Despite the arguments offered by the other researchers, I would argue that the weight of the evidence supports an origin in the United States, in Haskell County, Kansas. The reports of cases just prior to the "first" wave of the pandemic are compelling. These documented cases were reported to Public Health officials and published by a medical professional who treated them. Haskell County had numerous farms that contain both pigs and birds where reassortment of the virus could occur. The close proximity of Haskell County to Fort Riley would also explain the documented cases in March at the military camp. People from Haskell County, or soldiers from the base, could easily visit one another thereby transmitting the virus between the two places.

Unlike the Haskell County evidence, the China hypothesis does not present any support of documented cases of flu outbreaks similar to the 1918 flu. Langford's arguments that China did not suffer as many cases as expected is not entirely convincing considering the vastness of land the country covers. The influenza virus spreads through contact with an infected person, which is why large dense cities are often hit harder than rural areas. Despite China having some large cities, it also has very large (and spacious) rural farmlands that do not put people in such close contact with others.

In Oxford's arguments supporting an origin hypothesis in Etaples, France, the long duration between the 1916 and 1918 outbreaks seems unlikely. If in fact the 1916 outbreaks were precursors to the 1918 flu, and that the time in between allowed the virus to "seed" throughout the world, then how can Oxford explain the numerous outbreaks that occurred in various parts of the world almost simultaneously? It is hard to imagine that the virus would have mutated in the same way, at the same time, in diverse populations around the world.

No matter where the virus evolved, it is impossible not to see a connection to its emergence and World War I. The troops' movements during the Great War enabled the virus to spread quickly and to travel far distances. The over crowded and often unsanitary conditions on the front lines, as well as in training camps and freighter ships transporting troops, provided ideal breeding grounds for the virus. During this time, there was no other reason or means for the mass movement of large numbers of people besides the war.

World War I doesn't fully explain the spread of influenza in 1918. Communication lines across countries remained open during the outbreak. As long as people rode the train, used public transit, had postmen travel from town to town, or travelled for work, the virus would have found a way to spread across

the land, albeit at a slower rate. In the case of Hamilton, it is unclear who brought the disease into the city, but the fact that the first cases were discovered in a military school suggests a link to the military and to the war effort.

3

Connections to World War I

Samantha Meyer and Peter Mayer

Letters from the Line
"…He has been using his last shells in great quantities of that horrible gas of his. I surely have had a great taste of it. I went around all one day with a roaring headache and my skin just felt as though someone had singed me and let me go." –France Aug. 27th, 1917

(Hamilton Military Museum 2006)

Introduction to the pandemic

It is commonly believed that WWI was either directly or indirectly responsible for the spread of the 1918 pandemic. As mentioned in Chapter 2, there are theories that connect WWI to the spread of the influenza pandemic. It is possible, therefore, that the war played a role in the spread of the flu to Hamilton. This chapter discusses the direct and indirect influence that the war had on the spread of influenza and considers whether WWI may have contributed to the spread of the 1918 flu to Hamilton.

Our analysis is based on many different forms of research. We first began our journey at the Hamilton Public Library Archives where we were able to search through old newspapers, microfilms, scrapbooks, and city records from the

early 1900s. Following this, our review of recent academic journals provided us with information regarding current theories that tie World War I to the 1918 influenza pandemic. We were then directed to the Royal Hamilton Light Infantry (RHLI) Armoury in Hamilton where we met with two Canadian war veterans who were pleased to share information with us regarding the conditions of war that might have contributed to the pandemic and its global spread. Another personal communication included an interview with Dr. Janet Padiak, a physical anthropologist at McMaster University. Our last investigation of World War I consisted of a trip to the Hamilton Military Museum at Dundurn Castle. We found this museum helpful in that it provided us with information regarding the conditions of World War I that enhanced the transmissibility of the flu. All of these methods of research have proved to be beneficial in obtaining information that was not documented or readily available. The information we have collected investigates the role that World War I played in the spread of the influenza pandemic to Hamilton, Ontario.

In the following pages we address the impact that World War I had on the influenza pandemic and on the spread of the virus to Hamilton, Ontario. We also discuss how insufficient records for soldiers, the overshadowing effects of war, and delays in the soldiers' return to Hamilton after the war have made it difficult to draw conclusions about the role that the war played in the spread of the pandemic to Hamilton.

The impact of WWI on the influenza pandemic

Chapter 2 discusses several theories that are currently circulating regarding the origins of the 1918 influenza pandemic. There is evidence to suggest that WWI and all those involved in the war effort, helped in the spread of the influenza virus.

A study at Etaples, France suggests that the war was ultimately responsible for the global spread of the 1918 influenza because the disease was relatively contained prior to the demobilization of troops in the autumn of 1918 (Oxford et al. 2001: 112). The dispersion of soldiers who were returning home by rail and sea would have provided perfect conditions for the spread of the influenza virus.

The camp at Etaples housed 100,000 soldiers on any given day and more than 1 million soldiers had stayed at the camp on their way to the Western Front

between 1916 and 1918 (Hammond Rolland and Shore 1917: n.pag). According to Vera Brittan, who worked as a nurse at the camp, the soldiers were living in conditions that were overcrowded and heavily burdened (Brittan 1998: n.pag). This would have fostered an optimal environment to allow for the widespread outbreak of influenza. With so many people coming and going through the base, the soldiers would have been the ideal vessels to harbour and spread the virus among their comrades. The tightly packed space that housed the soldiers would have allowed people to remain physically close to those who were sick and thus become infected themselves.

The circumstances of the war on the Western Front would also have helped to spread the sickness. The living conditions were overcrowded, contaminated and the civilians were stressed (Oxford et al. 2002: 113). In the poor living conditions, the virus would have had the opportunity to spread rapidly between young soldiers allowing many possible mutations in the virus' genetic make-up. Changes that can occur over time in the viral genome are important factors in the evolution of the virus into a particularity virulent form, possibly resulting in a pandemic (Oxford et al. 2002: 113).

The war was a factor in the spread of the pandemic because the profile of the 1918 influenza was seen in countries other than France. Similar symptoms were seen in Scotland, England and Wales (Oxford et al. 2002: 111). The brutal conditions of war and the close-knit communities of the soldiers staying in the United Kingdom and France provided an easy mode of transmission between the men in camps, trenches, and especially hospitals.

Another study conducted in Haskell, Kansas links an American army camp to the spread of the 1918 influenza pandemic. This study suggests that the people of Haskell, Kansas, a county located near Fort Riley (Camp Funston), may have been the first to experience the influenza pandemic (Barry "The Site of Origin…" 2004: n.pag). Many of the soldiers that were housed there started to fall ill. It is still not clear why so many people became sick there. Rarely were there so many soldiers falling ill under such good conditions (Soper 1918: 451). The camp was a large meeting ground for soldiers. They reported to the camp for training from all nearby counties and constantly had family and friends visiting them (Barry "The Site of Origin…" 2004: n.pag). With people constantly coming and going, the flu would have been easily spread among the communities surrounding the camp. In one particular case, a soldier named Dean Nelson surprised his friends by arriving home from Camp Funston on a five day furlough.

He soon returned to the camp (Barry "The Site of Origin…" 2004: n.pag). This is just one case of many that illustrate the movement of soldiers back and forth between the camp and community (Barry "The Site of Origin…" 2004: n.pag). This story was among many that discussed the role in the outbreak of returning or visiting soldiers stationed at Camp Funston. Dean happened to be stationed there between February 26th and March 2nd, two days before the first case of influenza at the camp. By March 4th, the first soldier at the camp was reported ill (Barry "The Site of Origin…" 2004: n.pag). Within three weeks, more than 1100 of the 56,000 troops were sick, nearly 20% of the soldiers stationed at Funston (Barry 2004: n.pag). During this time Camp Funston was sending a constant stream of men to Europe and other bases across the nation (Barry "The Site of Origin…" 2004: n.pag).

The series of outbreaks at Camp Funston, Kansas suggests that the influenza virus jumped from camp to camp in Kansas, and then travelled with troops to Europe during World War I (Barry "The Site of Origin…" 2004: n.pag). The soldiers travelled from Camp Funston to the many army bases in France. On March 18th, there were a few cases reported in Georgia base camps. By the end of April, there were 30 major cities in the United States reporting an excess mortality from influenza and pneumonia (Barry "The Site of Origin…" 2004: n.pag). By autumn, there were cases in Brest, France, the single largest port of disembarkation for the American Troops. It was as if the soldiers were viral time bombs. By the fall outbreak, during the period of September 12th to October 18th inclusive, the total number of cases were staggering. Table 3.1 summarizes the growing number of cases among U.S. troops reported during that period.

	September		October			Total
	20th	27th	4th	11th	18th	
Influenza	10,094	37,493	88,478	90,393	48,287	274,745
Pneumonia	758	4,313	8,655	17,882	14,768	46,268
Deaths	96	951	2,275	6,005	5,289	14,616

Table 3.1 - Reported Cases among all U.S. troops for the Period, Sept. 12 - Oct.18 1918
(Soper 1918: 452)

Even in army camps closer to Hamilton, such as Camp Devens in Massachusetts, the sickness was spreading rapidly despite measures that were taken to try and keep it in check. As many as 15,000 new cases of infection were seen in a single camp on a single day (Soper 1918: 453). The American army seemed to be having a rough time with the flu but they were not letting it hold them back from sending troops overseas. It is suggested that although the disease began in Kansas, the mobilization of army troops due to World War I was a factor in the global spread of the pandemic.

A study in Geneva, Switzerland also indicates that World War I was a major factor in the global spread of the influenza pandemic. In Geneva, the conditions were the same as everywhere else in Europe at the time: deprived and hard (Ammon 2001: 165). In Geneva, autumn was the hardest part of the year and the first cases began to appear among foreign and local soldiers who were based at boarding posts. From here the disease spread quickly to civilians (Ammon 2001: 166). As was the case in other camps that had reported growing rates of influenza infection, the camps in Geneva were cramped and easily facilitated the spread of the disease among troops (Ammon 2001: 166). After the influenza virus had time to flourish in these conditions, the few soldiers who could be sent out to fight likely continued the spread outside of Geneva in much the same way as had been the case with Americans troops.

The impact that troops in Geneva had on the spread was not nearly as severe as the impact of other regions. This is because fewer sick men were deployed from the camps due to the fact that so many of the soldiers had fallen ill in a short time span and were unable to be deployed. For instance, a large proportion of the troops (50-80%) and staff from sanitary services (50%) fell ill within two days of the first reported cases in Geneva (Ammon 2001: 166). It is thought that the virus was being spread through the dirty laundry of troops. It was suggested that civilians washing the soldier's dirty laundry and opening mail from infected soldiers were also getting sick. In Geneva, this information was being printed in newspapers to inform the public and to make them aware of how the sickness was spreading (Ammon 2001: 167). It was believed that the war effort was contributing to the spread of the sickness; consequently, the Swiss government took careful precautionary measures to prevent its spread.

All three of these studies indicate that the war was a factor in the global spread of the influenza pandemic. In every case, the camps that housed the soldiers prior to, and during the fighting, were places that allowed influenza to

reach a large number of people in a short period of time. Unfortunately, the bases were not secluded and the sickness that spread among the soldiers spread just as quickly to visitors.

It is possible that the war played a direct role in the spread of the flu to Hamilton; however, another plausible argument illustrates the indirect role that the war had on the spread of influenza.

Research in Sydney, Australia illustrates that the war indirectly helped to spread the influenza globally. Prior to 1918, there were no cases of influenza reported in Australian history. In October of 1918, there were a few cases that occurred among the medical staff of the Sydney quarantine but Australia as a whole was not affected by the pandemic until 1919 (Oxford et al. 2002: 112). When the pandemic did strike, the statistics were very intriguing. The deaths occurred over a large area and over a short period of time, which is odd. With the absence of air travel, there was no way to explain how the virus spread so quickly across such a large body of land (Oxford et al. 2002: 112). This suggests that the disease that had affected the nurses in Sydney had spread across the country before the outbreak. In other words, the initial spread served to "plant the seeds" for the later 1918 pandemic (Oxford et al. 2002: 112). With small numbers of cases around across the country, all that the virus needed was the right environmental conditions to allow it to flourish. Many people were worrying about loved ones who had gone off to war and the stress this caused would have allowed for an optimal environment for the spread of the influenza virus.

Similar to Australia, early cases in many other countries could have acted as seedlings for subsequent outbreaks associated with returning soldiers. War was the perfect environment for the spread of influenza. There were constant movements of people to and from the fighting grounds, the conditions were poor due to the war, and the close contact among soldiers made it easy to spread the virus between soldiers from all over the globe.

In the Australian case, however, the war did not directly influence the spread of influenza; rather, it helped the disease to flourish in places where cases had already occurred. Oxford and colleagues (2002) suggest that if cases of influenza had not existed prior to the outbreak, the disease would not have diffused so rapidly or so far.

The war's influence on the spread of the flu to Hamilton

These four examples suggest that World War I contributed to the global spread of the pandemic either directly or indirectly. The massive troop movements to and from Europe may have aided the spread of the flu to Canada and, in particular, to Hamilton. By October 1918, the flu was raging in all the principal cities and military camps of the eastern United States and in many Ontario cities (Canada 1918). In Hamilton, some of the first cases were reported from the Royal Air Service (RAS) in west Hamilton (Henley 1996: n.pag). Evidently, the first civilian cases were also reported in west Hamilton. This suggests the possibility that soldiers housed at the RAS were a factor in the spread of the flu to Hamilton. There are two possible avenues whereby the flu may have spread between soldiers and civilians. First, infected soldiers returning home from war may have infected fellow soldiers stationed at the RAS; in this way, they indirectly infected civilians through a chain of transmission. Second, infected soldiers may have passed the flu virus directly to family and friends. Unfortunately we have been unable to acquire the personnel records for soldiers stationed at the Royal Air Service in Hamilton and are therefore unable to determine whether or not the first soldiers who fell had recently returned from overseas service. If they had just returned from war, we can assume that the infected soldiers infected the civilian population in Hamilton. However, if the soldiers who fell ill had not been deployed to Europe, then no connection can be made between overseas military service and the spread of influenza to Hamilton.

The Hamilton Spectator gives some indication of ways in which the war effort may have contributed to the spread of influenza in Hamilton. Despite the fact that Hamilton was in the middle of a pandemic, people wanted to celebrate the return of the troops and they pressed to have public bans lifted so that they could see the troops march back into the city (Henley 1996: n.pag). People were willing to take this risk in order to celebrate their heroes.

The celebration of Tank Day in Hamilton's Gore Park is another example of how the war may have contributed, indirectly, to the spread of the disease among civilians who attended such events. When news of the armistice was released, people gathered to celebrate in their communities, allowing the pandemic to surface and spread in Hamilton again (Henley 1996: n.pag). Similarly, parades for Victory Loans (discussed in chapters 11 and 12) could have helped to spread the virus. These examples show that regardless of whether the

returning troops brought the virus directly to Hamilton, there were circumstances incidental to the war that helped to spread the disease because they brought people together in large crowds for wartime celebrations.

Greenish-Grey Cloud……Mustard Gas

"We saw figures running wildly and in confusion over fields. The story they (retreating soldiers) told, we could not believe; we put it down to their terror stricken imaginings. A greenish-grey cloud has swept down upon them turning yellow as it traveled over the country blasting everything it touched and shrivelling up vegetation. No human courage could face such peril. The there staggered into our midst French soldiers blinded, coughing, chest heaving, faces an ugly purple colour, lips speechless with agony and behind them in the gas chocked trenches we learned they left 100's of dead and dying comrades. The impossible was only too true. It was the most fiendish, wicked think I had ever seen." – Unknown soldier description of 1st gas attack at Ypres

(Hamilton Military Museum 2006)

The uncertainty of the war's role in the spread of the pandemic to Hamilton, Ontario

The following section addresses three issues that presented problems in our attempts to draw conclusions about the war's influence on the spread of the 1918 pandemic to Hamilton, Ontario.

1. Lack of records

There have been many scholarly journal articles written about the 1918 flu; however, there are virtually no records of influenza mentioned in the Hamilton Military Records. Further, there are no readily available records for Hamilton troops that detail the soldiers' illnesses or causes of death. There are some very

general records that note the dates of death for soldiers, but it is difficult to determine the extent to which influenza affected soldiers stationed in Hamilton in 1918. There are three reasons for this:

First, prior to World War I, Sam Hughes had become the Minister of Militia and Defence (Blackborow and Overy 2006). Hughes was given the responsibility of overseeing the prompt recruitment, training, and dispatch of forces for active duty. Prior to his placement, the military in and around Hamilton were grouped into regiments. Regiments were the smallest military unit capable of independent operations. They were close-knit families of soldiers with a maximum of 400 people (Blackborow and Overy 2006). Sam Hughes noticed that the regiments were too small to send over singularly and so he grouped regiments together into battalions of over 1000 people. These battalions were sent to fight in the war (Blackborow and Overy 2006). Each battalion was comprised of at least 2 regiments under the command of a colonel. Hughes did not see the purpose of dispatching small regiments under the authority of a colonel. These large battalions were composed of enlisted men from all regions of Canada; when they were discharged, there was no particular city that kept records of the battalion (Blackborow and Overy 2006). Any information about the soldiers was sent to the nation's capital in Ottawa or was lost. Each regiment had its own home base and records for its enlisted men. However, once the regiments were combined into a battalion, the detailed records discontinued (Blackborow and Overy 2006). When the soldiers were discharged, the military kept no record of them. There were also many men who were enlisted as part of the military militia (part-time) and no records were kept for them either. The lack of record keeping, and the difficulty involved in accessing those that do exist, makes it difficult to evaluate the role that Hamilton soldiers may have played in the influenza pandemic.

Second, and to make matters worse, nearly 60% of the records kept by the British Troops were destroyed in the course of World War II. Any records of Canadian soldiers that were kept in Britain would have been lost at that time. The remaining records that exist for Canadian soldiers remain in Ottawa at the Canadian Military Museum (Blackborow and Overy 2006).

The third reason why there are virtually no records of influenza among Hamilton troops is because it is virtually impossible to determine whether soldiers were suffering from influenza, or from some other disease. Furthermore, influenza was not a recognizable or reportable disease at the time. Along with

other similar diseases, it was frequently listed as Pyrexia Unknown Origin, or PUO. Trench fever was also very common and its symptoms mimic influenza (Padiak 2006).

2. The overshadowing effects of the war

There are other reasons for the limited literature on the connections between the war and influenza. The First World War mobilized 8,904,467 men and women in the British Armed Forces. Of these men and women, there were a total of 908,371 deaths from all causes. Canadians alone suffered the loss of 60,000 soldiers (Hamilton Military Museum 2006). Soldiers suffered poisonous gas attacks, explosions, bombings, and many other brutalities of war. Due to the heavy workload and severe exertion, it was not uncommon to see soldiers suffering from hernias. The long hours spent in trenches and in combat also led to a great deal of frostbite and, in turn, to the loss of fingers and toes in many cases (Cavanagh 1997: n.pag). Thirty-two thousand men survived the war with unclassified wounds of various causes, some requiring treatments such as amputation. Survivors suffered industrial deafness, maimed body parts, missing limbs, eyesight injury and the constant psychological effects of World War I (Cavanagh 1997: n.pag). Soldiers were exposed to terrible circumstances that they probably never imagined they would witness in their lifetime (Hamilton Military Museum 2006). These men were overcome with so many diseases, gassings and war wounds that the flu was not their chief concern.

Germ warfare was another aspect of war that the men had to worry about. They were concerned that their canned food was contaminated by the German troops. They also worried about the water being infected with the bacterium that causes cholera (Padiak 2006). The soldiers had reason to worry about germ warfare because World War I marked the first time gas was used as a weapon and the Germans proved to be very clever in their war tactics. Therefore, any new outbreak that occurred among the troops tended to be hidden as much as possible and kept out of the records so that the information did not end up in the wrong hands (Padiak 2006). If the Germans learned about outbreaks of disease, for instance, they could play on the vulnerability of the soldiers. Considering all that the soldiers had to endure, it is no wonder that for a long time the 1918 influenza pandemic remained buried in the trenches with the soldiers of war.

Life in the trenches was unlike anything one can imagine. In Northern France where many British troops were stationed, farmers fertilized their fields with horse and human feces (Blackborow and Overy 2006). The smell of death lingered as thousands of corpses decayed and slowly sank beneath the soil (Blackborow and Overy 2006). These are just some of the horrific conditions the men were forced to endure. They were also made to work 48-hour shifts in the trenches where they were knee deep in water and surrounded by their own excrement (Blackborow and Overy 2006). We believe that conditions like these may have helped to increase the spread of influenza.

Unlike the lists of wounded and dead soldiers, it is very difficult to find figures that acknowledge the thousands of soldier affected by specific diseases. Malaria, dysentery and other diseases constantly swept through the troops. One hundred thousand men were afflicted with diseases too numerous to classify and almost half of the diseases were classified as respiratory (Canvanagh 1997: n.pag). With so many people getting sick, it is likely that record keeping was a low priority and that it would have been difficult to maintain accurate tallies of influenza cases.

After all, influenza was one among many respiratory diseases that took a toll among the soldiers. British troop records alone show that by October 19th of 1918, 3000 cases of influenza had been reported (Padiak 2006). Despite the large number of deaths it caused, the influenza pandemic remains forgotten and overshadowed by the many other horrific memories of the First World War.

3. Delayed return home

There are two reasons why Hamilton soldiers may not have returned directly home from service overseas, thereby preventing them from bringing the virus with them. It would have been very difficult for soldiers to bring the virus directly to Hamilton because the various means of transportation were relatively inefficient compared to air travel today. The ships would not have been able to make the trans-Atlantic journey sufficiently quickly for the soldiers to remain infectious by the time they arrived in Canada. Since the incubation time for influenza was roughly 48 hours, the likelihood of the men on a ship still being sick when it docked was slim (Padiak 2006). The trip from Europe to North America normally took between two to two and a half weeks. Troops that embarked upon the journey infected with influenza would have completed the

course of the illness, either recovery or death, well before reaching North America (Padiak 2006).

The second reason it would have been difficult for soldiers to bring influenza directly to Hamilton is because many of the soldiers did not come straight home. Plans for bringing the Canadian soldiers home from Europe began

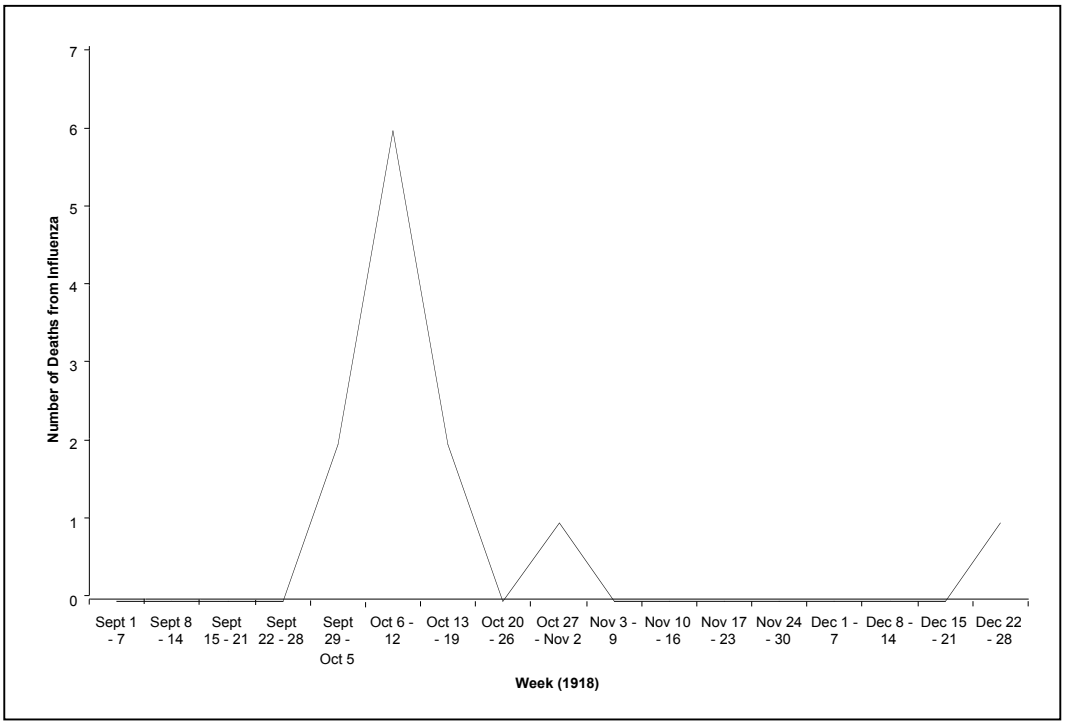


Figure 3.1 - Epidemic Curve of Hamilton Soldiers Sept – Dec, 1918
(Government of Ontario 1918 – 1919: n.pag)

in 1917, but in reality, many of the soldiers did not get home until some time in 1919 after the worst of the outbreaks had occurred (Hamilton Military Museum 2006). There are multiple reasons why the soldiers did not return home immediately after the war. We attribute the delayed arrival to ships becoming ice bound, bad weather on the Atlantic, worn out railways, and slumping employment. Because of the flu, the Canadian government was unable to keep all

transportation services fully operational (Hamilton Military Museum 2006). Many of the Canadian troops were stationed in Halifax on their return from Europe; had they been infected, they would have spread the sickness there prior to returning home to Hamilton (Hamilton Military Museum 2006). Because a large number of soldiers were stationed on the east coast for a long period of time, there is very little chance that they could have helped to spread influenza to cities across Canada. This is evident in the epidemic curve that shows the deaths of soldiers in Hamilton between September and December 1918 (Fig 3.1). The peak number of deaths among soldiers occurred at the same time as the peak in civilian deaths (see Chapter four). If the soldiers were responsible for bringing the disease to Hamilton, we would expect to see a large number of cases among them prior to the civilian outbreak. Also, we infer that the number of soldiers who were ill with influenza was small because throughout the four months of the epidemic, only 12 soldiers died from the disease. This suggests to us that they were not responsible for spreading influenza to Hamilton. Of course, the small number of cases may have stemmed from the fact that most soldiers hadn't yet returned home.

Conclusion

It may never be possible to determine with any precision how tightly connected the spread of the 1918 flu in Hamilton was to World War I. It is possible that the influenza virus was spread globally as a result of ill, demobilized soldiers who carried the influenza virus home. However, influenza was but one of many different health concerns facing the troops during the war. The outbreak of the 1918 flu was a minor worry for soldiers who had lived and survived in dangerous environments abroad. We presented the different hypotheses regarding the involvement of the war with influenza outbreak, but it is difficult to conclude with certainty which of them can be applied to the specific case of Hamilton, Ontario. With so many lost records during World War II, there is insufficient military evidence to prove that a direct connection exists between World War I, returning troops infected with the virus, and the spread of the flu to Hamilton. Based on the research we have conducted, we believe that soldiers may have played a role in the worldwide spread of infection and its arrival in Canada, but it is not possible

Contamination and Infection

"Unfortunately, it does not fall to the lot of the nurse or surgeon to experience it (Romance). As many of our cases had lain for hours on the field of battle, their wounds became contaminated by dirt and flies, and then we receive them, they were still wearing first aid dressing that had been applied days before." – J. Breckinrodge Bayne – 1914- 1918

(Hamilton Military Museum, 2006)

to draw a direct connection between Hamilton soldier-civilian infections because of the lack of reliable records. The possibility remains, however, that the Royal Air Service (RAS) in west Hamilton was an early locus of infection, given the early cases and deaths there. Whether or not the influenza virus arrived via soldiers, or via infected civilians that were sent to the RAS, remains to be explored.

War Time Worries

...1914 surgeons were perplexed by a deadly bacterium know as has gangrene. It infected almost all wounds, and traditional antiseptics were useless at fighting the bacterium. Centuries of battle had produced highly cultivated fields littered with human/animal excretion, fragments of artillery, gas grenades, trench mortars and other materials ideal for deadly anaerobes to flourish. These fields were s heavily blanketed with the organism that almost all wounded soldiers developed infectious within a few hours and could be dead within 16.

Life in Dirty Conditions

..."Your letter came some few days ago but I felt so dirty and covered with mud, I was frightened to touch anything clear to do and writing. I managed to get near enough to a fire to get the mud fry for once so U scraped off what I could then and then went over to a big shell hole and had a good wash."
– France April 13, 1917

(Hamilton Military Museum, 2006)

4

Hamilton's Epidemic Wave

Kiran Persaud and Cheryl Venus

Introduction

The purpose of this chapter is to investigate the 1918 Influenza epidemic wave in Hamilton because it has not been studied in great detail in the past. Our analysis is based on the death records found in the Ontario Archives (Government of Ontario 1918-1919: n.pag). We also analyze funeral records found in the Hamilton Central Library Archives which include the Blachford and Wray Funeral books and Dwyer Funeral Records.

Our general research question is: "Who died during the second wave of the 1918 Spanish Influenza epidemic in Hamilton?" which is illustrated by the epidemic curve showing the onset, peak and fall of the Spanish Influenza in Hamilton as reflected in the death records. We also consider the distribution of deaths by sex, place of birth, location of death and differential use of funeral homes. Our initial expectation was that the epidemic curve would show a sharp increase in influenza and influenza related deaths in Hamilton between the months of October and December 1918. These months represent the second wave of the epidemic

Digging through the archives

The work for this chapter began with a very dedicated group of researchers, determined to uncover the forgotten history of the 1918 Spanish Influenza. A total

of seven researchers dug through archival information specifically related to deaths from the 1918 Flu.

The main source of information was data collected from the Hamilton Public Library (HPL) Archives and the Ontario Archives. The Hamilton Public Library Archives contain lots of useful information. For the purposes of this chapter, we focus on the funeral records of Blachford and Wray and Dwyer Funeral Homes, which are kept at the HPL Archives. The record books list information such as name, age, place of death, cause of death, marital status, date of death, details of funeral services and cost of funeral ("Deceased Funeral Information" 1990: n.pag). Information from both funeral homes was available on microfilm and also in some original record books ("Deceased Funeral Information" 1990: n.pag). Before collecting burial, and funeral home records, the group of researchers responsible for data collection agreed upon a standardized set of information that each would collect from the various funeral homes. Many of the records did not explicitly list whether the person in the funeral records was male or female. Consequently, the researchers assigned sex based on given names and later confirmed unknown cases with death record information from the Ontario Archives. After several weeks of data collection at the HPL Archives, the researchers had created a database from the two funeral homes that included all deaths between June 1918 and March 1919.

The data from the Ontario Archives was also vital to the writing of this chapter. The data collection team gathered information listed in the death records for Hamilton from September 1918 to December 1918. The information assembled offered an abundance of details on every death in Hamilton during the second wave of the 1918 Spanish Influenza. The death records also provided the most objective, standardized and complete information because every death in the registry was recorded using the same criteria and each death record was a legal document intended for government records. Thus, data collected and information gathered from the death registry is the most unbiased, complete data set available.

Hurdles along the way

Due to the fact that the funeral home information was hand-written, we often had difficulty transcribing the information in records and logbooks. Quite often, more than one person was responsible for record keeping at the funeral homes and once a researcher became familiar with their style of writing, the recorder and writing

technique would change thus adding to the difficulty of data collection. In addition, much of the information in the Dwyer funeral records was not standardized and this led to incomplete information in the records.

Some of the archival information was fragile. The Blachford and Wray Funeral Records were well preserved by the HPL Archives but handling the documents with utmost care required lots of time and patience. For instance, in order to handle the funeral record books, gloves needed to be worn at all times, which made the process of data collection a tedious and lengthy endeavour. As a result, the biggest challenge in the data collection process was time. The data collection process was time-consuming and required patience and accuracy. Even with multiple researchers collecting primary data from archival sources, the entire process took many weeks and a lot of dedication and collaboration from all researchers. Many complications arose during the standardization process but eventually we developed an accurate set of funeral and death records.

The epidemic curve

The purpose of this section is to outline the onset, peak and fall of the second wave of the 1918 epidemic in Hamilton. The death registers for Hamilton from September to December 1918 show that 473 individuals died from influenza. The first recorded death from influenza was twenty five year old, Canadian born Hatty Wirchosky, who passed away on October 3, 1918 (Government of Ontario 1918-1919: n.pag). The deaths from influenza peaked in November when 194 people succumbed to the illness. This is an increase over the 129 people who died in October. The deaths then decreased to 104 deaths during December. Unfortunately, due to time constraints, we were unable to collect records beyond December 1918, and so our analysis ends with that month. More data collection will have to be done in order to study the effects of the second wave of the Spanish Influenza outbreak in Hamilton.

The epidemic peaked during the week of November 24th to 30th when fifty three individuals died in one week from Spanish influenza; however, many individuals also died of other causes (Figure 4.1). The greatest number of influenza deaths, 53, occurred in the week of November 24th-30th.

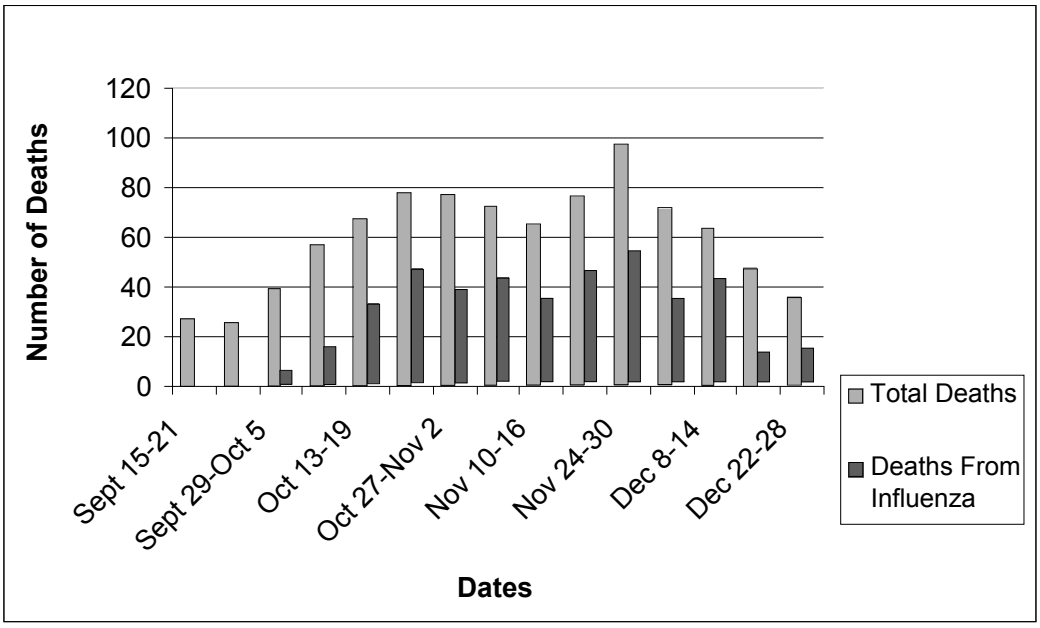


Figure 4.1 - Deaths from Influenza versus All Deaths
(Government of Ontario 1918 - 1919: n.pag)

On the other hand, the week of December 8th to 14th had the highest percentage of influenza-specific deaths (66%) compared to deaths from all causes (Figure 4.1). The funeral records for Blachford and Wray and from the Dwyer Funeral Home show a similar pattern to that found in the Death Registers (Table 4.1). In November and December, influenza deaths grew to half of all the deaths handled at these funeral homes. In the case of Dwyer Funeral Home, non-influenza related deaths were handled in approximately equal amounts as influenza deaths. A higher number of unknown causes of death were seen in the Dwyer Funeral Home records, possibly as a result of their un-standardized record keeping.

Deaths by place of birth

It is interesting to note that the epidemic had a disproportionately severe effect on some populations, especially marginal groups (Mamelund 2006). Because of this,

we wanted to know whether the epidemic affected foreign born Hamilton residents differently than it did native born residents.

	Death Records			Blachford and Wray			Dwyer		
Month	Yes	No	Unknown	Yes	No	Unknown	Yes	No	Unknown
September	0	100	0	0	100	0	0	85.7	14.3
October	43.2	56.4	0.4	34.2	65.8	0	45.2	36.9	17.9
November	56.2	43.2	0.6	51.4	48.6	0	47.4	44.3	8.3
December	46.8	53.2	0	51.6	48.3	0	38.9	57.4	3.7

Table 4.1 - Total Percentages of Deaths from Influenza
(Government of Ontario 1918 - 1919: n.pag and "Deceased Funeral Information" 1990: n.pag).

Three categories were created for this analysis: the native born category consisted of anyone with a birthplace within Canada; the Foreign Born group consisted of those with a birthplace outside of Canada; and the unknown place of birth category consisted of people without a listed birthplace (Figure 4.2). Most of the foreign birthplaces were from Europe or the United States of America; however a small number were born in countries such as India and China. Figure 4.2 shows little difference in the proportion of influenza deaths among foreign born and native born individuals in the Hamilton death records. Perhaps record keeping was not done efficiently or individuals who had migrated recently were not well known or connected to specific communities; thus, once they died, no one knew their place of origin. These results support the idea that the Spanish Influenza epidemic was an indiscriminate disease affecting everyone in the same manner.

Deaths in institutions

During data collection, it was noted that a disproportionate number of individuals appeared to be dying in institutions rather than within homes. Institutional deaths were defined as deaths that occurred in government or privately owned institutions, such as hospitals, asylums, convalescent homes, or within the Sanatorium. Analysis of the death records shows that a large number of individuals died within institutions, relative to the size of the population that

normally resided there (Fig. 4.3). The proportion of influenza deaths in institutions also increased over the course of the epidemic. It may be that more individuals were dying in institutions because they represented the more severe cases; that is, they were sick enough to be taken to a hospital, where they later succumbed to their illness. Institutions may also have been breeding grounds for infection, which further spread disease because of the close quarters, poor air quality, shared facilities and limited beds.

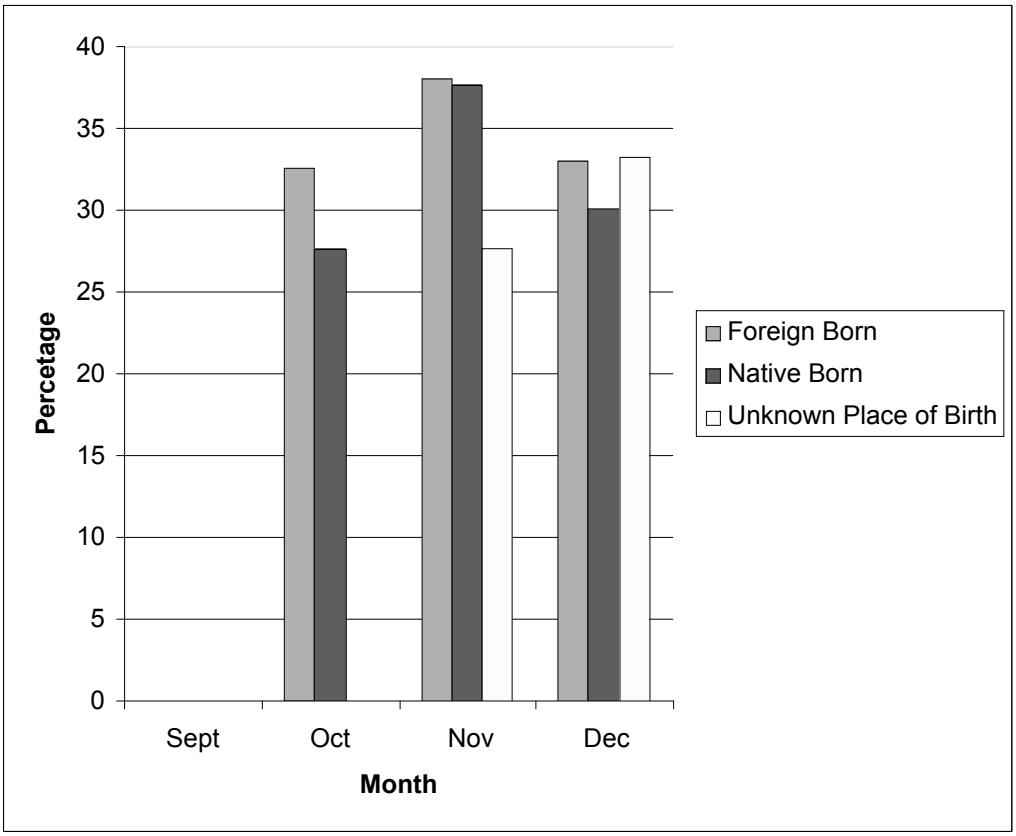


Figure 4.2 - Percentages of Influenza Deaths by Month by Birth Place
(Government of Ontario 1918 - 1919: n.pag)

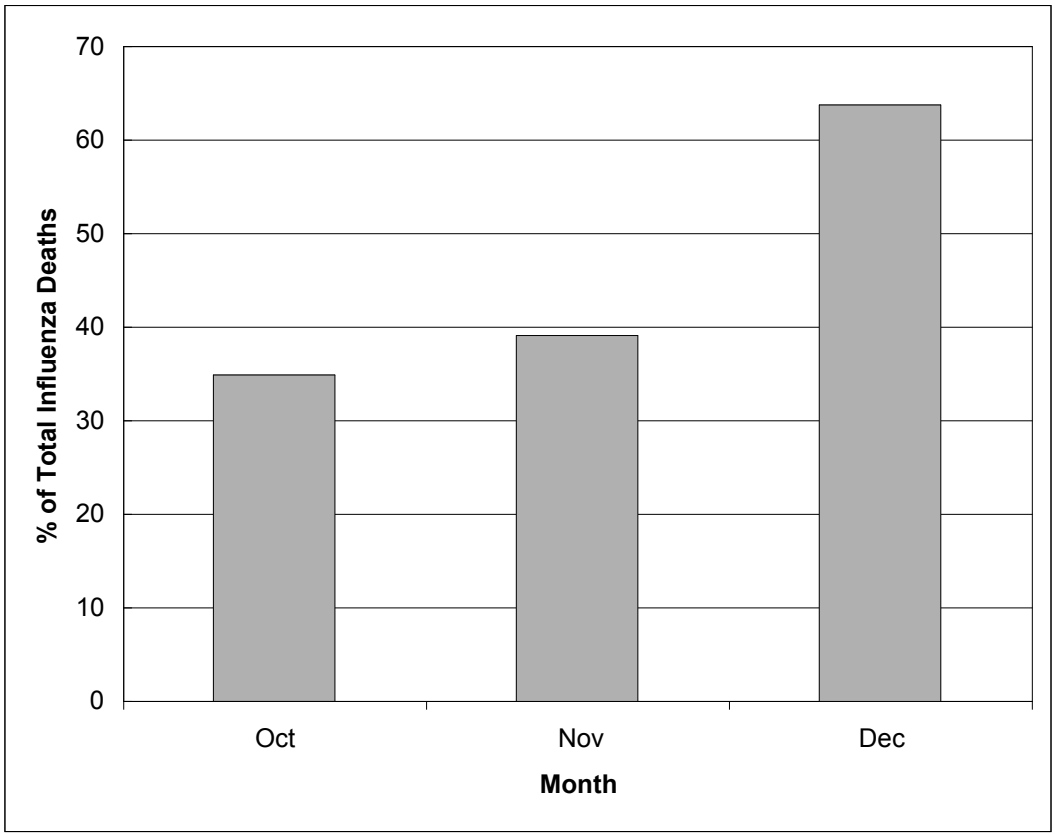


Figure 4.3 - Percentages of Influenza Deaths by Month within Institutions
(Government of Ontario 1918 - 1919: n.pag)

The funeral records, particularly those from Blachford and Wray, show a cluster of deaths from the Hamilton Asylum from November 10th to December 19th. The Asylum generally housed people with psychiatric disorders. During that period, 26 out of 87 deaths from influenza (30%) occurred among inmates of the Asylum. Perhaps the flu virus was introduced by visiting family and friends or by infected doctors and nurses.

It is evident that the percentage of influenza deaths within institutions drastically increased with 39% of influenza deaths in November and over 69% of influenza deaths in December occurring in institutions. As seen in Figure 4.3, the

data support the idea that influenza was being spread within institutions. It is also possible that the increase in institutional deaths reflects an attempt to control and isolate people who were suffering from Spanish Influenza.

Death by sex

In examining the distribution of influenza deaths between the two sexes, it is apparent that more men died from influenza than women (Figure 4.4). There are a number of possible explanations as to why influenza affected the two sexes differently. One possibility is that males were more likely to be part of the paid workforce and thus would have had a greater chance to be exposed to the influenza virus through their daily contacts and interaction in the workplace. Women mainly worked in the domestic sphere and much of their daily routine occurred within the household and neighbourhood where there exposure to the virus may have been more limited.

Considerations

There are always potential influences and biases associated with archival information that can lead to inaccurate interpretations. One of the first areas to consider is the limited amount of information that has survived from funeral homes in Hamilton during the period of study. By examining only two funeral homes, our sample does not provide a full picture of the impact of the Spanish Influenza in Hamilton. It was therefore necessary to rely on the death records from the Ontario Archives because this resource provides the most complete and standardized information. We are unsure how many funeral homes existed during at the time of the epidemic; some may have changed their names or ownership or been documented under more than one name. In the case of the Blachford and Wray Funeral Home, duplicate listings for funerals held there were found on forms with the heading “Blachford and Son” Funeral Home. After much deliberation and cross-reference, it was determined that the two funeral homes were one and the same. Without careful cross-referencing and the discovery of this duplication, a very inaccurate count of deaths in funeral homes could have occurred.

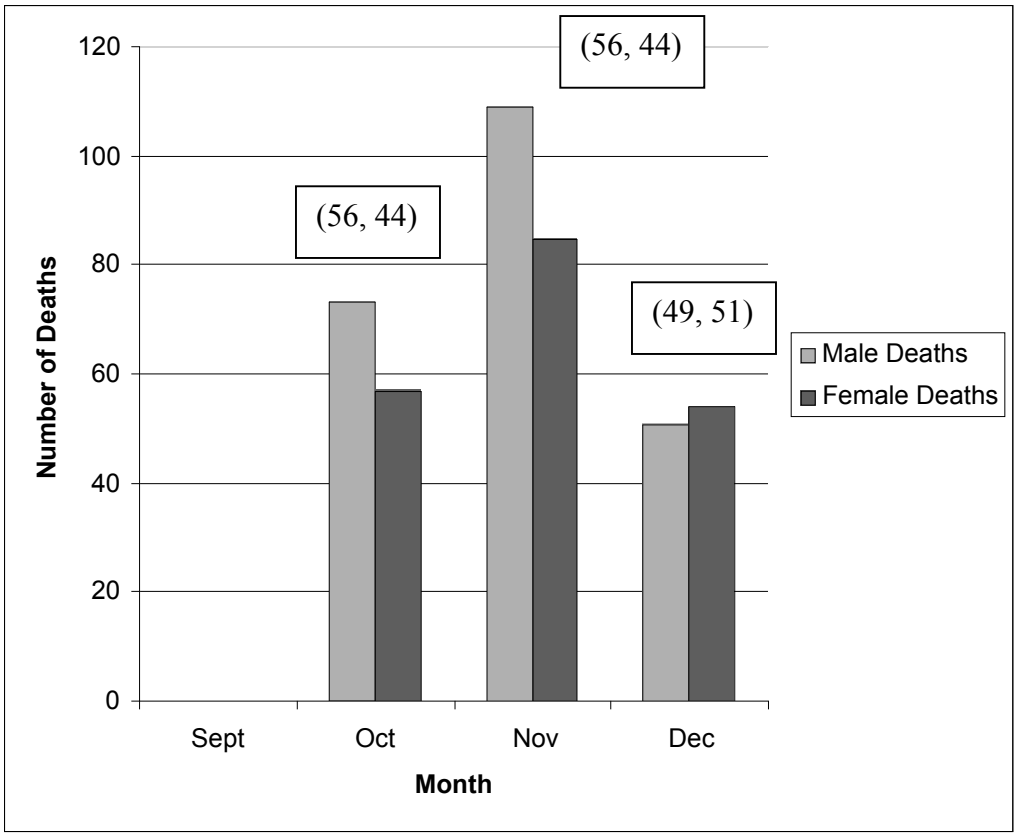


Figure 4.4 - Distribution of Influenza-related Deaths by Sex
(Government of Ontario 1918 - 1919: n.pag)

Funeral records from specific funeral homes, moreover, may represent influenza deaths from certain pockets of the population of Hamilton. If a funeral home were located within a crowded part of the city populated primarily by low-income families, the data collected from the local funeral home might have a higher incidence of influenza deaths than occurred in the city as a whole. Also, proximity to asylums or other institutions where influenza was prevalent may have contributed to the spread of the disease to people in the surrounding area.

There are other issues to keep in mind when considering the results of this analysis. Over and above the errors that can be introduced through transcription

mistakes during data collection, it is important to remember that the records themselves may not have been kept carefully during the epidemic because of the chaos that surrounded the crisis and the sheer volume of deaths. For example, if a funeral home regularly handled ten funerals per week and then suddenly had to handle six to seven times that number, there may be gaps and missing information in the records resulting from the struggle to keep up with the work of burying the dead. It is also important to consider errors in diagnosis that may have occurred. There may have been differences in the diagnostic expertise of the doctors who treated the sick during the epidemic and misdiagnoses of influenza likely occurred.

In sum, the epidemic curve derived for the fall outbreak of Spanish Flu in Hamilton is likely, at best, represents a best estimate of the pattern of mortality from September through December of 1918. It is interesting to note, nonetheless, that this curve is similar to epidemic waves charted for England, Scotland and Wales. As was the case for Hamilton, influenza peaked in November with over 70 000 deaths compared to over 20 000 deaths in October and December 1918 (Phillips and Killingray 2003: 134). Such information illustrates that the second wave of the 1918 Spanish Influenza was experienced in a similar fashion in other areas of the world.

Conclusion

This preliminary analysis suggests that the fall wave of the 1918 influenza pandemic began in October and peaked in November; interestingly a greater proportion of all deaths were attributed to influenza in December. Men and women died in relatively similar numbers, though male deaths exceeded female deaths. In addition, deaths in institutions seemed to increase over the course of the epidemic, which may reflect the control measures that were being put into place in order to isolate cases and limit the spread of the disease. In sum, the 1918 Spanish Influenza epidemic wave in Hamilton showed a sharp increase in influenza and influenza related deaths between the months of October and December 1918.

5

The Epidemic Spreads through the City

Andrea H.W. Chan and Hagen F. Kluge

In this chapter we describe the spread of the autumn influenza epidemic in Hamilton from the first recorded death in October to the last death in December 1918. For our contribution to this book we were interested in understanding who died from influenza during this period and how this may have changed over the course of the epidemic. In order to understand the epidemic from an anthropological perspective we wanted to place the deaths within the wider social context and identify exactly who died from influenza. We wanted to give names and faces to the numbers. Prior to any discussion of the social and economic factors influencing mortality, we also wanted to understand where these deaths occurred and how the epidemic moved through the city. We felt that the best way to convey this information was through the use of a series of maps, each of which displays addresses for those who died during the fall epidemic.

The information used to construct these maps was gathered for the most part from the death registers housed at the Archives of Ontario. In many ways, the act of data collection itself was the most significant aspect of this research project. Many hours were spent in the Archives gathering the names of the deceased. Names were linked to addresses using the 1918 Hamilton City Directory housed in McMaster's Mills Memorial Library. Subsequent to this data linkage, we were able to map each address onto a modern GIS map of Hamilton. During this archival research, we came to the unexpected realization that if we asked the right questions, we could find endless amounts of data to corroborate and complement the information we had already collected from the death registrations. As is the case for all research, this project has allowed us to answer

our initial questions about the spread of the disease, yet has provided us with many more questions for future research.

Who died from influenza?

In order to answer this question we transcribed the total number of deaths from influenza in Hamilton for the months of October, November and December 1918 from the death registrations for Hamilton at the Archives of Ontario (Government of Ontario 1918-1919: n.pag.). All deaths, regardless of cause, were recorded from microfilm and entered into an Excel© database. For each death, the following information was recorded: Surname, Given Name, Sex, Age, Date of Death, Place of Birth, Place of Death, Place of Burial, Occupation, Father's Name, Maiden name of Mother, Physician who attended deceased, Name of Informant, Address of Informant, Date of Return, Disease Causing Death, Duration, Immediate Cause of Death, Duration.

The sheer volume of information contained within each record and the time it took to transcribe each one made this task both a daunting and exciting endeavour. At roughly five minutes for each of the over one thousand registrations, we were tempted to lighten our workload by recording only those deaths listed as influenza deaths or to record only a limited amount of information for each register. Yet we soon came to realize how valuable these data are, and could not justify leaving anything out. The fact that every death in Hamilton was recorded in a death register and the comprehensive nature of the information contained within each of these records made these registrations the most appropriate source of data on which to base an analysis.

On a personal note, it was difficult not to sympathize with the plight of the individuals who had died from influenza. The knowledge that real people and their families were represented by each one of these records gave each of these registries added significance. Removing names or categories would be telling only part of these personal stories.

Where did they live?

Once we had gathered the names of the deceased the next task became to determine where these people had lived. However, *address of decedent* is a category notably absent from the death registers. To fill this data gap, we went to

the 1918 Hamilton city directory (City of Hamilton 1916-1918: n.pag.; City of Hamilton 1918-1920: n.pag.), a listing of Hamilton's residents in 1918 complete with addresses and occupation. Where possible, names of the dead were linked to home addresses in order to determine their place of residence.

Addresses were not collected for all those who died in the autumn of 1918; rather, only those individuals who, according to their death registration, had died of influenza were entered into the database. However, two problems presented themselves. First, there were several other terms for influenza used by physicians when listing cause of death. As such, a working definition of influenza was established to include any *disease causing death* or *immediate cause of death* for which any of the following terms were listed: influenza, flu, *la grippe*, or Spanish Influenza. The inclusion of one or more of these terms within either of the above categories was required as confirmation of influenza infection causing death. In those cases for which multiple causes of death were listed, the presence of influenza, or any one of its above synonyms, within the attached physicians report was a requisite in order for a death to be considered an "influenza death" and thus be included within the final count.

Secondly, our working definition for influenza may not include all influenza-related deaths in Hamilton during this period. Given that our definition depended upon its presence as a cause of death on the death certificates, the accuracy of the reporting physician's original diagnosis is a limiting factor in our current estimation of the ultimate number of people who died from influenza. It has been established that influenza was often associated with other respiratory diseases and that difficulties were often encountered in establishing a definitive clinical diagnosis (Newsholme 1918: 689). Further, many cases of influenza may have gone undiagnosed or misdiagnosed. The database therefore likely represents a lower limit of influenza deaths within Hamilton during the autumn of 1918.

Putting a face to the epidemic

Using the above working definition of influenza, we created an Excel© database comprised of only those individuals who had died from the disease and for whom home addresses or addresses of death could be confidently determined. It is from this database that we constructed a series of maps showing the cumulative distribution of influenza deaths for each week of the epidemic. Hospital deaths

were not plotted on the map, as we felt they would provide little additional information regarding the spread of the virus either temporally or geographically.

In order to construct the maps, we imported a contemporary GIS road map of Hamilton into ArcView 3.2. Included on these maps are the streets and waterfront of modern day Hamilton. In addition, we placed markers indicating the approximate location of the home addresses of the decedents or addresses of death onto each map. ArcView 3.2 did not provide us with exact street addresses; therefore each marker was placed roughly within one block of the true address location on the segment of the appropriate street.

While these are in many respects modern maps that are being applied to Hamilton of 1918, a number of measures were undertaken to account for any changes in the city plan since 1918. In those cases where decedent addresses were located on streets that no longer existed or have since been renamed, a 1913 street map of Hamilton was consulted (Nicholson 1913: n.pag.). Furthermore, the perimeters of the 1918 wards were outlined on the map in order to designate the boundaries of Hamilton at the time of the epidemic. The 1918 boundary of Hamilton in 1918 is outlined in black.

Using home addresses or addresses of death as proxies to describe the distribution of mortality within the City of Hamilton, the following plotted maps represent the cumulative deaths at various times during the period between October 1 and December 31, 1918. Figure 5.1 represents the 283 addresses we were able to obtain for the 13 weeks of the autumn influenza outbreak.

While these addresses represent only 66% of the influenza deaths recorded in the death registrations (n=429), this figure provides a general approximation of both the spatial and temporal patterning of the fall epidemic. Addresses were not available for all the deceased, as names were not listed in many cases. This was particularly true of both foreign-born individuals and women, many of whom either lived with their parents or with other relatives or acquaintances.

Despite these difficulties, we were still able to find addresses for some individuals not listed in the directory. In the event that women were not listed in the directory, marital status and name of informant were used to determine their most likely address. In cases where married women shared the same last name as a male informant who was not her father, it was inferred that this informant was her husband. In cases where marital status indicated that a woman was unmarried, the address of the father was taken to be the same as the address of the decedent. From these assumptions, we established home addresses for many women who

were not listed in the directory. We used similar deductive reasoning in the case of children. Based on the age of the decedent, we assumed that young individuals

Figure 5.1 - Cumulative Influenza Deaths in Hamilton from October 1 to December 31, 1918. The numbers are indicative of the ward numbers from 1 to 8.
(Government of Ontario 1918-1919: n.pag.; City of Hamilton 1916-1918: n.pag.; City of Hamilton 1918-1920: n.pag.).

were living with their parents, and the address of the father was recorded for that particular individual. In both of these cases, there is no way to evaluate the accuracy of such deductive reasoning. However, where a definitive link between husband and wife or father and daughter could not be ascertained, the death record was not be mapped.

Foreign-born individuals posed a different problem. The frequency of their exclusion from the directory may have been due to several factors: 1) living arrangements wherein more than one family shared the same household, 2) misspelling of names in either the directory or by the attending physician, 3) brief length of residence in Hamilton, or 4) inability to pay any fees that may have been required to be included within the directory. However, regardless of the exact cause of under-representation of minorities within the city directory, it is likely

that the maps represent a significant bias towards displaying the addresses of professional males for whom addresses were more easily obtained.

Furthermore, not all individuals died at home or even at a residential address. In fact, roughly 26% of the individuals who died of influenza during Hamilton's autumn outbreak died in a hospital, and therefore could not be

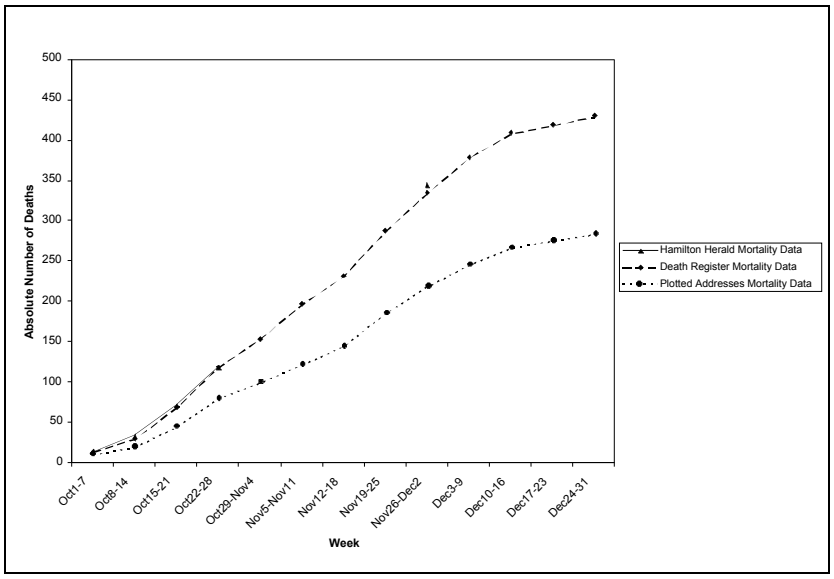


Figure 5.2 - A Temporal Representation of the Cumulative Influenza Mortality Numbers between October 1, 1918 and December 31, 1918 in Hamilton
("Influenza Still Taking Serious Toll In This City" 1918: n.pag.; Government of Ontario 1918 - 1919: n.pag.; City of Hamilton 1916 - 1918: n.pag.; City of Hamilton 1918 - 1920: n.pag.).

included on the map. It can be noted from Figure 5.2 that as the epidemic progressed, there is a greater discrepancy between the death toll, the number of individuals without addresses and the number of addresses plotted on the maps.

This was particularly true of foreign-born individuals for whom a number of deaths had occurred within the west end of the city, in wards 2,3,4,5 and 6. This may be due in part to their proximity to the Military Hospital (see Chapter 3). There is a strong possibility that during the early 20th century, poorer individuals were generally sent to die in hospitals, whereas wealthier middle-class

and upper-class individuals who relied on home-care died at home (Smith 2004: 95, 101). As such, the plotted maps may be biased towards individuals of higher socio-economic status. This gap may be a function of an increased number of individuals dying in hospitals in the latter weeks when the death toll was much higher (see Chapter 4), or simply be an artifact of the breakdown in the record-keeping at this particular time.

Discussion of temporal and spatial distribution of deaths

Although the cumulative deaths within Hamilton seem to be relatively evenly distributed by the end of 1918, there are several notable observations that can be made regarding the geographic and temporal patterning of mortality.

Firstly, between October 1st and October 14th, the mapped deaths appear to cluster within the west end of the city (Fig. 5.3). This may be due in part to the location of the Military Hospital within this area of the city. Many of the earliest cases of the disease were reported within the Hamilton military population. By the end of September, prior to the first reported deaths attributed to the fall epidemic, a large number of influenza cases occurred at the camp of the Royal Air Force (RAF) (Roberts 1917/1918: n.pag.). At this point, military hospitals were full to capacity and the Armament School of the RAF was placed under quarantine ("Spanish 'flu' has made appearance here" 1918: 1). A soldier in the Canadian Army, Hugh John Taylor, was the third influenza death recorded within the death registers. During the first week of October, four of the decedents were soldiers.

Secondly, deaths appear to congregate in the east end of the city within the boundaries of ward 8 at the end of October through until December when the number of deaths begins to wane (Table 5.1). According to the Hamilton Herald ("Fewer Deaths and Fewer Cases of Influenza" 1918: 1), the east end was dubbed the "foreign part of the city." Initially, it was thought that the disease was confined to this area. At the end of November, foreigners living on the east side of the city were asking for assistance and "stream[s] of aliens" ("Ban goes on at 6 o'clock tonight" 1918: 4) had begun reporting flu symptoms. Nine out of ten of the reported cases at the end of November were occurring within the "foreign" section of the city ("Ban goes on at 6 o'clock tonight" 1918: 4). Furthermore, it was reported in the Hamilton Herald ("Will prosecute a Priest for holding service" 1918: 1, 8) that visiting foreigners within the east end were causing

overcrowding and thus sustaining epidemic levels of the disease. As such, influenza was thought to be a disease of foreign-born individuals. To counteract this view, Dr. Roberts, the chief medical officer for Hamilton at this time, reported that the flu was spreading evenly throughout the city ("Fewer Deaths and Fewer Cases of Influenza" 1918: 1). This prediction turned out to true.

Figure 5.3 - Cumulative Influenza Deaths in Hamilton from Oct. 1 - 14, 1918.
(Government of Ontario 1918 - 1919: n.pag.; City of Hamilton 1916 - 1918: n.pag.; City of Hamilton 1918 - 1920: n.pag.).

Although visible clusters of deaths appear to have occurred within particular locales initially, by the end of the third week of October, deaths had been reported within all wards (Fig. 5.4, Table 5.1). At this time, it also appears that there was the first peak in mortality across the city. The center of the city (ward 7, west end of ward 1), which had previously been devoid of deaths, shows a marked increase in its mortality counts (Table 5.1). Prior to this spike in mapped deaths, Hamilton ("Epidemic worse" 1918: 11) had experienced the worst of the epidemic to this point with an increased number of reported cases (Fig. 5.5). On October 21, a ban was implemented closing all public places including schools and churches ("Will close all public places next Monday" 1918: 1). A ban was also placed on all

public meetings. Funeral homes were so backlogged that people had begun burying their own dead ("Where 'flu' rages" 1918: 4).

Ward	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Total**
Oct 1-7	1	2	1	3	0	1	0	2	10
Oct 8-14	0	1	2	3	1	2	0	0	9
Oct 15-21	2	1	5	5	3	4	1	4	25
Oct 22-28	0	2	4	6	3	2	6	12	35*
Oct 29-Nov 4	3	0	2	5	2	2	0	6	20
Nov 5-11	0	1	5	3	3	4	0	6	22
Nov 12-18	2	2	2	6	2	4	0	5	23
Nov 19-25	3	0	3	6	3	6	8	12	41*
Nov 26-Dec 2	6	4	3	1	1	5	2	11	33
Dec 3-9	1	1	1	4	6	5	1	8	27
Dec 10-16	1	4	3	2	3	3	0	5	21
Dec 17-23	0	2	0	0	2	1	2	2	9
Dec 24-31	0	1	0	0	2	1	2	2	8
Total	19	21	31	41	31	40	22	75	283

Table 5.1 - The Total Number of Deaths per Ward for Each Week between October 1, 1918 and December 31, 1918. Calculated from those individuals with either a home address or address of death. The * denotes a peak in the number of deaths mapped.
(Government of Ontario 1918-1919: n.pag.)

Throughout November, bans were lifted as the disease was thought to be disappearing ("Flu waning" 1918: 4). The number of deaths appears to remain steady during the first three weeks of November (Table 5.1) yet there is a persistent pattern of high mortality within the west and east ends of the city (Fig. 5.6). This geographic split seems to disappear during the third week of November, when the number of deaths spiked for a second time (Fig. 5.7, Table 5.1). Simultaneously, deaths also began to occur more evenly throughout the city. The Hamilton Herald attributed an increase in both morbidity and mortality to the Victory Loan Parade held the previous week ("'Flu' outbreak" 1918: 4).

Figure 5.4 - Cumulative Influenza Deaths in Hamilton from Oct. 1 - 21, 1918.
(Government of Ontario 1918 - 1919: n.pag.; City of Hamilton 1916 - 1918: n.pag.; City of Hamilton 1918 - 1920: n.pag.).

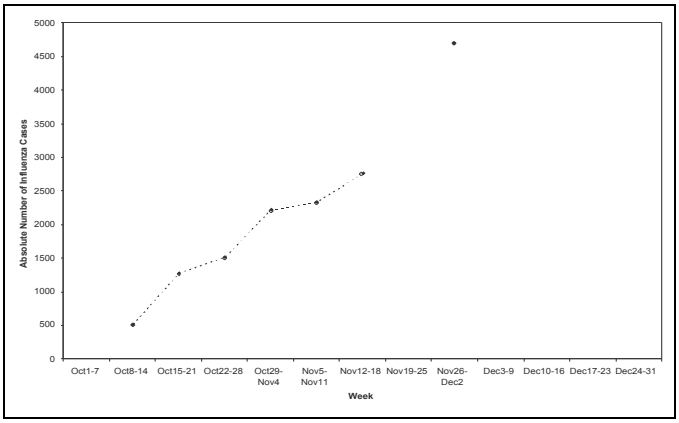


Figure 5.5 - A Temporal Representation of the Cumulative Influenza Morbidity Numbers (cases) that Appeared during October 1, 1918 to December 31, 1918 in Hamilton.
(Hamilton Herald October 1 1918 to December 6 1918: n.pag.).

Figure 5.6 - Cumulative Influenza Deaths in Hamilton from Oct. 1 to Nov. 18, 1918. (Government of Ontario 1918-1919: n.pag.; City of Hamilton 1916-1918: n.pag.; City of Hamilton 1918-1920: n.pag.).

Figure 5.7 - Cumulative Influenza Deaths in Hamilton from Oct. 1 to Nov. 25, 1918. (Government of Ontario 1918-1919: n.pag.; City of Hamilton 1916-1918: n.pag.; City of Hamilton 1918-1920: n.pag.).

After this November peak there is a steady decrease in the total number of deaths per week until the end of December (Table 5.1). Plotted addresses appear evenly throughout the entire city (Fig. 5.1).

Significance

The relatively even cumulative distribution of influenza-related mortality throughout Hamilton is likely a by-product of the nature of the influenza pathogen itself. Influenza is a virus. More specifically, it is an *orthomyxovirus*, a lipid-containing virus with the ability to attach itself to and infect erythrocytes, the red blood cells of the human circulatory system (Schild 1977: 340, cited in Johnson 1993: 58). Spanish Influenza did not discriminate based on ethnicity, or sex. At the molecular level all un-immunized individuals are susceptible to infection (Johnson 1993: 55). It is not surprising then that both sexes appear to have been evenly affected by the 1918 autumn epidemic, with 54% and 46% of deaths being recorded for males and females respectively. However, this patterning may mask subtle temporal and geographic variation within the City.

It is well known that the 1918 influenza pandemic was unique in that rather than preying upon those on the periphery of the age range (children and the elderly), it targeted individuals in the 20-40 year age range (Johnson 2003: 141). Prior to 1918, young adults generally sustained low mortality rates from influenza; however, according to Taubenberger (2003: 40), this particular age group sustained mortality rates up to 20 times higher in 1918. This was exemplified in our data in which the majority of deaths recorded within the registers were for individuals in their prime reproductive years (see Chapter 6) (Government of Ontario 1918-1919: n.pag.).

Individual living arrangements may also have been an important social factor influencing the patterning of deaths observed within Hamilton. More specifically, population density may have been a significant environmental determinant that shaped the spread of the disease. In the past, just as today, the influenza virus was transmitted in water droplets expelled by infected individuals during speech and normal respiration (Johnson 2001: 47). Infection could result when such droplets were inhaled by those without immunity to the virus (Johnson 2001: 48). As such, infection required individual contact. Furthermore, the number of individuals infected by a given influenza victim, the secondary attack rate, was dependent upon both the frequency and duration of personal contact.

Therefore, both the number of individuals within a home, as well as the frequency of their interaction would have been important factors to consider when examining the spread of the disease both geographically and temporally. Already, our own data have provided evidence of cases in which multiple individuals within the same residence died. Furthermore, the cluster of deaths within the "foreign" parts of the city early in October may have been a direct result of close residential proximity.

Economic factors including place of employment and working conditions may also have shaped the spread of the disease through Hamilton. The early link between fatalities in the west end of the city and the situation of the military hospital within this area seems to confirm previous research implicating the military in the spread of the disease. Further evidence might be provided by an analysis of the frequency of the appearance of soldiers within the death registers.

It is also of interest that many of the individuals who appeared in the death registers worked in the same factories (City of Hamilton 1916-1918: n.pag.; City of Hamilton 1918-1920: n.pag.). Although place of employment has yet to be analyzed in any great depth, contact in the workplace may have been important given that several bans on public gatherings did not include the many large manufacturing facilities within the city ("Foreigners Ill" 1918: 1, 4). Schools, churches and theatres were closed but it was business as usual in the industrial sectors of the city.

It has also been suggested that within Canada, the epidemic traveled along lines of transportation and communication, particularly along rail lines (Johnson 1993: 91). The Canadian Pacific Railway has been implicated in the spread of the disease from major population centers to the periphery of Canada (Belyk and Belyk 1988: n.pag., cited in Johnson 1993: 91). Given that many deaths recorded in the death registrations for Hamilton were for individuals employed at the local rail yard, future research should consider the potential link between proximity to lines of transport and infection (City of Hamilton 1916-1918: n.pag.; City of Hamilton 1918-1920: n.pag.).

However, in a discussion of the patterning of influenza deaths, it is important to bear in mind that morbidity and mortality are not one and the same. This study has gathered data on the distribution of influenza deaths in Hamilton. While infection is a necessary condition for mortality it is not a sufficient one. In fact, Taubenberger (2003: 40) states that the 1918 autumn strain was particularly virulent, with mortality rates of infected individuals reaching 2.5%. As such, the

health of an individual prior to exposure and subsequent infection is an important factor in shaping the severity and fatality of infection.

It has also been suggested that several pulmonary diseases including pneumonia and bronchitis may have enhanced the lethality of the virus (Taubenberger 2003: 40-41). The vast majority of the influenza deaths recorded in the death registers listed multiple causes of death in addition to influenza. Amongst these, respiratory infection was strongly associated with death from influenza. It is unclear what the exact nature of the relationship between influenza such diseases might have been. Pneumonia may have been a cofactor for the contraction of influenza or one of many opportunistic infections preying on already-weakened immune systems. However, regardless of the temporal sequencing of infection, it is clear that individuals infected with both influenza and pneumonia had a far worse prognosis than did those who suffered from uncomplicated influenza. Numerous physicians' reports indicate that individuals who displayed the characteristic purplish hue or cyanosis of pneumonia following influenza infection rarely had more than 48 hours to live (Stuart-Harris *et al.* 1985: 119-120, cited in Johnson 1993: 69).

Conclusion

Using mortality data to reveal the shifting spatial and temporal pattern of morbidity, we have attempted to illustrate the movement of the influenza virus through the city of Hamilton in the autumn of 1918. For each influenza death during this epidemic, we collected both a demographic profile and a physician's return from the death registrations housed at the Archives of Ontario. In addition, we collected addresses of the deceased from the 1918 Hamilton city directory. Subsequently, this data was communicated visually via GIS maps on which either the home address or address of death was plotted for each individual whenever possible.

Through an analysis of the GIS maps, four patterns were revealed. Firstly, it was observed that the first influenza-related deaths congregated together within the west end of the city. It is suggested that this may reflect the presence of Royal Air Force camp within this region of the city. Second, another cluster of deaths appeared early in the east end of the city which persisted until the end of December. It is suggested that this clustering of deaths may have been a result of over-crowding in this part of the city which had a large population of immigrants.

Thirdly, two peaks in deaths were observed: one occurred during the third week of October and the second occurred during the third week of November. Both mortality peaks corresponded to increases in the number of new influenza cases reported in the local newspapers. As such, it appears that increases in mortality were strongly related to rising morbidity, rather than to any change in viral lethality. Finally, following the occurrence of each of these peaks, mortality appears to have spread evenly across the city instead of congregating around the aforementioned locales.

The relatively even cumulative distribution of deaths in Hamilton may be indicative of the movement of an extremely virulent yet relatively egalitarian killer throughout the city. It seems from the above data that all wards were eventually represented within the death certificates. However, further research into the demographic profiles of the deceased is necessary in order to describe the social and environmental determinants of health within the city. Mortality and morbidity are not one in the same. As such, future research should be directed towards understanding the factors influencing the likelihood of both contracting and succumbing to influenza infection. Already, the above data have pointed to socio-economic factors including both place of work and pattern of residence as primary determinants in shaping the prognosis of infected individuals. Furthermore, it is likely that individual health prior to exposure may have had a strong influence on the outcome of infection.

Ultimately, this inquiry has served to raise more questions than it has answered. While it has succeeded in its aim of mapping the temporal and geographic progression of the virus through the city in the fall of 1918, deeper questions remain regarding the degree to which social and environmental factors may have contributed to the spread of influenza through Hamilton.

In the following chapters, a number of these issues, including the effects of socio-economic factors on morbidity will be explored in greater depth. In a very real sense the surface has only been scratched. Much work remains to be done.

6

Understanding the Enigma: Age Distribution of Influenza-Related Deaths in Hamilton, Ontario

Katherine Wood

Introduction

The 1918 pandemic of Spanish Influenza caused a sensation when it erupted and spread across the globe like wildfire, claiming an estimated 40 to 50 million lives (Langford 2002: 1). Not only did it cause more deaths than any other influenza epidemic this century, but its victims were primarily individuals in their twenties, thirties, and forties – the period considered to be the prime years of our lives, immunologically speaking (Taubenberger and Morens 2006: 19). Health care professionals agree that under normal circumstances in non-pandemic years, individuals in their early to mid-adult years of life are *least* likely to succumb to such an illness. The general trend in most severe epidemics is a U-shaped mortality distribution; that is, higher age-specific mortality rates are observed among the very old and the very young. However, some studies show that the distribution of age-specific mortality was W-shaped during the second, more severe wave of the Spanish 'flu outbreak, with mortality peak centred among individuals in their "healthiest" years of life (Reid et al. 2001: 82-83). In fact, recent research proposes that the mortality rates of individuals between the ages of 15 and 34 were more than twenty times greater than in previous years and that individuals under the age of 65 accounted for more than 99% of all excess influenza-related deaths (Taubenberger and Morens 2006: 19). How does one explain the unusual distribution of age-specific mortality? Was this pattern of mortality a global phenomena or was it limited to certain areas of the world?

In this chapter, I present an analysis of age specific mortality based on the death records from the Blachford and Wray and Dwyer Funeral Homes and from the Hamilton Death Registers during the second wave of the 1918 influenza pandemic. I then examine some of the hypotheses put forward to explain the perplexing W-shaped age distribution of influenza deaths and apply them to the findings for the City of Hamilton.

Who died?

Figure 6.1 presents the total number of deaths from all causes recorded at the Blachford & Wray and Dwyer Funeral Homes in the months surrounding the second wave of the Spanish influenza epidemic (October 1918 to December 1918). Because of the relatively small sample size, the deaths are distributed into eight pooled age categories:

1. Infant – any individual under 1 year of age
2. Child – any individual between 1 and 9 years of age
3. Adolescent – any individual between 10 and 19 years of age
4. Young adult – any individual between 20 and 29 years of age
5. Adult – any individual between 30 and 39 years of age
6. Middle-age adult – any individual between 40 and 49 years of age
7. Older adult – any individual between 50 and 59 years of age
8. Elderly – any individual over 60 years of age or older
9. Age unknown

The distribution displayed I Figure 6.1 is interesting. Despite the fact that the graph contains information on all funerals conducted at these two locations from October through December, not just those for individuals who perished from influenza, the W-shaped distribution of mortality can be clearly seen.

What did they die of?

Next, I examine proportionate mortality rates for each age category (Figure 6.2). As discussed by Chan and Kluge in Chapter 5, this analysis includes all deaths classified as influenza, or as influenza-related: influenza (including epidemic

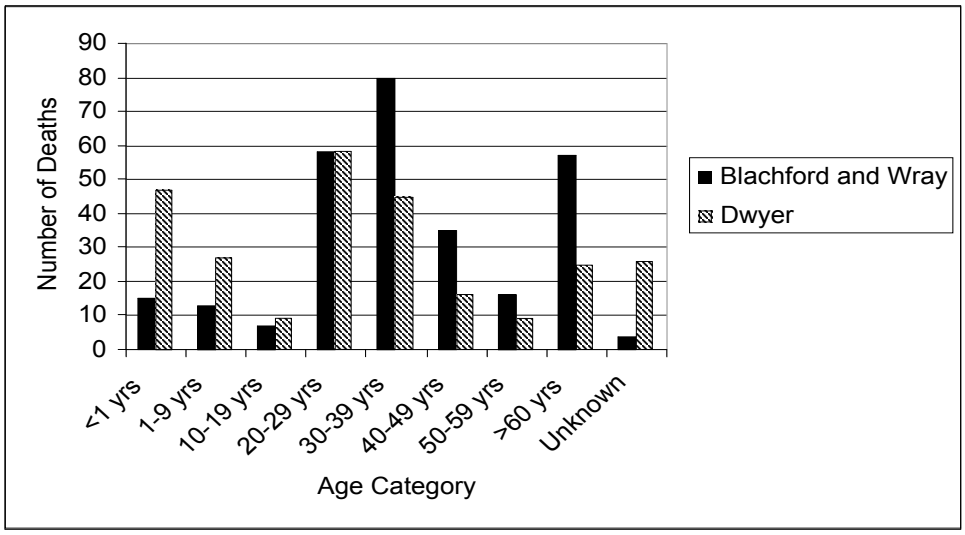


Figure 6.1 – Age Distribution of Hamiltonian Deaths of All Causes from September 1918 to December 1918
("Deceased and Funeral Costs" 1918: n. pag.; "Deceased and Funeral Information" 1918: n. pg)

influenza and Spanish Influenza), influenza-pneumonia (including one illness being developed as a complication of the other or simultaneous development of the illnesses), and pneumonia (including lobar pneumonia and broncho-pneumonia). This allows us not only to see whether certain age groups were more susceptible to a specific 'flu-like illness, but also to examine trends in disease classification, as the diagnostic process is heavily influenced by factors such as doctors' preferences for one term over another. Furthermore, it provides us with the opportunity to discern differences between cause-of-death terminologies from funeral homes, hospitals, and other such institutions. Figure 6.2 is based solely on the Hamilton Death Register. The same age categories used in Figure 6.1 are utilized here, with the exception of Category 9 (unknown age), which is not applicable.

From the data presented in Figure 6.2 we see that the vast majority of deaths in all age categories were attributed to influenza with only a very small number credited to pneumonia. This may be due to the fact that physicians were well aware of the spreading influenza pandemic and therefore assumed that any

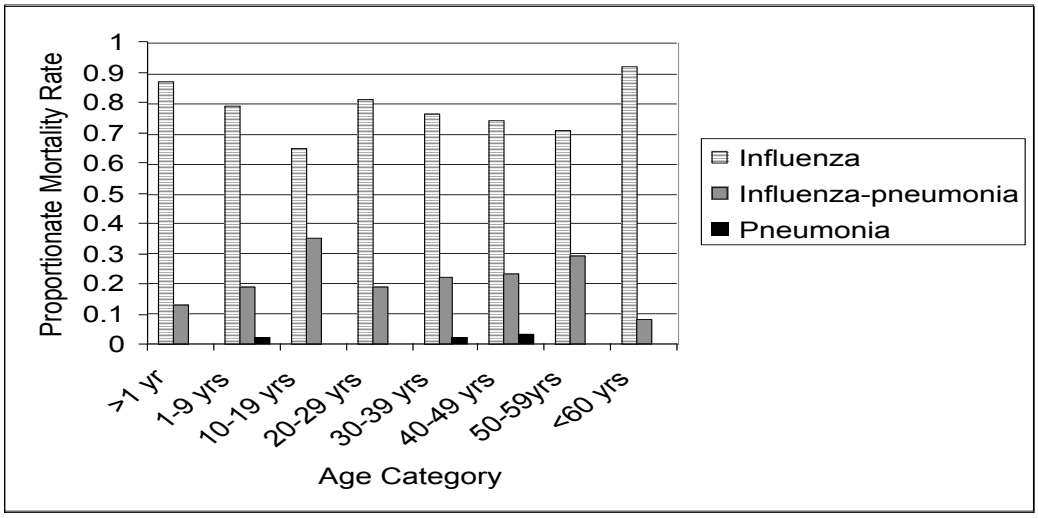


Figure 6.2 – Proportionate Mortality Rates of 'Flu-Related Deaths in Hamilton from September 1918 to December 1918
(Government of Ontario 1918-1919: n. pag.)

person with 'flu-like symptoms was most likely to be suffering from pandemic influenza. Perhaps the symptoms were so similar in their manifestation and presentation that doctors simply classified these deaths as pandemic influenza to allow more time to be spent with fatally ill patients than "wasting" it making more complicated diagnoses of already deceased patients.

When did they die?

Table 6.1 presents the breakdown of influenza related deaths on a month-by-month basis, from October 1918 to December 1918. The same age categories are in use and individuals for whom the date of death is unknown are excluded. By examining the distribution of flu related deaths in each month, we may be able to discern trends in the evolution of medical terminology and whether or not there is any distinguishable association between age and the month of death.

Table 6.1 shows that from October though December influenza deaths constitute the highest proportion of flu-related deaths in each age category. Influenza-pneumonia is also quite prevalent at times, though rarely to the same extent as influenza. Interestingly, the youngest and eldest demographic groups

display similar trends in which influenza appears as the most common cause of flu-related death in October and tapers off towards December, while it remains relatively stable for young adults throughout the period and actually peaks in November for middle aged adults.

Age (years)	October			November			December		
	'Flu	'Flu – pneu.	Pneu.	'Flu	'Flu – pneu.	Pneu.	'Flu	'Flu – pneu.	Pneu.
<1	1.00			0.8	0.2		1.0		
1-9	0.76	0.24		0.8	0.2		0.8	0.1	0.1
10-19	0.83	0.17		0.58	0.42		0.5	0.5	
20-29	0.84	0.16		0.9	0.2		0.79	0.21	
30-39	0.86	0.14		0.76	0.22	0.02	0.74	0.24	0.02
40-49	0.67	0.22	0.11	0.85	0.15		0.5	0.5	
50-59	0.67	0.33		1.00				1.00	
>60	1.00			0.8	0.2		1.00		

Table 6.1 – Proportionate Mortality Rates of 'Flu-Related Deaths by Age Category and Month from October 1918 to December 1918
(Government of Ontario 1918-1919: n. pag)

In summary, it is evident that young adults in Hamilton between the ages of 20 and 40 experienced the greatest number of deaths from flu-related causes during the 1918 Spanish influenza epidemic. The data also confirms that while we see an elevated number of deaths in the very young and the very old (resulting in a W-shaped distribution), the groups we so often consider the most susceptible to communicable diseases fared better than the normally less-vulnerable young adults during this epidemic. Let us now turn to address the mysterious peak in deaths of young adults.

How can this age distribution be explained?

Scholars have long been puzzled by the high proportion of deaths that occurred in the 20-40 year old age category in comparison to the lower-than-expected

proportions demonstrated in the infant and elderly categories in the 1918 influenza pandemic. In fact, Luk, Gross, and Thompson suggest that there is no single sufficient explanation for the W-shaped age distribution observed for this pandemic (Luk Gross and Thompson 2001: 33). In any case, researchers do not appear to have been overly discouraged by the struggle for a plausible rationalization. Through various combinations of epidemiologic, historic, and genetic research, a number of proposals have been put forth in hopes of answering this question. For simplicity's sake, I present each proposal independently before applying the suggestions to the Hamilton age-specific mortality rates in hopes of finding one that provides an adequate model for what was experienced by people in the city.

Acquired immunity

It has been suggested that younger individuals are twenty times more likely to die from pandemic influenza than from non-pandemic influenza, whereas the elderly experience a similar rate of mortality in both circumstances (Cox and Subbarao 2000: 410). One logical explanation as to why otherwise healthy adults succumbed more easily to the Spanish influenza relates to the concept of acquired immunity (Langford 2002: 7). The epidemiological definition of acquired immunity describes it as a state of being in which people are not at risk for a specific disease because they have contracted the illness previously, or been immunized (Gordis 2004: 20). In this situation, individuals with acquired immunity are those who had contracted the illness on a prior occasion. According to Langford, much less serious epidemics of influenza occurred in 1915 or 1916. The survivors of these epidemics may have developed a degree of resistance to the particular strain of influenza that caused the 1918 flu as a result of being infected with this less severe strain (Langford 2002: 7, 15). However, this explanation leaves something to be desired. The idea of acquired immunity is a good one, and had the milder epidemic occurred some twenty or thirty years earlier, it may provide a suitable explanation for the unusual age distribution, as individuals in their young adult years were probably not exposed to the immunity-providing strain. However, because the epidemics Langford is referring to occurred just a few years prior to the devastating pandemic of 1918, acquired immunity as an explanation for the high number of young- and middle aged adult deaths in comparison to the lower proportion of deaths amongst the elderly loses

much of its credibility. We cannot logically expect that exposure to this strain would provide resistance to one demographic age group yet not another, resulting in such skewed age-specific mortality rates. In her article discussing the effects of the Spanish influenza in Switzerland (which also experienced a W-shaped age distribution), Catherine Ammon suggests that the strain responsible for an epidemic in 1889-91 provided its survivors with immunity against the 1918 strain (Ammon 2001: 164). This explanation is more logical than Langford's, as many individuals in their twenties and thirties would have been too young to have acquired immunity from this particular strain, thus leaving them at the mercy of the H1N1 strain of 1918.

Virulence

The issue of virulence is related to the acquired immunity hypothesis. Reid, Taubenberger and Fanning suggest that a highly virulent strain of influenza would in fact shift the typical U-shaped distribution upwards. By examining the age distribution through this light, they felt that perhaps the high proportion of young to middle age adult deaths could be explained. Conversely, they indicate that it explains the higher mortality rates for children less than fifteen years of age and adults between the ages of forty-one and sixty, but fails to address the high levels of mortality in individuals between twenty and forty years of age when a very low rate is expected for this demographic group (Reid Taubenberger and Fanning 2001: 83). Furthermore, the age-specific mortality rates of the elderly were actually *lower* than in the non-pandemic years surrounding the outbreak, which is not what one would expect from a particularly virulent agent (Reid Taubenberger and Fanning 2001: 82-83). Nonetheless, Reid and her co-authors are quick to defend the premise that this specific strain of influenza was an abnormally potent one, and serologic research conducted from survivors confirms that the 1918 flu strain belongs to the highly virulent H1N1 family (Cox and Subbarao 2000: 414-5). New evidence from viral sequencing suggests that the strain responsible for the 1918 pandemic was not only avian in origin, but was genetically similar to modern avian influenzas, indicating that these viruses evolve slowly over time. Taubenberger and Morens (2006) suggest that the 1918 influenza pandemic was especially severe as this strain was novel to humans, meaning that very few individuals would have acquired immunity and that even this protection was limited (Taubenberger and Morens 2006: 18-19). Several studies further support

this conclusion by showing that the strain was not only capable of replicating itself in humans, but that it had undergone several mutations before morphing into a strain that was capable of person to person spread (Reid Taubenberger and Fanning 2001: 82). Therefore, we can be quite sure that the strain responsible for the Spanish influenza was highly virulent. Unfortunately this fact alone, based upon historical and biological research, does not provide sufficient evidence to identify it as the focal factor in the unusual age distribution pattern seen here.

Soldiers and the war

Another potential explanation for the unusual age distribution of this epidemic lies with the global political situation during the period. World War I was in progress and millions of young men and women from all over the world were engaged in the conflict. Case studies from various nations throughout the world have revealed an astounding number of deaths of soldiers as a result of influenza or other influenza-related illnesses (Cox and Subbarao 2000; Reid Taubenberger and Fanning 2001; Oxford et al. 2002). However, despite the good physical form soldiers were required to be in, the close quarters within which they were forced to live for months on end would have provided ideal conditions for a highly communicable disease like influenza to circulate at a rapid pace and infect large numbers of individuals (Oxford et al. 2002: 112). Oxford and co-authors go on to suggest that soldiers were already at risk of suffering from a weakened respiratory system when the outbreak occurred, as a result of the chlorine and phosgene being used in combat. Together with overcrowding, undernourishment, and elevated stress levels, all of these factors have contributed to the explosion of outbreaks at military camps and bases (Oxford et al. 2002: 112-3). As soldiers moved from one military base to another, they would have brought the illness with them, exposing more and more individuals to it. Given this scenario, it is not difficult to see that soldiers were at higher risk of contracting influenza than civilians were; however, this does not entirely address why they were also at higher risk of dying from the illness, nor does it explain the mortality rates of civilians which show the same distribution W-shaped age distribution.

Volunteers

Newspapers preserved throughout the duration of the outbreak have provided social researchers with an invaluable resource – the record of a cry for help from public health authorities. In Hamilton for example, the *Herald* provides an excellent source for classified ads requesting the assistance of healthy, able-bodied volunteers to care for patients stricken with influenza (see chapter 10 on *Volunteerism*). The need for a great deal of community-based assistance stemmed from the poor state of hospitals for dealing with the sudden influx of seriously ill patients. In fact, Langford suggests that had more emphasis been placed on the education of proper nursing techniques in the home, the overall mortality rate might have been much lower (Langford 2002: 6). This implies that a large number of individuals who may not have otherwise come into contact with the influenza virus did so in the process of offering support to their community and unknowingly (and perhaps unnecessarily) sacrificed themselves. Thus, similarly to soldiers, volunteers would have found themselves in direct contact with the virus on a regular basis, dramatically increasing their own chances of contracting influenza.

Tuberculosis, bronchitis, and pneumonia

Langford (2002) suggests that many deaths attributed to pandemic influenza may have actually been caused by other respiratory illnesses such as pulmonary tuberculosis, bronchitis, and pneumonia. He comments on the rise of respiratory illnesses, especially amongst soldiers, throughout the course of World War 1 and implies that perhaps these illnesses were aggravated by the influenza and therefore were just as responsible for the high levels of mortality amongst young adults as the pandemic influenza itself (Langford 2002: 7). However, as seen in the analyses compiled from our three databases for Hamilton, pandemic influenza was extremely prevalent and it cannot be determined whether or not this is due to the recording biases of doctors, coroners, and funeral home officials.

Applications to Hamilton

Clearly, there is no easy answer to the question "why did so many adults in the prime years of life succumb to the 1918 influenza". Were there simply more

individuals belonging to this demographic group or were older individuals blessed with acquired immunity? Were soldiers so weakened from war that their immune systems were unable to combat an ordinary illness? Or was this strain just an especially virulent one? All of the aforementioned hypotheses attempt to explain the W-shaped mortality distribution, but no single explanation is sufficient. Perhaps the atypical age distribution results from increased susceptibility stemming from a lack of acquired immunity, coupled with exposure to unsanitary, crowded living conditions for an extended period of time. This is the most logical explanation for the mortality data for Hamilton. Whether the living conditions of Hamiltonian soldiers at war or the selfless exposure of volunteers to infected individuals increased their susceptibility to contracting a communicable illness such as influenza, there must have been some unique genetic feature of this particular strain that made young to middle age adults ideal targets. In order to solve the mystery surrounding the distorted age-specific mortality rates, further investigation is required into the biology of the H1N1 influenza strain, as well as into medical practices in Hamilton throughout this chaotic period.

Conclusions

As has become apparent through the analysis of death records that Hamiltonians were affected by the 1918 pandemic of Spanish Influenza in much the same way as the rest of the world. Large numbers of healthy individuals in the prime of life succumbed to the illness with staggering ease. None of the current explanations is sufficient. Perhaps more extensive research into the biology of this particular strain of influenza in combination with demographic research into the social circumstances of the deceased, and into their living conditions prior to the outbreak, will lead us to an answer. Engagement in such research can not only offer answers to questions about the past, but can potentially provide valuable information about future influenza epidemics.

7

Rob the Poor but Leave the Rich?

Ellen E. Korol

Within the last few decades, there has been a revival of interest in a once-forgotten plague. The impending threat and constant reminders that the world is overdue for an influenza pandemic has piqued academic and public interest in Spanish Influenza. This is only a part of the reason for its increasing fascination. The other reason why the Spanish Influenza has been enjoying a renaissance of interest is because this particular disease did not conform to the well-documented patterns evident for most infectious diseases, including other strains of influenza. Most notably, infectious diseases tend to affect individuals disproportionately depending on age, ethnicity, gender, immigration status, and over all socio-economic status. Contagious diseases operate along the fault lines of society and are reliable indicators of economic and other forms of disparity within a community. The 1918 flu, however, did not behave in the way it was "supposed" to. As we have seen in chapter 6, the age distribution of deaths did not follow the typical U shape mortality curve commonly seen in influenza epidemics.

Another mystery of the Spanish flu is its apparent disregard for traditional social barriers of mortality. It has been suggested that this strain of the flu was socially neutral, implying that the disease struck all groups in society equally. In this paper I explore the relevance of the social neutrality theory of disease in the context of Hamilton, Ontario during the 1918-19 influenza pandemic. Specifically, I examine the average mortality rates in various Wards in Hamilton that can be considered as having either high or low socio-economic status.

Socially neutral disease theory

Within a decade after the 1918 pandemic, Mamelund (2006: 924) notes that several studies discussed morbidity and mortality rates from Spanish Influenza. In the United States and Norway, the reports indicated that socio-economic status (SES) was directly related to the incidence and death rates during the pandemic. Specifically, the probability of both increased as socio-economic status decreased (Mamelund 2006: 924). In England, on the other hand, there was no evidence of a relationship between socio-economic inequalities and incidence or death rates (Mamelund 2006:924). These conflicting findings have spawned a debate about the social neutrality of the 1918 flu.

Those who support the proposal that the 1918 flu was neutral essentially argue that the particular strain of influenza in 1918 was so new that no, or very little, immunity was present in human populations to help fend off the disease and everyone was susceptible to it (Mamelund 2006: 924). In addition, proponents of the neutral influenza theory point to the W-shaped age distribution of mortality discussed as further evidence of the neutrality of the Spanish Influenza (Mamelund 2006: 924). Opponents of this view argue that the studies which support social neutrality are, for the most part, anecdotal and not based on sound empirical evidence (Mamelund 2006: 924). Mamelund (2006: 924) suggests that the inequality of the Spanish Influenza was found only marginally in the morbidity rates, but that social status played a predominant role in survival rates; communities and individuals characterized by higher socio-economic status would have an increased likelihood of surviving the disease.

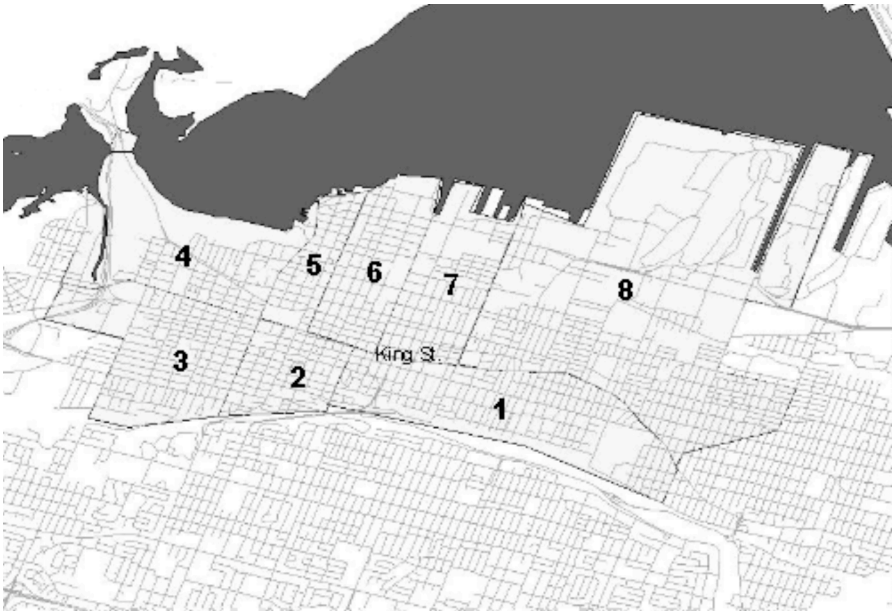
Hamilton in 1918: an ideal community to study

The well-documented social stratification of Hamilton in the 18th and 19th centuries makes this city an ideal setting in which to address the neutrality of the 1918 influenza pandemic. When Hamilton was founded in 1813, there were no signs of segregation and the population was centred around the downtown core of King and James Sts (Doucet 1976: 84). Within the next few decades, however, Hamilton's geographical location and spatial constraints helped create a highly segregated community (Doucet 1976: 99-101). As the city grew, this segregation was aggravated by economic conditions. To this day, certain areas of the city are still characterized by old perceptions and stigmas (Farmer 2004: 3).

To the north, Hamilton borders Lake Ontario. The city's position at the head of Lake Ontario made Hamilton a prime location for distribution, trade and manufacturing (Davey and Doucet 1987: 123). With the completion of the railway in the 1850's, the northern end of Hamilton soon became the centre of manufacturing and heavy industry, providing many jobs to countless immigrants (Doucet 1976: 83; Wood 1987: 121). The deluge of families searching for work lasted well into the 20th century, with the largest increase in the city's population occurring between 1911 and 1913, when 15,000 people moved to Hamilton (Gagan 1989: 162). Due to the heavy industry found in the northern end, this portion of the city soon became polluted and noisy (Farmer 2004: 80). Despite the unsavoury conditions of the north end, many newly arrived immigrants and families with lower economic capabilities had little choice but to settle in the northern end because of poor transportation and high property prices in the surrounding areas (Farmer 2004: 80).

As the northern end became a centre of industry, the well-to-do elements of Hamilton society retreated from the core to the southern limits of the city bordered by the Niagara Escarpment (Doucet 1976: 100; Farmer 2004: 79). Properties to the south of King St. were prime real estate in the city, as they were at higher elevations and more picturesque than property in the northern end (Doucet 1976: 100). Doucet (1976: 101) notes that not only did high and low socio-economic communities begin to separate spatially after the 1850's, but the gap between rich and poor began to widen in the late 19th century.

By the early 1900's the division between affluent and working class parts of the city was generally drawn through King St. To the north of King St., in Wards 5, 6, 7 and 8, the working class resided (Doucet 1976: 100; Gagan 1989: 162-163). The middle and upper classes stayed to the south of King St., in Wards 1 and 2 (Doucet 1976: 100; Gagan 1989: 162-163). The contrasting living conditions between these two wards also suggests that there was a relationship between location and socio-economic status. In the southern Wards, the capital value of property was approximately three times more than that in the northern Wards, and the population density was about two to three times higher in the northern Wards compared to those in the south (Gagan 1989: 163). The population densities in north-eastern Hamilton were so high that they exceeded some of the largest densities seen in industrialized cities at the time (Gagan 1989: 163). Finally, Gagan (1989: 173) notes a considerable difference in mortality



rates between wards in Hamilton between 1900 and 1914. At that time, the lowest mortality levels were found in Wards 1 and 2 at 85.5 and 84.8 respectively (Gagan 1989: 173). Conversely in Wards 5 and 6 mortality rates were at 138.3 and 140.9 respectively (Gagan 1989: 173).

Location, Location, Location

Ward 2

Based on these findings, I chose Ward 2, which is located in the south-western portion of Hamilton, to represent the high SES parts of the city during the 1918 pandemic. This ward is bordered to the North by King St., to the east by Ferguson St., to the south by the Niagara Escarpment and the west by Bay St. The population of Ward 2 in 1916 was 6,646 people ("Population Still…" n.d.) and in 1910 its population density was approximately 5,000 people per square mile (Gagan 1989: 163).

Figure 7.2 - The McQuesten family 1889
("Mary and her 6 children" 1889)

Dearest Tom,
I have just had a long talk with the doctor. He says R. is so ill, that it would be useless to go to Arizona. Since Ruby has heard that owing to the heat she could only stay there so few months, she has given up the idea of going, and should like to go to our own mountain…
I really do not know how you are to go about looking for a house on the mountain. Telephone Hattie Hope and ask her if the Doolittles' is rented for the winter. Still I do not like it is too near the Incline, I think for summer time and would probably be unnecessarily expensive. Willie Ambrose ought to know the Mountain well, he is in the Spectator Bldg.
If our rooms were differently situated and Edna was different would take her home [to Whitehern]. We might be obliged to go to East End, but would not like that, fancy you get more of the damp lake air there…
With fondest love,
Your mother, M.B.McQuesten

(McQuesten 2002)

Property along the southern borders of Hamilton was very desirable at that time. Excerpts from a letter written by Mary Baker McQuesten indicate that this section of Hamilton was considered to be healthier than other parts of the city, such as the east end. The McQuesten family was prominent in Hamilton, although when this letter was written Mary McQuesten and her children were living in a state of "genteel poverty" ("Mary Baker McQuesten" 2002).

Ward 6

I selected Ward 6 to represent low SES parts of Hamilton. Located in the north central Hamilton, in 1916 Ward 6 had a population of 12,232 people. Bordered by Lake Ontario to the north, Wellington St. to the east, King St. to the south and Hughson St. to the west ("Population Still…" n.d.), the population density of this ward in 1910 was approximately 16,000 people per square mile (Gagan 1989:163). The following excerpts from the Herald give some idea of the living conditions that might have been encountered by families living in Hamilton's working class wards at the beginning of the 20th century.

A Pathetic Sight – This morning…Inspector Cruickshank… [travelled] to the home of Mrs. W. Soronowitch. On a bed in the front room lay the mother of six children, one of whom was born two weeks ago. Her head was bandaged and the restless movements of her arms showed that she was in pain…In the kitchen, at the back of the house, some neighbours were cooking something for the invalid, whose husband has been in the hospital for the past four months. And, attracted by the heat, hundreds of flies, entering through the screenless windows, buzzed and droned, settling on food and inmates. The children, unwashed, with old faces on young shoulders, were as dreary, apathetic and drab as their surroundings.
Shocking Conditions – "Have a look at the cellar", said Inspector Cruickshank, and the Herald man followed him down a flight of rickety steps, where only extreme caution prevented a heavy fall.
"Look at this," he said. "This was an open sewer pipe without covering of any description," it being stated that a second pipe, also open, was concealed beneath a pile of kindling wood. On the flooring piles of rubbish showed moist underneath when disturbed. And in this house a man and his wife and child live upstairs while downstairs a sick mother and six children are housed.

("Real Slum in East End" n.d.)

There are several reasons why I selected these two wards for comparison. Of all the wards in Hamilton, Wards 2 and 6 represent the lowest (84.8) and highest (140.9) overall mortality rates respectively in 1910 (Gagan 1989: 173). Ward 6 had consistently higher death rates in Cause of Death categories, with the exceptions of Accidents, General Nervous and Old Age categories (Gagan 1989: 173). The categories with the largest differential between the two wards were Contagious and Infant Stillbirths (Gagan 1989: 173). Both wards are centrally located in Hamilton and are approximately the same size. Ward 1, the other ward with high SES in Hamilton, extended much further toward the eastern outskirts of the city and none of the low SES wards are as easterly. By eliminating as many geographical factors as possible that might have affected mortality from the 1918 flu, I tried to obtain a more concrete view of the effect of SES on mortality during the epidemic.

In 1918, Hamilton was a highly stratified city, with people of high SES tending to live in Wards 1 and 2, and those of low SES living in Wards 5, 6 and 7 (Gagan 1989: 162-163). If the socially neutral theory of the 1918 flu is correct, there should be no real difference in the distribution of influenza mortality rates between the high and low SES wards of Hamilton. When looking specifically at Wards 2 and 6, the mortality rates in Ward 2 should show no discernible difference compared to Ward 6. On the other hand, if SES had an impact on mortality rates of the Spanish 'flu, then Ward 2 should have a lower mortality rate than Ward 6, and mortality differentials should distinguish Wards 1 and 2 from Wards 5, 6 and 7.

Influenza mortality in Wards 2 and 6

The GIS map shown in Chapter 5 shows the distribution of influenza mortality in Hamilton during the fall wave of the pandemic in 1918 and is also divided into the eight wards of Hamilton at the time. The method for gathering the data on influenza mortality in Hamilton is also outlined in Chapter 5. To arrive at mortality rates per 1000 per ward, I found the total number of influenza deaths during the time in question and divided them by the total population of the pertinent ward, then multiplied the total by one thousand. The closest population estimates were available for 1916, but the two-year difference should not introduce much error into the mortality estimate. I also plotted the average weekly mortality rates for Wards 2 and 6 to show the temporal spread of

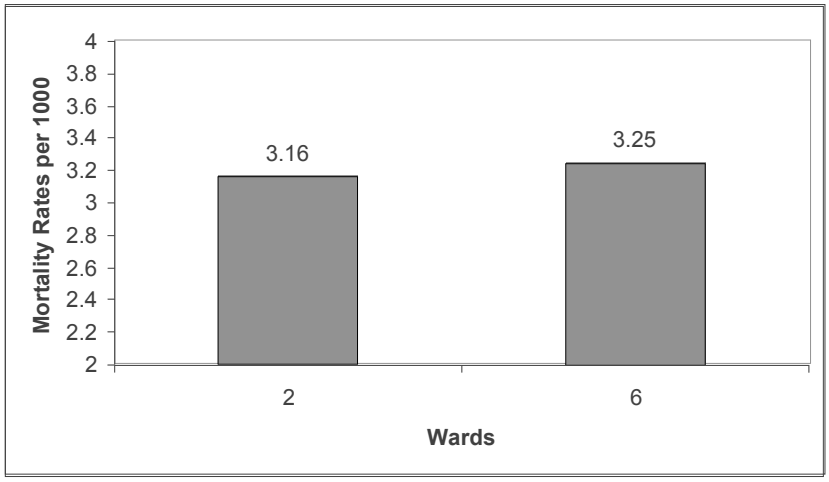


Figure 7.3 - Mortality Rates per 1000 in Wards 2 and 6
("Population Still… n.d.; Government of Ontario 1918-1918: n.pag.)

influenza in these wards. This information is useful for determining whether SES had any impact on the origin or spread of the disease.

Influenza mortality rates for Wards 2 and 6 from September 1918 through December are shown in Figure 7.3. As the graph clearly indicates, the two wards have similar mortality rates: 3.16 and 3.25 per 1000, respectively.

Figure 7.4 shows the temporal distribution of influenza mortality rates between Wards 2 and 6. A similar pattern is discernible in the two wards: initially, mortality is moderate, although the peaks and troughs occur in opposite weeks. Mortality peaks in both wards in the last six weeks. In Ward 6, the peak occurs during the eighth week and remains high for another two weeks before it begins to taper off after the tenth week. In Ward 2, mortality reaches its peak in the ninth week, decreases to a low during week ten, peaks again during week eleven, and begins its final decline in the twelfth week. The most striking feature of the Ward 2 distribution is its erratic shape. This is likely a result of the smaller population in Ward 2, which is about half the size of Ward 6. Consequently, a single death in Ward 2 has a more dramatic impact on the mortality curve than it would in Ward 6. Despite this difference, the two graphs indicate that the Spanish flu had a similar effect on the people living in Wards 2 and 6.

Influenza mortality in Hamilton

How do the mortality rates in Wards 2 and 6 compare to mortality in the other wards of Hamilton (Figure 7.5)? Relative to the rest of the city, it is evident that influenza mortality per 1000 in Wards 2 and 6 are about average; three wards (4, 5 and 8) have higher rates, and another three (1, 3 and 7) have lower rates.

Of the three wards with very high mortality rates, only Ward 5, which has the lowest mortality rate of the three, was consistently described in the literature

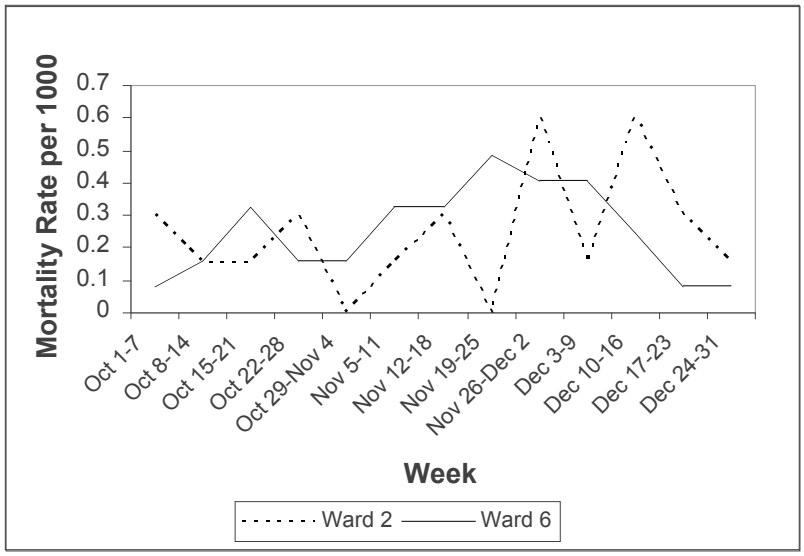


Figure 7.4 - Mortality rates in Wards 2 and 6 by week
("Population Still… n.d.; Government of Ontario 1918-1918: n.pag.)

as having low socio-economic status. The standard of living in the other two wards was rarely mentioned, implying that these wards were in the middle of the socio-economic hierarchy. All three of the high mortality rate wards are located in the northern end of Hamilton; however, Wards 4 and 8 are located on the periphery of the city.

The three wards with the lowest mortality rates are also randomly associated with socio-economic status in academic literature. Ward 1 is

associated with high SES, whereas Ward 7 is associated with low SES and Ward 3 is in the middle. The locations of the wards show no consistency either. Ward 1 is located at the southeastern margin of the city, Ward 7 in the northern centre of the city and Ward 3 in the southwestern periphery of the city. The only correlations that can be drawn from this information is two of the three lower mortality rate wards occur in southern Hamilton (Wards 1 and 3) whereas all three of the high mortality rate wards occur in northern Hamilton.

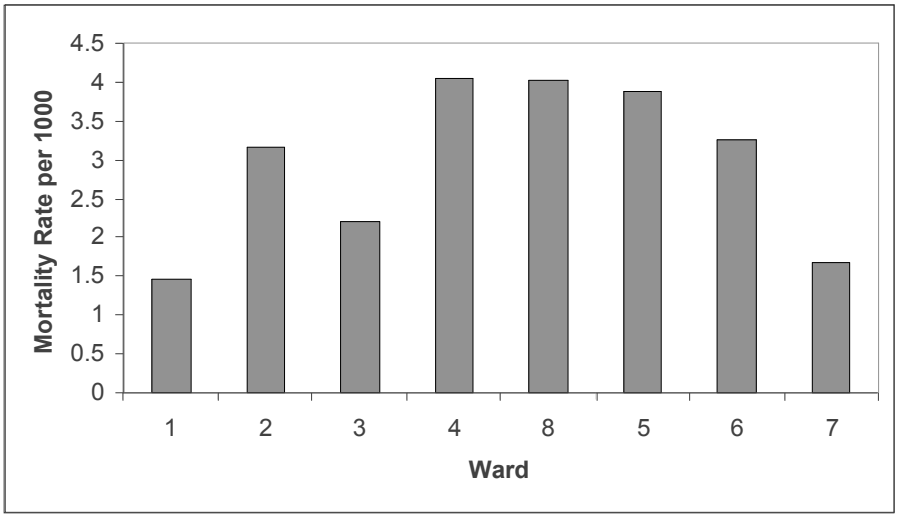


Figure 7.5 - Mortality rates per 1000 of all the Hamilton Wards. Wards are grouped together in high (1 and 2), medium (3, 4 and 8) and low (5, 6, and 7) status
("Population Still… n.d.; Government of Ontario 1918-1918: n.pag.)

The wards in Figure 7.5 are arranged according to their position in the socio-economic hierarchy. As discussed earlier, Wards 1 and 2 have high socio-economic status, Wards 5, 6 and 7 have low socio-economic status, thus leaving Wards 3, 4 and 8 with medium socio-economic status (Gagan 1989: 162-163). To determine if the influenza deaths in these groups adhere to the pattern for overall mortality found by Gagan, I compared the average influenza death rates in

the high (2.3), medium (3.47) and low wards (2.96). Although the high and medium wards follow a pattern consistent with Gagan's research, the relatively low influenza mortality in the low SES wards suggest two possibilities. The first possibility is that the 1918 flu was, in fact, socially neutral; alternatively, it is possible that the full story of influenza mortality has not been captured.

Problems encountered

As with any project, there were difficulties and limitations encountered when gathering, plotting and presenting the data. Chapter 5 addresses the problems encountered in gathering the addresses of victims of the Spanish flu and provides an overview of the limitations of this portion of the project. Besides these problems, there were two issues that bear discussion: 1) the lack of statistical analysis on the graphical data, and; 2) the under representation of low SES people in the data used to compute mortality rates.

Although the similarity in mortality rates between Wards 2 and 6 appears to be clear, no statistical testing has been carried out on these rates, leaving open the possibility that the rates are, in fact, different. The temporal distribution shown in Figure 7.4 and the mortality rates shown in Figure 7.5 also suffer from this drawback. Despite the lack of statistical analysis, the rates presented in Figure 7.5 strongly suggest that influenza mortality rates per 1000 in Wards 2 and 6 are similar, and that socio-economic status did not have an impact on mortality in these two wards.

The second and more critical limitation of this study is the under representation of flu deaths among people of low socio-economic in the mapped data, and therefore in the graphical analysis. As we shall see in Chapter 9, the majority of people who used, and consequently died, in hospitals during the late 19th and early 20th centuries had low SES. During this period, people who could afford home care often opted to do so and refused to go to hospitals when sick (Smith 2004: 95, 101). This presents a problem because when we mapped the addresses of the deceased (see Chapter 5); we did not include people who died in hospitals or other institutions unless they had a home address. This means that approximately 111 influenza deaths, about 25% of the total flu deaths in Hamilton, could not be linked to wards. Assuming that the majority of these individuals had low SES and likely would have lived in Wards 5, 6 and 7, the results of the graphical analysis drastically under represent these individuals.

When discussing Figure 7.4, I noted that the curve for Ward 2 was erratic because of the small population and total deaths in the ward. If significantly more deaths were plotted in either ward, we would see a dramatic shift in the curves. Because such a large number of individuals are excluded from this analysis, there is a high probability that these curves do not accurately describe influenza mortality in the low socio-economic wards. The low flu mortality rates in the low socio-economic wards appear to corroborate this assumption.

Where does this leave us?

Although Chapters 9 and 16 take an in depth view of the health care system in Hamilton at the time, it is worth noting that during the 1918 influenza pandemic, Hamilton was in the middle of a shift in mortality patterns. Rosemary Gagan's study of mortality rates and causes of death in Hamilton from 1900 to 1914 indicates that the decline in mortality during this time was largely due to reductions in infectious diseases and infant mortality after 1910. These reductions, in turn, were attributed to public health measures, especially increasing awareness of hygiene championed by Dr. Roberts (Gagan 1989: 169-171). Gagan (1989: 172) notes, however, that the people most likely to benefit from these reductions were those who already enjoyed the lowest mortality rates.

In this study, the vast difference in mortality rates evident in Gagan's research did not materialize. If the influenza epidemic followed the same social patterning noted by Gagan, we should see a marked difference in the mortality rates between Wards 2 and 6. This is not the case. This is surprising given that Gagan showed that Wards 2 and 6 had the lowest and highest overall mortality rates in Hamilton in 1910. Instead, the similar patterning of influenza mortality among wards appears to support the argument that the Spanish influenza was socially neutral.

A study of the 1918 flu in Winnipeg concludes that the disease spread from the affluent southern portion of the city to the deprived northern sections over the course of the epidemic (Jones 2005: 62). Jones (2005: 62) notes that this pattern of disease progress is not the norm, and that diseases usually begin in the poorer areas of a settlement and radiate out from them. In Hamilton, the temporal mortality curves in Figure 7.5 show a deviation from what is expected if the disease was not socially neutral, as well as the pattern witnessed in Winnipeg. Figure 7.4 indicates that the two wards had similar rates throughout the period in

question and began to peak at the same time. The only difference between the curves is the time of onset of the decline in flu mortality; Ward 6, flu deaths began to decline one week earlier than in Ward 2. This temporal pattern also appears to support the notion that the 1918 flu in Hamilton was socially neutral.

The evidence presented in this chapter clearly points to the conclusion that the fall wave of the 1918 flu in Hamilton was socially neutral. As noted above, however, this is not a sound conclusion. The under representation of low SES deaths has the potential to drastically skew the findings. Chapter 4 presented a comparison between home and institutional deaths, yet the institutional deaths could not be used for the purposes of this chapter because no home addresses were recorded for these people. Therefore, using addresses as the source of data does not give an accurate representation of the spatial distribution of Spanish influenza deaths in Hamilton.

Although the results of this study have been tempered by the limitations of the data source, future studies regarding the impact of SES on influenza mortality during the epidemic have the potential to yield more accurate results. Analyzing the relationship between mortality and occupation would overcome the difficulties inherent in an address oriented data approach, as a separate category can be made for those who are unemployed with clear implications of the individuals SES. Another possible avenue could include studying the relationship between immigrant status and mortality, as illustrated by Jones. However, this option may be problematic if records of immigration have not been maintained. Despite the fact that any clear conclusions regarding SES and influenza mortality in Hamilton have not been reached, the topic is not exhausted and should be investigated further.

8

The Plight of the Children

Kirsty Bond

During such catastrophic events as wars, natural disasters and plagues much media attention is given to the event at hand, informing the general public of the nature of the occurrence, the number of deaths, the cause, the cure and prevention. I have found however that there is often little documentation available with regard to the experience of children during these sad events. The 1918 influenza pandemic is no exception. In setting out with this project I intended to record and document all the children who were immediately affected by the pandemic. This included the number of children killed, and also, the number of children left parentless, thus affected by the disease in an entirely different manner. To my dismay, this proved to be an impossible task. Although I was able to find information about the children who succumbed to the flu, there was no information whatsoever on children orphaned because of it. Having researched all the orphanages present within Hamilton in 1918, including the Hamilton Orphan Asylum, St. Joseph's Orphanage, St. Mary's Orphan Asylum, and the Stephenson's Children's Home. I found that information on the number of orphans entering these facilities was lacking or in some cases, missing entirely from the records, leaving me with no idea of the numbers of children orphaned during the 1918 pandemic. This was surprising, and hence raised the questions: why were the children not documented during this event, and why were they not seen as important enough to be documented?

Looking at tragedies such as the 1918 influenza or World War I, it is rarely the survivors who combated the illness or fought in the trenches that go on to re-live the stories. Primarily, it is the children who have been silent witnesses

watching their loved ones suffer, who live on to tell of their experiences. It is the children who pass on the stories that we hear today. The children are there to witness every horror, hardship, and victory and yet, we fail to recognize this. We have failed to document their victories and their difficulties to the same extent as we have documented others.

Children killed by the flu

As discussed in previous chapters, the target age range for the 1918 influenza pandemic was unusual. Most illnesses or diseases usually create a "U"-shaped curve. This means that the people most affected were children and the elderly, with those in between having a much higher survival rate (Kuszewski and Brydak 2000: 189). The 1918 influenza surprised everyone by attacking the people generally thought to be in their prime; its victims consisted mostly of people aged between 20 to 40 years of age (Hsiao 2003: 83). Although children were lucky to not be as severely affected by the flu, obviously some were infected and succumbed to its effects.

To gain a sense of the experience of children in Hamilton during the pandemic, I examined the death records from September to December 1918 and compiled a list of all individuals under the age of fourteen who died as a result of influenza. I then split these individuals into five categories: stillbirths, infants (children under the age of one), children aged 1 to 4, 5 to 9, and 10 to 14. In total, only 74 children were recorded as having died because of influenza. They made up only 17% of the total deaths caused by influenza, and 25.6% of the total number of child deaths during this time period (Government of Ontario 1918-1919: n.pag).

As Figure 8.1 shows, most child deaths occurred during the month of November. This coincides with the peak in mortality for influenza rates mentioned in chapter four. Figure 8.2 shows that children who were most affected by the flu were those within the age group of 1 to 4 years. The groups least affected were children over the age of ten. The stillbirths occurred when mothers were infected with influenza during delivery of the baby. In New Zealand, as I'm sure was similar in Hamilton and other parts of the world, many young pregnant mothers died as a result of the flu. Babies often survived their mothers' deaths, leaving many motherless infants (Atkinson 2006).

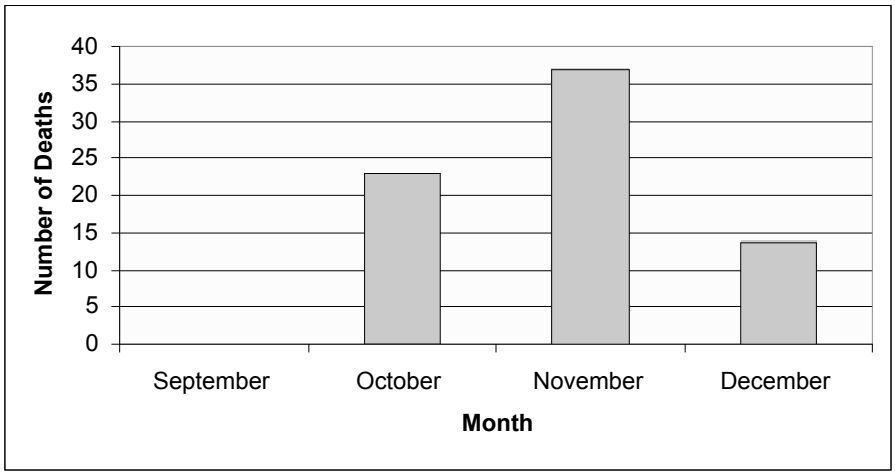


Figure 8.1 - The number of child deaths per month due to influenza in 1918 (Government of Ontario 1918-1919: n.pag)

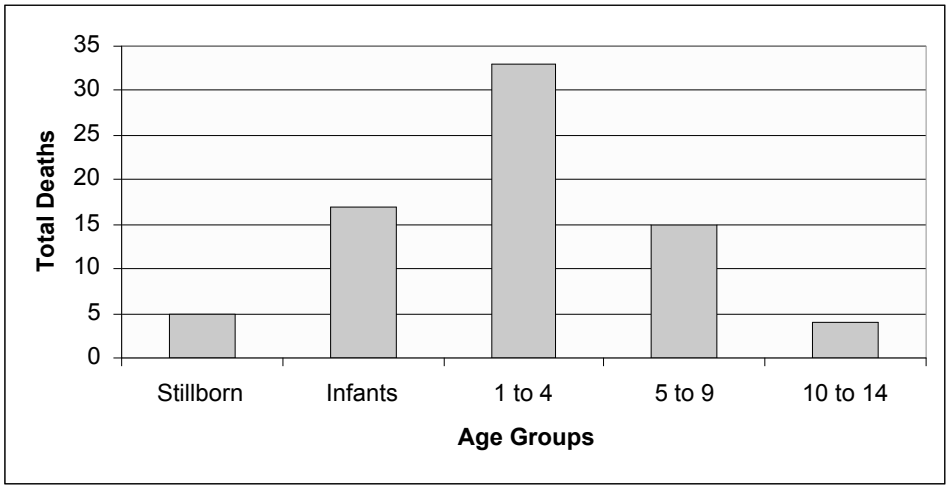


Figure 8.2 – Age distribution of child deaths due to influenza during September to December 1918 (Government of Ontario 1918-1919: n.pag)

In Hamilton, girls and boys died from the flu in almost equal numbers; 35 and 39 flu deaths were recorded for boys and girls, respectively (Government of

Ontario 1918-1919: n.pag). When measuring the proportion of flu deaths for each age category, it is interesting to note that although the largest number of flu deaths occurred in children between the ages of 1 to 4, influenza accounted for only 51.6% of the total deaths within this age group during the time period. The highest proportion of flu deaths occurred among children between the ages of 5 and 9, in which flu deaths accounted for 57.7% of all deaths during this time. Influenza accounted for 33.3% of all deaths among children aged 10 to 14, for 13.8% of infant deaths, and for 7.8% of stillbirths (Government of Ontario 1918-1919: n.pag).

When analyzing the death records, I tried to link the deaths of the children with family members who had also died during the epidemic, expecting to find many cases of multiple deaths within families. However, out of the 74 influenza related deaths among children, only seven actually had family members who died as a result of the flu. Many of these family members were siblings who died shortly after one another. There were a few cases in which either the mother or the father died, and with the exception of one instance, the death of a parent tended to occur a matter of days before the death of the child. There were two families that lost a daughter as well as the father, with the fathers being 31 and 32 years of age. Both were born in Canada; one was a shell inspector and the other an electrician. There were also two families where a daughter and a mother were lost, with one family losing two daughters and a mother. These mothers were aged 32 and 28 years old, and both were listed as housewives (Government of Ontario 1918-1919: n.pag). It is hard to imagine how the survivors in each of these families felt after losing multiple members of their family to the flu.

Considering that most of these children who died were the only deaths from flu in their families, it is possible that their parents were working longer hours or volunteering because of a shortage of workers during the pandemic. In the "relief hospital" volunteers staffed the storeroom and kitchen facilities, while many housewives from the city assisted the nurses in caring for the patients (Henley 1976: n.pag). Perhaps this could also be an indication that children were housed somewhere in mass, which would explain why children could contract the flu somewhere other than at home. Of course, we have no way of knowing how many members of a family were actually sick because the only records available are death records.

Children's Nursery Rhyme

"I had a little bird,
Its name was Enza.
I opened the window,

And in-flu-enza"

(Hsiao 2003: 86)

What happened to the children left behind?

As previously stated, I have been unable to find much information about children during the actual epidemic, besides the deaths that occurred. I wanted to know how children handled this situation, what efforts were made to protect them, and what happened to the ones left behind.

Due to the lack of information from the orphanages and other such institutions, I am unable to really provide a solid answer to this question. However, I was lucky enough to find small fragments of information from other cities. Jennifer Hsiao, who discusses the affect of the flu within several U.S. cities, mentions the fate of children orphaned during the pandemic. In Philadelphia, children of flu victims were not sent to orphanages because it was feared that they were harbouring the flu. Instead, the children's neighbours were asked to take care of them (Hsiao 2003: 86). Hsiao does not mention whether this was a permanent arrangement, but I would assume that this was only a temporary measure until the pandemic subsided and the children could be sent to relatives. Hsiao also provides an idea of the devastating effects that the pandemic had on children: "In New York as of November 9th approximately 21,000 children were made half or full orphans by the Spanish flu" (Hsiao 2003: 86).

In some countries, children of sick parents were often sent to shelters. In New Zealand, "healthy children whose parents were ill including small babies, were accommodated at the nearby Y.W.C.A" (Rice 1988: 39). Rice also

mentions that although they seemed to have accommodated healthy children, orphanages were careful not to take any children who were actually suffering from influenza. Considering that many parents were participating in the work involved in fighting the pandemic, many children were left with a lot of time on the hands with their parents working and the schools closed. As such, within some cities in New Zealand, supervised playgrounds were set up to occupy the children during the day (Rice 1988: 84). However, as mentioned above for Philadelphia, "in the vast majority of cases neighbours or relatives took care of children until the parents had recovered" (Rice 1988: 83).

Similar strategies involving the care of children were employed in South Africa where, for example, shelters were established for children of the sick. In his book, *Black October,* Howard Phillips mentions that during this tragic time, race no longer seemed to be a problem, with all people managing to work together in an attempt to fight the spread of the flu. For example, "Infants whose mothers were ill or had died were entrusted to young mothers still breastfeeding their own babies. In this emergency arrangement race seems to have been ignored" (Phillips 1990: 45-46).

It is examples like this that seem to compensate for the lack of information on children in the 1918 flu. It seems as if there were no limits to what was done to protect and save the children. One has to wonder if perhaps this treatment and protection of our young is what contributed to the low influenza death rates within this particular group of the population. Although not seen as important within society at large, perhaps they were seen as important in the eyes of the local people who would stop at nothing to protect their children, even if it meant their own demise.

Why were the children forgotten?

When asking people about the 1918 influenza, I often find myself being met with blank stares. The majority of people barely recall the flu if at all and thus they are shocked to learn how many people it killed. Since this pandemic seems to have been forgotten, it should not come as much of a surprise that so little is documented on the children.

It is noticeable in the literature from this time period that the flu was overshadowed by World War I, which took the spotlight in the media and in history books. Many countries were unwilling to inform the world of the

disabling disease that was sweeping their nation so very little was recorded about it. Children, who obviously did not have a part in the war, were also overshadowed by this, and when information is recorded on the pandemic much more focus is spent on the soldiers who were becoming infected, or said to be bringing it back from the trenches. "The war was very distracting, even in the middle of a pandemic, many people may have thought of the flu as simply a subdivision of the war" (Crosby 1989: 320). Generally societies document issues that are important to them; the war took precedence over the flu, especially considering that during this period epidemics were not as unexpected as they would be today.

Children may have been given less attention in considerations of the 1918 epidemic because they did not fall within the target age range for mortality. Normally, children and the elderly have the highest death rates from influenza; the fact that young adults died from flu in disproportionately large numbers during 1918 came as a shock to many. This unusual feature of the epidemic has garnered a lot of attention and documentation. Alfred Crosby mentions that because the majority of flu deaths were young adults of just the same age as those that were lost in combat, the obituary columns may have blurred into the causality lists (Crosby 1989: 320). The large numbers of obituaries for this age range may have overshadowed the children's deaths.

Also, as sad as it may sound, children are rarely important figures of society and more attention tends to be spent on those who keep the city functioning, such as the city workers, doctors, and soldiers. The death of such people is perceived to have a greater impact and more devastating effect on public life, whereas the loss of a child is felt more personally and can more easily go unnoticed.

In general, the lack of documentation for the 1918 pandemic is also due to the fact that few members of the elite died from influenza. "If the pandemic had killed one or more of the really famous figures of the world, it would have been remembered. Individuals rarely become powerful and famous until the age of forty. Being that the flu characteristically killed young adults, it therefore rarely killed men in a position of great authority" (Crosby 1989: 322).

The flu itself encouraged forgetfulness in the societies that were affected by it. It came and went very quickly, left no permanent or obvious damage, and the fear of the flu was not present in people's minds, because outbreaks had not left behind any tales to invoke terror. People were unaware of the danger of the

flu until it had already disappeared. The 1918 influenza pandemic did not "spur great changes in the structure and procedures of governments, armies, corporations or universities, and it had little influence on the course of political and military struggles because it usually affected all sides equally" (Crosby 1989: 323). All of the factors mentioned may contribute to the dearth of information on this pandemic and its victims.

It becomes apparent that whilst many forgot the flu, even fewer remember the children who suffered through it. Although not remembered collectively by society, individuals who lived thru the pandemic likely were deeply touched by it. Alfred Crosby notes that "Spanish influenza had a permanent influence not on the collectivities but on the atoms of society – individuals".

9

Healing and Treatment: Who Answered the Call of the Sick?

Anna Lisowska

In the nineteenth century, public hospitals were the only option for the poor and the homeless, providing mere custodial care during periods of illness. The rest of society saw hospitals as dirty, medically ineffective and wrought with misery and potential infection (Gagan and Gagan 2002: 13). As such, the wealthy and middle classes were typically treated at home (Smith 2004: 24). 'Respectable' Canadians convalesced at home in the care of private family physicians, family members and servants (Gagan and Gagan 2002: 13). Between 1890 and 1920, however, we see the transfer of treatment of the sick from home to the hospital (Gagan and Gagan 2002: 3).

The beginning of the twentieth century brought changes in hospital standards, surgical innovation and a growth in medical specialization as well as in professional nursing. Popular perceptions slowly changed and in 1914 hospital based treatments were becoming the preferred source of medical care for people of all classes (Gagan and Gagan 2002: 3). However, fees were high and only those willing and able to pay had access to private and semi private wards. The quality of care was less than basic for the destitute in the public wards (Gagan and Gagan 2002: 14). For example, in 1913 Dr. Smith, provincial inspector of hospitals, condemned Hamilton's City Hospital for its "congested public wards and lavatory system, obsolete laundry and kitchen and wretched Maternity Cottage" (Hill 1989: 18). Thus, it is in this transitional phase from home based care to hospital based care that the influenza pandemic devastated Hamilton.

This chapter examines treatment and healing during the 1918 influenza epidemic in Hamilton. The three-tiered structure of patient care in the early twentieth century is examined, revealing a hospital environment that is substantially different for the poor. The major hospitals as well as the temporary ones established in response to the epidemic in Hamilton are discussed. Furthermore, we will see that without the nurse as an essential health care provider, the lives of influenza patients in the hospitals would have been substantially worse. Sadly, the unwavering dedication of both nurses and doctors during the epidemic resulted in the loss to influenza of many outstanding health care providers. Lastly, the prevention and treatment of the flu in Hamilton are discussed with reference to the various explanatory models of illness that were prevalent at the time. There was no cure for influenza; as such, we see the utilization of both biomedical and alternative medicines in an attempt to combat the spread of the disease.

The public hospital – for the rich *and* for the poor

Hospital governing boards provided indigent patients with the best care meager budgets could provide and with the kind of care that they thought the 'deserving poor deserved' (Gagan and Gagan 2002: 21). Thus, what was offered was a highly regulated environment where the patient's wellbeing was closely associated with obedience to authority (Gagan and Gagan 2002: 21). The following are rules from the Hamilton City Hospital By-Law number 3, in place from 1896-1925:

> Patients are admitted to public wards of the City Hospital on the order of the chairman or any member of the Board of Governors and will receive medical, surgical and all other treatments free of charge. Chronic cases or cases deemed incurable will not be admitted (By-Laws Board of Governors 1896-1925: 1).

A number of regulations exemplify the orderly and obedient behaviour that was expected of all public ward patients:

> Patients must be quiet and exemplary in their behaviour; loud talking or unnecessary noise of any kind in the wards or corridors is forbidden. After 8pm perfect quiet must be observed in the wards. At the regular visits of the attending physician and surgeon, if

able to sit up, the patient must sit on the chair in front of the bed until the end of the visit; and no person should wear his or her hat, converse or make any noise while the physicians are in the ward (By-Laws Board of Governors 1896-1925: 1).

The quality of care in hospital wards directly related to a patient's ability to pay. Those who could afford the premium fees thus purchased health, which came in the form of private rooms, specialized surgeons and the latest in medical technologies. The growth of hospital care and hospitals themselves between 1900 and 1930 resulted in a three-tiered structure of patient care (Gagan and Gagan 2002: 69). The rich, the working middle class and the poor were separated both physically and socially. The ability or inability to pay determined the quality of the hospital experience (Gagan and Gagan 2002: 69). Patients who could afford it received the latest specialized medical treatment; the poor, whom hospitals could not abandon, were seen as draining available resources and space (Gagan and Gagan 2002: 7). This is exemplified in the following excerpt from Hamilton City Hospital By-Law number 3:

Public ward patients when well enough shall rise at 5am and assist in nursing others. Convalescent patients must render such help in the general work of their wards as their condition will warrant in response to the demands of the nurses (By-Laws Board of Governors 1896-1925: 2).

Although respectful behaviour is a must in hospitals today, these rules may have had a role in maintaining the belief that this was the last resort for those who could not afford home care, a view that slowly began to change in the beginning of the twentieth century. Visitors were also expected to abide by certain rules that in retrospect may have reduced the spread of influenza. For example, only under written permission from the Medical Superintendent was access to the maternity ward granted. Visitors were also prohibited from bringing any article of food, fruit or luxury to the patient. Patients in private wards were visited only between the hours of 2pm and 8pm. All other visitors were admitted on Wednesdays and Saturdays between 2pm and 4pm (By-Laws Board of Governors 1896-1925: 3). Assuming that the by-law was adhered to, one can infer that the Hamilton City Hospital may have curbed infection rates once the patients were in the hospital by limiting the contact between healthy people and

sick patients, at least prior to the official visitors ban enacted in early October 1918 ("Over 500 Cases…" 1918: n.pag.).

The hospitals

At the close of the nineteenth century, Canada's major cities were involved in public health reform (Gagan and Gagan 2002: 25). Urbanization, population growth and the unsanitary conditions that prevailed due to inadequate housing were some of the many issues concerning Canadian citizens (Gagan and Gagan 2002: 24). One of the first goals of the reform was to improve public health and it is at this time that we see the growth of a skilled hospital workforce including medical assistants, professional nurses and graduates from the newly formed nursing schools (Gagan and Gagan 2002: 29). In the 1916 report on provincial hospital activities Dr. Helen MacMurchy, Ontario's inspector of hospitals, notes many institutional improvements and the modernity of hospital construction despite the constraints on resources imposed by the war in Europe (Gagan and Gagan 2002: 43). The expansion of public hospitals, especially the increase in medical professionals, would be invaluable during the 1918 influenza outbreak. The following section offers a brief look at both the major hospitals and the temporary hospitals that were established at the time of the 1918 influenza outbreak in Hamilton.

The Hamilton General Hospital

Also known as the 'City Hospital', Hamilton General opened in 1882 ("General Hospital" 2006). The main building faced Barton Street and housed the dormitories for the nurses and the administrative offices. Two other separate buildings contained the public wards; the east wing for men and west wing for women ("General Hospital" 2006). The public wards were large and featured fireplaces and dumb waiters ("General Hospital" 2006). A maternity unit opened in 1892. According to the Hamilton death register records, seventy-nine deaths were recorded for the 'City Hospital' and twenty-four deaths were recorded as occurring at the 'General Hospital' from October 1918 to November of 1918 – the period of study of this book (Government of Ontario 1918-1919: n.pag.).

Figure 9.1 - Hamilton General Hospital circa 1888
(Special Collections, Hamilton Public Library: n.d.)

Henderson Hospital

Overcrowding at the Hamilton General Hospital and to accommodate wounded soldiers returning from WW1, led to the construction of Henderson Hospital. Known as the 'Mount Hamilton Hospital' because of the escarpment location, it opened in April of 1917 ("Henderson Hospital" 2006). Initially, it served as a veteran's hospital and had one hundred beds. A nurse's residence was added in 1918 ("Henderson Hospital" 2006). Thirty-three deaths from influenza are recorded in the death registers for Hamilton as having occurred at Mount Hamilton Hospital (Government of Ontario 1918-1919: n.pag.).

Figure 9.2 - An illustration of the Mount Hamilton Hospital complex as it was originally conceived in 1917 ("Henderson Hospital" 2006)

St. Joseph's Hospital

Figure 9.3 – St. Joseph's Hospital circa 1920 from Charlton Avenue showing the original house in the foreground, St. Ann's wing and the 1916 wing behind it (Special Collections, Hamilton Public Library: n.d.)

The Sister's of St. Joseph came to Hamilton in 1852 to care for the poor, the elderly and the orphaned. On June the 11th, 1890 St. Joseph's opened at the corner of John Street South and Charlton Avenue ("St. Joseph's Hospital" 2006). The three-storey building housed the administrative offices on the first floor and the second and third floors were divided into wards and private rooms accommodating 25 beds ("St. Joseph's Hospital" 2006). The addition of the St. Ann's wing in 1894 increased the bed capacity to 55 and in 1911 the nursing school opened (Savage 1990: 30). 1916 saw the opening of a surgical division that featured a laboratory space and x-ray department (Savage 1990: 30). In the period of study of this book, October 1918 to December 1918, sixty-one individuals died at St. Joseph's Hospital from influenza (Government of Ontario 1918-1919: n.pag.).

Ballinahinch Influenza Hospital

Built in the 1850's and located at 316 James Street South, the house owned by Edward Martin became a temporary isolation hospital during the

Figure 9.4 - Ballinahinch Influenza Hospital
(Special Collections, Hamilton Public Library: n.d.)

influenza outbreak ("Influenza Hospital" 2006). Patients expressed their gratitude for the high quality of care they received at this hospital and many thanks were given to the nurses and doctors who cared for the ill. In conversation with a Herald reporter, Mrs. J. Klushman says that "she could not find the words which would express her gratitude for the kindness of those in charge of the institution and the careful and skillful treatment." ("Patients Grateful" 1918: n.pag.).

The Victoria Convalescent Home and the Jockey Club

The Victoria Convalescent Home located at 408 Barton St. East was donated by Mr. Stanley Mills for the treatment of returned wounded soldiers. However, it was loaned to the Board of Health and converted into an emergency hospital during the 1918 influenza outbreak. It had eleven bedrooms with a twenty-five bed capacity ("Victoria Convalescent Home…" 1915: n.pag.). The large dining room was also turned into a ward and in October of 1918 it had the capacity to care for thirty patients ("Using Vaccine in the Fight…" 1918: n.pag.). Likewise, The Jockey Club Hotel at Barton Street East served as a temporary infirmary for

the ill. Possession of the Jockey Club was taken in October of 1918 by the city in accordance with sections 49 and 50 of the Public Health Act and both the veterans and club officials generously extended their services (Minutes Board of Health 1907-1922: 359,360). This hospital was able to accommodate over 50 patients and at the time of possession did not have water, gas, heat or electric light ("Using Vaccine in the Fight…" 1918: n.pag.). It was equipped with hospital beds and furniture brought from the nurses' home on the mountain. Together, these two hospitals cared for 374 of the more serious cases for a period of 3726 days (Hamilton Board of Health 1917-18: 4-5). Between October 1918 and December 1918, twenty-three people died at the Jockey Club Hospital and twenty-two at the Victoria Convalescent Home (Government of Ontario 1918-1919: n.pag.).

The Barracks at the Scott Property

The Scott Barracks emergency hospital opened February 5th, 1918 and closed March 24th, 1918. In a period of 48 days, this emergency hospital treated 426 patients (Hamilton Board of Health 1919-20: 5-6). In the female section, 108 ward patients and 92 semi-private room patients were treated. In the male section, 114 ward and 118 semi-private room patients were treated (Hamilton Board of Health 1919-20: 6). Overall, there were 45 deaths of which 14 were female and 31 were male. The average age at death at this hospital was 35 (Hamilton Board of Health 1919-20: 6). Patients were admitted with as little delay as possible and special care was given to the most severe cases at the height of the epidemic. On average, there were 16 nurses on duty during the day and 14 at night (Hamilton Board of Health, 1919-20: 6).

The Relief Hospital

The Canadian Patriotic Funds Relief Hospital opened on the 19th of October, 1918 at the Martin homestead on South James Street ("Relief Hospital" 1918: n.pag.). It was available for the dependents of overseas men. However, as there was no resident physician at the hospital, patients had to arrange with their own private doctors for care. By October 23rd, the hospital had 18 patients in residence with many more applications by persons not eligible for admission. Names had to be verified as qualified for allowances from the Fund. During our period of study,

three deaths are recorded for the Patriotic Hospital (Government of Ontario 1918-1919: n.pag.).

Table 9.1 gives the total number of deaths in Hamilton, at both permanent and temporary hospitals, from October 1918 to December 1918. The information was obtained from the Hamilton death registers.

Hospitals – Permanent and Temporary	Number of Deaths
St. Joseph's Hospital	61
City Hospital (General Hospital)	103
Jockey Club Hospital	23
Mount Hamilton Hospital (Henderson Hospital)	33
Victoria Convalescent Home	22
Relief Hospital	3
Hamilton Military Hospital	13

Table 9.1- Hamilton Hospital deaths from October 1918 to December 1918 (Government of Ontario 1918-1919: n.pag.)

Because of the dedication and hard work of both graduate and student nurses, all of the temporary and permanent hospitals were able to provide relief for the many influenza patients. The death toll from influenza and influenza related illness was tremendous and without an organized Nursing Service the devastation would have been much greater (Bristow 2003: 64). In most Canadian cities, basic patient care in public hospitals was provided by underpaid and overworked student nurses. The gruelling work involved making beds, bathing patients, taking accurate temperatures, and the general maintenance of cleanliness and orderliness (Gagan and Gagan 2002: 141). A Hamilton Spectator article details the life of a nurse in the early twentieth century ("An Appeal for the Nurses" 1920: n.pag.). She was on duty 12 hours a day or night, 7 days of the week. During her time off, she was only permitted to be away from the hospital for only 3 hours in every 24. If she was off duty at 7pm she must be in her room at 10pm unless granted special late leave. Her remuneration was poor and her accommodations were crowded. During the 1918-19 influenza outbreak 2,400 Canadian nurses were serving overseas and another 500 were on duty at military

hospitals, tending to wounded soldiers (Pettigrew 1983: 94). Few nurses were left to care for civilians who were infected with influenza. Yet nurses often recounted their experiences during the epidemic as opportunities for providing meaningful aid and comfort to the ill (Bristow 2003: 59). This invaluable work during the epidemic demonstrated the importance of nursing as a vital profession (Bristow 2003: 64). However, the rigor of nursing during the pandemic left many women fatigued, overworked and unable to follow the basic preventative measures enacted by the Medical Officer of Health, Dr. Roberts, during the influenza outbreak. Periods of sleep in airy and quiet rooms just may not have been an option for the many nurses who tirelessly treated the ill. In the midst of the epidemic in Hamilton, Dr. Roberts insisted that proper housing for nurses be provided to ensure their ongoing good health. The Mount Hospital, Nurses Clubs, private residences and boarding houses were made available, and if that was not possible, hotel accommodation was made accessible if needed (Minutes Board of Health 1907-1922: 374). In the following section, the considerable toll that influenza took on doctors and nurses is discussed.

Doctors, nurses and the flu

Canadians who recall the devastation of influenza remember their doctors with affection, awe and respect (Pettigrew 1983: 89). Numerous doctors were remembered as working to the point of exhaustion and unfortunately such strain and stress would have contributed to the ill health of many physicians. In excess of one hundred doctors died during the epidemic in Ontario and the Prairie Provinces alone (Pettigrew 1983: 89).

Both physicians and nurses succumbed to the flu while helping those who had fallen ill. Dr. Thomas Balfe, for example, died on November 5th, 1918 in his home on North James Street after contracting the disease. Dr. Balfe was well known and respected, having practiced in Hamilton for over twenty-five years. He was born near Smith Falls Ontario and graduated from Queen's University in Kingston in 1892 ("Dr. Balfe Died…" 1918: n.pag.). Dr. Balfe was survived by his wife, five children, his mother and father as well as a brother and five sisters. Highly revered in medical circles, he was described as a large hearted man with a genial kindliness ("Dr. Balfe Died…" 1918: n.pag).

While attending to patients at the city hospital, Dr. Clarence W. Graham died on October 5th, 1918 ("Four Deaths from Flu…" 1918: n.pag.). Dr. Graham

graduated in medicine from University of Toronto in 1908 and practiced in Hamilton from 1911 until his death in 1918. He was survived by his father and mother ("Four Deaths from Flu…" 1918: n.pag.). Dr. Graham continued to discharge his hospital duties until he sought treatment for his worsening condition a few days before his death. Nurse Marie Rose Bulhman died on October 4th, 1918 at St. Joseph's hospital ("Four Deaths from Flu…" 1918: n.pag.). Nurse Clara Stephen died on November 1st, 1918 at the City Hospital.

These doctors and nurses are just a few examples of the health care providers who worked tirelessly and fervently to combat the flu even when they themselves had contracted the disease. By the middle of October, doctors were working at the limit of their endurance. Dr. Elizabeth Bagshaw, for example, was one of the busiest doctors in the city making more than twenty house calls a day (Pettigrew 1983: 91). In addition to her patients, Dr. Bagshaw tended to relatives and friends and eventually she contracted influenza herself (Pettigrew 1983: 91). Retired doctors worked side by side with those in practice and together with nurses, relentlessly worked to combat influenza in Hamilton. F. H. Wetmore, M.D writes, "all honour to the nurse, who throughout the recent dangerous pandemic was not afraid to work day and night, hand in hand with the physician in their life saving mission." (Wetmore 1919: 1078). Thus, one can unequivocally state that the frontline workers in Hamilton were the unsung heroes of this epidemic.

Prevention and treatment

There was no cure for Spanish Influenza. Those in the medical profession found themselves largely ill-equipped to deal with this disease as they had no effective ways of combating its spread (Phillips and Killingray 2003: 6). However, numerous preventative measures and treatments were prevalent as the population coped with the outbreak. According to the Official Bulletin posted by Dr. Roberts, the following precautionary actions were to be taken. The patient was to be put to bed at the first appearance of symptoms in a quiet and well ventilated room. To avoid the spread of influenza, Dr. Roberts instructed Hamiltonians to get plenty of sleep, avoid crowded offices, streetcars and gatherings at late hours in poorly ventilated rooms (Minutes Board of Health 1907-1922: 351,358). Plain and wholesome food was advocated, as was frequent hand washing. Furthermore, Dr. Roberts emphasized that one was to stay in the open air to keep infection at

bay. Kissing should be strictly avoided (Minutes Board of Health 1907-1922: 351, 358). Coughing, talking and sneezing were known to spread influenza, as was the use of infected towels and utensils. As such, strict caution was to be executed when eating and drinking. Further preventive measures included a six by six inch mask made of heavy gauze that was to be worn while in public places at all times. This mask was to be ironed frequently to destroy any germs or bacteria (Minutes Board of Health 1907-1922: 353-354). For many, nothing less than a full imperial quart of booze was of any value as a preventative measure for the flu ("Booze for Flu" 1919: n.pag.). However, the extra demand for whiskey provoked the fear that the flu would spread more rapidly as people would no longer fear the disease but welcome it to get extra liquor ("Booze for Flu" 1918: n.pag.). Keeping the feet dry and drinking plenty of cold water was another suggested preventative measure. As a further precaution, individual towels and tissue paper 'kerchiefs' were to be placed in paper bags and burned ("Keep Feet Dry" 1918: n.pag.)

Dr. Frederick Knoff, a leading specialist in diseases of the lung, suggested the use of yeast as both a preventative and cure for the flu. Three yeast cakes were to be eaten every day with each meal. Dr. Knoff claimed that the yeast would increase white blood corpuscles which would attack the disease and give the body a greater resistance. Furthermore, Dr. Williams' Pink Pills were to be taken by all to ensure the rich red blood needed to resist and prevent influenza ("Rich, Red Blood…" 1918: n.pag.).

A number of influenza treatments were also disseminated through newspaper advertisements. For example, a prominent Texas physician, Dr. J.W. Sandlin, claimed that he had cured fourteen hundred cases of influenza with Tanlac. As a reconstructive tonic and body builder, Tanlac was purported to create a good healthy appetite and assist weakened organs ("Texas Doctor Says…" 1918: n.pag.). Following a bout of the flu, Gin Pills restored the proper function of the kidneys. For those in recovery and suffering considerable pain, the juice from preserved or canned black currents mixed with water was highly recommended as a treatment. For prevention, Dr. Pierce's Pleasant Pellets were a must for keeping the skin, nose, throat and bowels clean ("Fighting the Influenza" 1918: n.pag.).

Since the 1890's it was thought that influenza was caused by a bacillus known as Pfeiffer's bacillus (Phillips and Killingray 2003: 6). As such, in 1918-19 numerous vaccines were quickly developed for use against influenza but with

little or no efficacy (Phillips and Killingray 2003: 6). It was only in 1933 that the organism responsible for influenza was identified. Nevertheless, in late October of 1918, Dr. Roberts with the aid of local physicians, started to administer a vaccine for influenza. He did not use the vaccine on himself. The vaccine *Bacilli* consisted of a suspension of dead influenza bacilli. The vaccine came from the Toronto Health Laboratories and was made in one strength only. Each cubic centimetre contained 2000 million dead bacilli of influenza secured from outbreaks in other areas of Canada and the United States ("Seventeen Deaths by Influenza…" 1918: n.pag.). The inoculation was made in the subcutaneous tissues just below the collar bone and two inoculations were needed at intervals of two to three days. Another vaccine was received on October 28th, 1918 from Dr. E. C. Rosenow of the Mayo Foundation for Medical Study and Research in Rochester in order to combat broncho-pneumonia ("Seventeen Deaths by Influenza…" 1918: n.pag.). This vaccine was prepared from pneumoncocci and was to be administered in three consecutive inoculations one week apart; it was to be used on nurses. A special serum prepared at the laboratory of the City Hospital was also administered. However, it was made clear that the serum and vaccines should not be confused by the public. The vaccine was used on those who had not become infected with the flu in hopes of preventing its contract. The serum in turn, was used on patients already suffering from the disease as a means of lessening its virulence and aiding in recovery ("Warning From Doctors…" 1918: n.pag.). Recovered patients were urged to offer a small quantity of their blood from which the serum was to be made. The serum was administered free of charge ("Warning From Doctors…" 1918: n.pag.). Doctors implored those who had recovered to donate blood as part of their public duty. The simple knowledge that a life could be saved was to be sufficient incentive to donate.

Home remedies were also utilized in both the prevention and treatment of the flu. A Herald Newspaper subscriber offered the following remedy as a cure for the Spanish Flu: one half teaspoon of baking soda, one half teaspoon of borax, one ounce of glycerine, ten drops of carbolic acid, and six ounces of distilled water. This was to be thoroughly mixed and sprayed into the nostrils by means of an atomizer or poured into the hand and sniffed into the nose ("A Remedy" 1918: n.pag.). In late October, a Hamilton Spectator article offered an 'Influenza Remedy:' "Elder blossom or flower and peppermint, one ounce of each, was to be poured into a pint of boiling water. The mixture was to sit for thirty minutes. After straining, this strong 'tea' was to be consumed hot in bed with a hot water

bottle at the feet. As a supplement, vinegar cloths were to be wrapped around the body" ("Influenza Remedy" 1918: 6). Another home treatment recommended the following: goose liver and a generous amount of fried onions (or garlic) were to be layered on a thin piece of gauze or cloth. This 'blanket' was then to be placed on the patient in expectation that the mixture would melt and seep into the body (MacDonald 2006). It is likely that many Canadian households had their own cures and remedies. For example, cotton bags containing a lump of camphor and worn around the neck were routine (Pettigrew 1983: 110). Some put their faith in castor oil, garlic buds, violet-leaf tea or salt water sniffed up the nose (Pettigrew 1983: 110).

Explanatory models of illness and treatment

The modern hospital in the early twentieth century was seen as a 'doctor's workshop' filled with the latest advances and tools necessary for the new 'scientific medicine' (Gagan and Gagan 2002: 7). This new medicine was grounded in germ theory and based on cause and effect treatments (Gagan and Gagan 2002: 14). However, during the influenza epidemic doctors often confessed that there was nothing that they could do to combat or cure the disease (Bristow 2003: 61). For many this sense of powerless was unexpected especially because of the recent great strides made in scientific medicine. This resulted in a loss of public confidence in the abilities of physicians and eventually led some to question their authority and challenge their advice (Phillips and Killingray 2003: 66).

Proposed by Arthur Kleinman, explanatory models look at the process by which illness is interpreted, treated and patterned (Helman 2000: 85). Explanatory models are held by both patients and physicians and are the foundations for ideas about sickness and its treatment. Specifically, these models provide explanations for: the cause of the condition, the timing of symptoms and their method of onset, the severity of an illness and the available treatments (Helman 2000: 85). Both medical and lay explanatory models are simultaneously at work during an illness. As such, an individual who is ill may question what has happened, why it happened to them and to whom can they turn for treatment (Helman 2000: 85).

The desperation that many felt during the influenza epidemic led them to use both biomedical treatments and alternative therapies. The use of home

remedies and treatments was commonplace as the epidemic advanced (Bristow 2003: 67). Increased reliance on more traditional methods of healing, including home remedies and treatments, may have been a response to the ineffectiveness of biomedical treatments. Alternatively, people may have used familiar and long-standing traditional healing methods common prior to the transition from home based care to hospital based care. Such treatments would have advocated general good health and healing the entire body, as opposed to treating only individual symptoms or body parts. Biomedical models are based on single causes of illness rooted in scientific logic and germ culture (Helman 2000: 85). Healing strategies, in this case, would involve prescribed treatments. One can see that these two models differ in both the interpretation and treatment of a particular illness because they are often based on different understandings of the body and healing (Helman 2000: 103).

By the early twentieth century many doctors and lay people alike developed a belief in the ability of the new 'scientific medicine' to handle any affliction. Public hospitals were expanding and hospital care was becoming the primary source of healing for all members of society. Advances in science offered hospital patrons expensive equipment, teams of medical personnel and highly specialized physicians – if one was willing and able to pay, that is. In this chapter we have investigated healing and treatment at the time of the Spanish influenza outbreak in Hamilton. It was an epidemic that unsettled the newly acquired confidence and pride in the 'scientific medicine' of the early twentieth century. We have specifically looked at various preventive and treatment measures available at this time. As such, both biomedical and alternative forms of treatment were used in Hamilton in an effort to combat the illness. We also get a small glimpse into the unsung heroes of this epidemic – the overworked doctors and nurses who laboured vigorously to aid their patients even after contracting influenza themselves. For a general picture of the socioeconomic status of those who died of influenza in Hamilton I direct you to chapter 7. In chapter 4 you will also find statistics on home versus institutionalized deaths. The early twentieth century represented a transition from home based care to hospital based care with popular perceptions of hospitals as institutions for the indigent starting to diminish. How did the 1918 influenza epidemic in Hamilton influence popular perception? Future research in Hamilton may involve specific examination of the socioeconomic status of those hospitalized during the outbreak.

10

The Essence of Altruism: The Spirit of Volunteerism in Hamilton during the 1918 Influenza Pandemic

Mara Pope

The influenza pandemic of 1918 in Hamilton, Ontario, is not just a story about a disease and its historical notoriety. Rather, this is a story about the people who lived and experienced the pandemic and the social networks they formed to deal with the deadly disease – especially the volunteer effort. It is incorrect to assume that communities like Hamilton merely "coped" with the influenza, taking on required roles and duties to preserve a degree of normalcy amidst the "chaos" of disease as demanded by the government and community leaders. There were numerous voluntary organizations and individuals in Hamilton who worked to construct a strong social fabric that would support the city through this terrifying ordeal. They actually contributed to the recovery of many of the sick, most of whom would have never survived without the patient, home-delivered care that volunteers provided to so many throughout the city. Those who volunteered during the pandemic went "above and beyond" standard requirements, providing not only medical and physiological attention, but also solace, comfort, company and dignity. The magnitude of the volunteer outreach during the pandemic demonstrated community integration, spirit and cohesion – qualities not always evident during human "disasters." Volunteerism during the pandemic also displayed a gender trend, with women comprising the majority of volunteers. This trend reflected the general attitude that prevailed towards women during this period, including roles assigned to them such as "caretakers." The predominant role of women as volunteers during the pandemic helped to transform the attitude towards women's work both inside and outside the home. This was definitively

aided by the circumstances of World War I, during which women comprised the majority of the labour force while many of the men fought in the Great War.

Recognizing the need

During the 1918 pandemic there was undoubtedly a high demand for volunteers. With minimal reserves of funds, volunteer groups like the Red Cross, Hamilton Young Women's Christian Association (Y.W.C.A.), the Women's Labour Party, the Women's Canadian Club, the Jewish women's association and various Church groups organized and efficiently distributed their time and resources. Influenza struck the city hard: 4,530 cases were attributed to the Spanish flu by November 27, 1918, an astonishing morbidity rate considering the cases occurred over the course of just two months (Henley 1990: n.pag.). The influenza pandemic prompted the closure of schools and theatres, together with a general ban on any large public gathering by the Board of Health in a desperate effort to curb the spread of the disease. Across the country, business hours were restricted. By October 21, 1918, Dr. Roberts -- Hamilton's Medical Health officer at the time -- had placed a ban on any public gathering numbering twenty-five or more people, as the Board of Health was concerned that crowding and overheating would facilitate spread of the disease (Henley 1990: n.pag.). These restrictions confined most members of the public to their homes. If hospital care could not be obtained, individuals were left to their own devices to care for the ill members of their family. This was where the Sisters of Service, or "S.O.S." nurses stepped in with their excellent work.

The city was constantly advertising for S.O.S volunteer nurses, led by one Mrs. Harry Carpenter, who was later "hailed graciously" by Dr. Roberts for her relentless effort and organization (Hamilton Board of Health 1918: 5). The provincial Board of Health of Ontario organized the training of volunteers, establishing the service in various locations within the province (Pettigrew 1918: 97). The S.O.S. nurses comprised the Hamilton branch of the Ontario Emergency Volunteer Health Auxiliary. Mrs. Harry Carpenter had presented a proposal to organize the branch during the pandemic, and the Hamilton Board of Health readily agreed. Appeals were made to women through the press, with the goal of "enlisting their volunteer help for nursing, and to give education to the sick." (Hamilton Board of Health 1918: 5). Women were called upon to volunteer with the S.O.S. as nurses to provide home-delivered care to the afflicted. The

Hamilton Health Records for 1918 state that the effort began with over one hundred women who were given just two or three lectures by local doctors and nurses, provided with a mask and apron and then sent out the same night to attend to those in need (Hamilton Board of Health 1918: 5). The Hamilton Spectator advertised daily lectures for "healthy women" to provide nursing aid beginning in late September, and became more urgent in mid October, with headlines repeatedly stating: "Wanted Urgently Nurses" ("Wanted Urgently Nurses" 1918: 14).

Caring for the ill in the midst of a pandemic is a daunting task for an experienced health care worker, let alone volunteers with essentially no practical experience in the field of health care delivery. The women of the S.O.S. were expected to make house calls to those sick with the flu, aided in transportation by motorists who volunteered their time and vehicles. Transportation of this nature was volunteered all across the country. In Regina, nurses actually had access to a hotline – a specially designated fire department number - where they could call for a ride in one of the fire department's vehicles (Pettigrew 1983: 103). Public attitude towards the nurses was clearly one of gratitude, but also of concern for their safety and well-being – a truly understandable reaction considering the magnitude and severity of the crisis at hand. A front page article in the Hamilton Herald in late October of 1918 proclaimed: "Every care taken to guard S.O.S. nurses," assuring the public – and undoubtedly potential future volunteers - that all volunteers worked under the close supervision of qualified nurses and were subject to regular inspections to ensure their health, nutrition, and comprehension of the task at hand, so that "in no cause are the sisters left in a position of the least certainty." ("Every Care Taken…" 1918: 1).

During a time when organization might be expected to have been wanting, the S.O.S. demonstrated an incredible ability to formulate and implement a plan to successfully distribute their resources, or rather, "woman power." Regular meetings were most often held at the offices of the Y.W.C.A., offered graciously by the women affiliated there. The city was divided into districts, with each S.O.S. nurse assigned to a district and responsible for visiting the homes within its boundaries. The S.O.S. made approximately 2,050 calls, caring for about 6,781 patients, with duties including cleaning, cooking, sanitary care, bedding changes and tending to the upkeep of coal (Hamilton Board of Health 1918: 6). A strong demand for S.O.S. nurses continued past November ("More Cases…" 1918: 6),

when 'buzz' about the flu had slightly subsided in the press but the need remained as many continued to fall ill.

The work of the diet kitchens played a major role in the recovery of the ill and demonstrated the will, cohesion and dedication of the local church base. All over the country volunteers worked out of church kitchens to provide sustenance and strength for their local populations (Pettigrew 1983: 94). The diet kitchens in Hamilton were initiated and led by the First Methodist Church of Hamilton, comprised of a group of women from the Hamilton chapter of the Imperial Order of the Daughters of the Empire (I.O.D.E.), also often mentioned under the title of Sisters of Service. The women worked in the kitchen in the basement of the church to arrange diet baskets for those too sick to leave their homes. The baskets contained goods such as jellies, soups, custards, rolls, linseed tea, cocoa and fruit – providing sufficient sustenance for two meals for each individual (Hamilton Board of Health 1918: 10).

Mrs. P. D. Crerar, Mrs. Harry Burkholder and Mrs. C. R. McCullough directed and supervised about one hundred and fifty women in this work, most of who carried out this generous duty both day and night. They began on October 21,st of 1918 and continued over a period of approximately eleven weeks, putting together over seventy thousand meals, home delivered, and totally free of charge (Davis 1924: 245). This was an immense effort arranged by a small group of dedicated women, who clearly recognized the dire state of the hospitals. They understood that the only way to recovery would be through tedious, individualized care. The diet kitchen received cash donations from the city but the public also freely contributed their available funds, totalling just over $2,575 (Hamilton Board of Health 1918: 10).

These services allowed the dreadfully ill a chance to recover, as they were clearly unable to get their own groceries. At the same time they greatly reduced the risk of further spread of the disease. There was no medical cure for the Spanish influenza, making good nursing care the only effective treatment. Doctors "freely expressed the opinion that this service did more to overcome the epidemic than anything else" (Davis 1924: 246). Soon after the I.O.D.E. initiated the diet kitchens, the Jewish Women's Association launched a kosher diet kitchen and arranged to assist with nursing, providing the S.O.S. with face masks (Hamilton Board of Health 1918: 7). The women who took part in the diet kitchens certainly took care of their own, exhausting themselves under the threat of illness, not even resting on Christmas.

Women from all facets of the community provided their services as volunteers, not only because it was the "right" thing to do, but also because time was a readily available commodity due to the bans on public gatherings and closures of city institutions. On October 20th, schools were closed for a few weeks, leaving teachers without pupils, and providing a readily available volunteer base from which to draw. Miss Smith was responsible for organizing and leading a group of about eighty six public school teachers in volunteer clerical duties, assisting office attendants both the day and night, with some also utilizing their services as nurses and dieticians at the emergency hospital (Hamilton Board of Health 1918: 6). The assistance with clerical work might seem like a less "heroic" role for volunteers, but during this time record keeping and effective office work were vital for maintaining a successful volunteer effort.

Other organizations also contributed to the volunteer effort, especially by way of generous donations. Most women's organizations provided linens and clothing to homes and hospitals. These simple commodities were fairly easy to obtain, but vital nonetheless to the health of those recovering from influenza who were unable to wash or change their own bedding. The Canadian Red Cross is mentioned in the Hamilton Board of Health Reports as having provided pneumonia jackets, and the Women's Labour Party provided linen and flannel (Hamilton Board of Health 1918: 7). Women's groups all over the nation pulled together and contributed what they were able to offer to the volunteer effort. The Women's Institute in Alberta offered home-nursing and first-aid courses, training thousands of volunteers, and the Women's Conservative Club, Women's Liberal Club and Y.W.C.A. were among many of the groups that responded to the call for help in Toronto (Pettigrew 1983: 100).

The Women's Canadian Club was a relatively new organization in Hamilton when they volunteered their help during the pandemic. The Club was formed in 1912 with a common purpose of "recognition of native worth and talent, and the fostering of a patriotic Canadian sentiment," with the understanding that women should work to "the betterment of the home." (Edwards 1953: 22). They certainly fulfilled their mandate, organizing a 'linen shower' during the pandemic that provided: 72 pillow cases, 203 towels, 60 sheets, 38 blankets, 12 comforters and quilts, 39 nightgowns, old linen and flannel, 2 mattresses and 2 beds, 5 pillows, clothing for both women and children in addition to a cash donation (Hamilton Board of Health 1918: 7). This was a magnificent effort for a group of a few hundred women. The Women's

"Diet Kitchen: Many Citizens Appreciate What It Has Done

My Dear Sisters of Service, - For that name you so richly deserve, is the thought of one husband whose home is afflicted with this deadly epidemic – wife and three children all lying down with same. God has spared me so far from taking it, and I trust that He will keep it from me. For seven consecutive days and nights I had no rest, the cries of the mother (now in hospital) and children kept me busy looking after them, making it impossible to cook for them; and this is where the I.O.D.E. came in with its Christian work. The sustaining food that you sent to our home and the delicacies made it much easier for us; not for its monetary value, but for the beneficial effects it had on the patients, and the keeping up of my strength during my bedless nights. I dare say hundreds that are getting their share of these good things will never forget the kindness of the chapters for the blessed work you are doing to help the afflicted – for the rich have benefited as well as the poor. May your good work go on in the future as in the past. May those who shared never forget to bestow a little to help any good work which you may offer to give service, which is void of all profiteering, as it were. Accept my appreciation of your service." (Written by the head of a household on Leeming Street, Hamilton, ON)

("Diet Kitchen…" 1918: 7)

Canadian Club held many of their meetings at the Y.W.C.A. during this time. At an executive meeting on October 21st it was decided that in addition to the linen shower, they would arrange to find motorists to assist the volunteer nurses with their rounds (Minute Book 1917-21). The St. John's Ambulance Brigade Girls were also noted in the reports as an exceptional group of women. The St. John's Ambulance Brigade was responsible for volunteer work throughout Canada during the 1918 influenza pandemic, including care for the sick in hospitals and in private homes and even taking over direction of hospitals when the entire staff fell ill. One of the Brigade's most notable achievements was their work at a coal mining settlement in Alberta, where they conducted work including wood-chopping for fires and cleaning of bunkhouses when all the miners had come down with the affliction (Lautenschlager 1992: 14).

During this time of dire crisis, seemingly trivial and simple duties like cleaning, cooking and chopping wood for warmth became daily struggles for those sick with the flu. Volunteers became an extension of the sick family, who could no longer properly care for their loved ones or even themselves. In Canada, individuals from all sectors of the community offered their services. In Montreal, policemen and firemen delivered food and fuel door to door, and in Toronto postmen were responsible for distributing cards to obtain information on those who were ill (Pettigrew 1983: 101). Although many succumbed to the disease, the volunteers helped many to manage the flu with dignity and respect, providing a fighting chance of survival for those who could not make it to a hospital.

Recruitment and response

The call for volunteers continued for the duration of the pandemic – from the time it first struck as a *major* health problem in Hamilton in September of 1918 until February of 1919. However, the demand was most precipitous throughout the months of October and November. By this time, the city had recognized that the pandemic would not soon abate and alternate methods for care and treatment of the sick were required. Hospitals were running out of beds and nurses and doctors were overwhelmed, exhausted, and falling ill to the influenza themselves. In fact, one quarter of Hamilton doctors became stricken with the flu (Pettigrew 1983: 91).

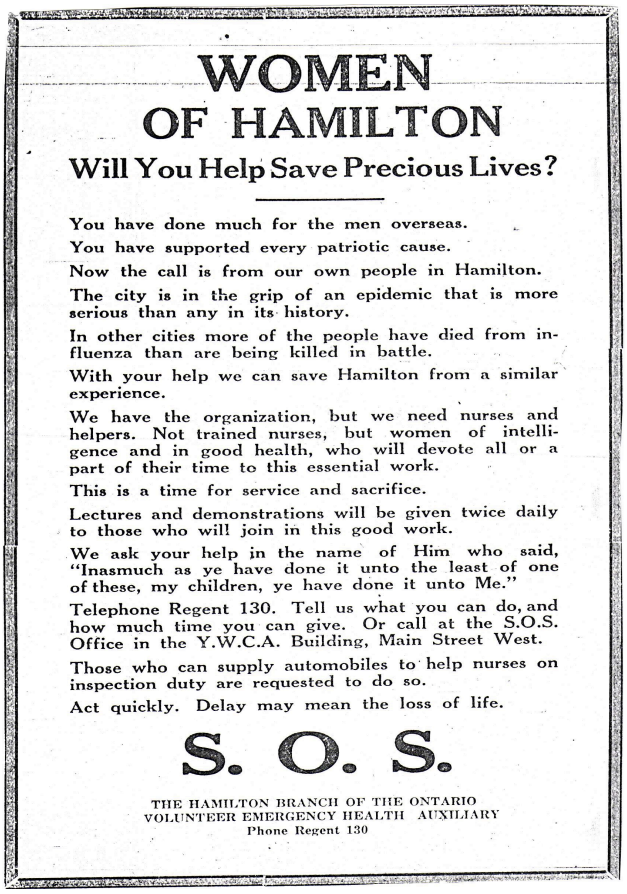
Recruitment of volunteers was conducted primarily through the medium of newspapers, including The Hamilton Herald and The Hamilton Spectator. The call to women specifically to volunteer their services and time dominated advertisements for volunteers. Beginning in late October, The Hamilton Herald ran frequent advertisements proclaiming "Women Must Help." These notices were intended to foster competition among Hamilton's women, challenging them to take up the important work in which women in other cities were already engaging with a "patriotic" spirit, saying that "each has done everything that time and circumstance will permit." ("Women Must Help" 1918: 1). The advertisements were practical and to the point and were not intended to encourage volunteerism by spreading fear. Rather, they appealed to the human need to assist one's "fellow woman," as an act of camaraderie and altruism. One such ad proclaims: "Come and help to save precious lives" ("Volunteer Nurses" 1918: 1),

and is also exemplified in an advertisement for S.O.S. nurses (see figure 10.1). Over 200 women took part in the S.O.S. work during the pandemic, leaving their own families to tend to others. The lectures that the S.O.S. volunteers received from doctors and nurses were part of a larger curriculum spanning the province of Ontario. The Ontario Emergency Volunteer Health Auxiliary, based in Toronto, formulated a syllabus of lectures which were distributed to the Medical Officer of Health in all towns and cities ("Wanted, Volunteers!" 1918: 9).

The work of the volunteer "army" in Hamilton certainly did not go unnoticed, as positive response and appreciation are overwhelming in the literature of 1918 to 1919. Many Canadian communities displayed their gratitude to volunteers through words and written thanks, but also by generous action. For example, in Kamloops, British Columbia, and in Prince Edward Island, schoolteachers were paid their regular salaries despite the fact that schools had been closed for months (Pettigrew 1983: 95). The 1917-1918 Hamilton Board of Health Reports dedicated a substantial portion of their yearly overview to those who served during the pandemic.

Generous donations were also recognized, including the Victoria Convalescent home donated by Mr. Stanley Mills and the Jockey Club Hotel, which was converted into a hospital to provide beds for the patients whose numbers were too great for the hospitals to absorb (Hamilton Board of Health 1920: 4). Miss Mackenzie of the Y.W.C.A. was thanked for providing an office for the Emergency Health Auxiliary meetings as well for her organizational contributions. Miss Insole was given great thanks for her wonderful work directing the S.O.S. ladies in their efforts. Other citizens were recognized for their incredible response to the calls for volunteers, such as lending vehicles for nurses to make home visits (Hamilton Board of Health 1918: 12). The Reports and numerous newspaper articles go into painstaking detail to list all the names and positions of the women and men who voluntarily served their time – a small token of appreciation for helping to fight the deadliest and most devastating disease in living memory. The Canadian Red Cross, although not mentioned in detail, is noted as being a great help, along with The Moodie Company for its donation of children's sleepers and other articles of clothing, and the Young Men's Club of the Central Presbyterian Church (Hamilton Board of Health 1920: 7). Throughout the newspapers of 1918, the diet kitchens are constantly heralded for their tireless work, with frequent updates regarding the number of baskets they had made and distributed.

Much of the voluntary work was collaborative, reflecting the efforts and resources of multiple groups and organizations. The diet kitchens themselves received assistance from the Catholic Women's Guild and the Bell Telephone Company, in addition to the generous donations of the city and private citizens.



WOMEN OF HAMILTON

Will You Help Save Precious Lives?

You have done much for the men overseas.

You have supported every patriotic cause.

Now the call is from our own people in Hamilton.

The city is in the grip of an epidemic that is more serious than any in its history.

In other cities more of the people have died from influenza than are being killed in battle.

With your help we can save Hamilton from a similar experience.

We have the organization, but we need nurses and helpers. Not trained nurses, but women of intelligence and in good health, who will devote all or a part of their time to this essential work.

This is a time for service and sacrifice.

Lectures and demonstrations will be given twice daily to those who will join in this good work.

We ask your help in the name of Him who said, "Inasmuch as ye have done it unto the least of one of these, my children, ye have done it unto Me."

Telephone Regent 130. Tell us what you can do, and how much time you can give. Or call at the S.O.S. Office in the Y.W.C.A. Building, Main Street West.

Those who can supply automobiles to help nurses on inspection duty are requested to do so.

Act quickly. Delay may mean the loss of life.

S. O. S.

THE HAMILTON BRANCH OF THE ONTARIO
VOLUNTEER EMERGENCY HEALTH AUXILIARY
Phone Regent 130

Figure 10.1 - Ontario Volunteer Emergency Health Auxiliary advertisement, Hamilton Branch, 1918.
("Women of Hamilton…" 1918: 4)

Columns of personal thanks also graced the pages of The Hamilton Herald and The Hamilton Spectator, expressing the feelings of the families touched by volunteer services. Volunteers all over the country performed exceptional and tireless work, instructing those under their care to rest while they themselves barely accomplished one decent night's sleep during the months the pandemic ravaged the nation.

Gendered voluntarism

It is clear from the literature of the day that women's organizations predominated in the volunteer effort in Hamilton, with multiple factors contributing to the trend. Women's voluntary work during the 1918 influenza pandemic, and even as part of the effort for the 'Great War', still largely goes unrecognized in Canadian writing. The outbreak of the Great War took a heavy toll on the labour force of cities in Canada, with many men leaving to fill up ranks as soldiers, leaving women to deal with the repercussions of the Spanish influenza. World War I further exacerbated the problem of influenza in communities by depleting resources of health care workers, as many nurses and doctors had gone overseas with the soldiers. In British Columbia, two hundred doctors left to join the war effort, and a total of 2,400 Canadian nurses also went overseas, with another 500 nurses serving at various other military hospital stations (Pettigrew 1983: 89, 94).

During the early twentieth century, women were considered to be primary caregivers, and thus, best suited for roles that required such qualities, such as the S.O.S. nurses. The issue of femininity as a social construct becomes an important consideration, especially the subject of maternalism, when considering women's voluntary nursing work (Quiney 1998: 193). The traditional image of women was that of 'moral guardian', clearly present in early religious art (Sebire n.d.). Women's designated roles and attributes were constantly reinforced through the press and government institutions. Dr. Roberts praised the gallant efforts of women in the 1917-1918 Health Reports by stating: "One cannot speak too highly of the devotion of the S.O.S. nurses and their self-sacrifice, who laboured early and late doing nursing and housework and the hundred and one things that only a woman can do." (Hamilton Board of Health 1918: 6). This statement not only defines the role of women, but also clearly separates it from the work of men, who would not have been suitable for the work even if they had been available. Women were praised for their work through the usage of gendered imagery,

including the familiar understanding of woman as motherly and nurturing. In the United States in the early twentieth century, nursing and medicine were gendered occupations, in keeping with a history in which medicine was a field exclusively for males, and nursing the clear alternative for women.

The transition of nursing from a domestic role to a paid profession did little to change the perception that it was a traditional female role, completely separate from the practice of doctors (Bristow 2003: 60). However, with the onset of the Spanish influenza, doctors soon realized their interventions were useless against the disease, and despite all of their scientific knowledge, publicly stated that there was little they could do for the patients who flocked to them in droves. Bristow argues that during the 1918 influenza pandemic in the United States, physicians had a much more negative memory of their experience than nurses, largely because they were limited in the care they could provide and thus unable to live up to 'heroic' and 'masculine' expectations. On the other hand, nurses expressed a more positive attitude towards their experience because they "measured themselves against the responsibilities of womanhood, demanding nurturance and support of their patients, and found themselves worthy" (Bristow 2003: 64).

Other aspects of Hamilton Policy and procedure during the pandemic also reflect current attitudes toward women. At the peak of the epidemic in October, it was suggested that one method to control crowding in the streets and on street cars would be for employers to allow women early leave from work to decrease congestion during the commute home ("Influenza Still Taking Serious Toll…" 1918: 19). In this sense, women's work was viewed as dispensable and secondary compared to men's labour and thus expendable during times of crisis. This perception of women cannot be regarded as strictly negative; it merely paints a picture of a moment in time, when women were regarded as a truly different class of citizens. In 1918 The Hamilton Herald ran an advertisement which painted a heroic portrait of women, claiming that in their strong "Devotion to Home," women often neglected their own health and well-being as they took on too much in order to achieve house and other care work ("Woman's Devotion to Home" 1918: 11). Women were appreciated and praised for their dedication to the home, but at the same time restricted by this view as it limited their ability to make a life for themselves outside of the home.

Prior to World War I, women's labour outside of the home was uncommon and not readily accepted. The only way women could escape the

duties of the household and experience a degree of external experience and freedom was through recognized groups and organizations, such as voluntary church work, the Women's Canadian Club and the Y.W.C.A. This allowed a woman to develop and express an identity separate from that of wife, mother or daughter, and become an individual in her own right, as well as granting her membership in a 'sisterhood' (Sebire n.d.: 72). This included women's strong devotion to the church and affiliated work, such as the diet kitchens. The church provided women with one of the few opportunities available to develop skills, achieve some monetary benefits and most importantly, make independent decisions: "societies like the Y.W.C.A. gave women opportunities to express religious faith in a practical world" (Sebire n.d.: 72). Many women felt isolated at this time, and these activities granted them a rare degree of freedom. Additionally, WWI acted as a catalyst for women's labour. The war accelerated women's acceptance in the labour force and enabled their fight for freedoms, making this unprecedented role of women in the Canadian social arena highly visible to those who had previously chosen to ignore it (Sebire n.d.). This transformed the perception of women and their associations, highlighting their many capabilities and positive contributions to society.

Before the onset of the 1918 influenza pandemic many women's organizations already had their "feet on the ground" and boasted strong membership levels, which prepared them for the intense work ahead. In the late nineteenth century women's organizations in Canada were primarily charitable and local in nature (Sebire n.d.). The histories of some of these organizations provide insight into the reasoning behind their formation and women's strong identification with these establishments, prior to and post WWI. The mandates and 'mission statements' of women's clubs like the Y.W.C.A. and Women's Canadian Club represented a 'new beginning' for women, more control over their lives and involvement in social and work arenas (Sebire n.d.). The Women's Canadian Club of Hamilton was one of the first branches of the Canadian Club to accept women into its ranks, providing a forum for discussion and social action. This motivated women to become active in their community and fostered growth and understanding of Canadian heritage. Wartime presented the opportunity for women to take center stage and come into their own. It is no wonder many women viewed their nursing work during the pandemic positively. It instilled in them a greater confidence of their skills and a strong assurance that they had

played a vital role during the crisis, no doubt instilling in them a greater sense of 'legitimacy' and value in their societal status.

The "courageous souls" of women

"In these days of 'near peace' and all the excitement attendant thereon, people should not lose sight of the deeds of heroism which have been displayed by the womenfolk of Dundas during the now rapidly waning "flu" epidemic. No soldier entering battle faced danger more bravely or cheerfully than these noble women, who entered stricken homes of their own free will to help stamp out one of the worst disease scourges the world has ever known. Many of these courageous souls fell victims to the disease, but the rest never faltered until the plague was mastered."

("Dundas News..." 1918: 3)

During the 1918 influenza pandemic in Hamilton women clearly dominated volunteer work, rising bravely to their roles as S.O.S. nurses, but also helping wherever it was needed, including clerical work, cleaning and meal preparation. There is some research to suggest that this pattern of female dominated volunteerism is not random. Volunteers typically display common characteristics, allowing a profile to be established that draws upon historical and current trends identified in volunteer work. Ollenburger and Moore argue that billions of dollars per year are generated in the United States through volunteer work, and that women are much more likely than men to engage in this work (Ollenburger and Moore 1992: 91). Although much of this research refers to volunteerism under "normal" circumstances and not during times of crisis or wartime, it can be utilized to supplement evidence of the gendered volunteer work evident during the 1918 Spanish influenza pandemic and especially the perception of this work as female. Even the acronym S.O.S. – sisters of service – clearly indicates that this work was exclusively for women. Women have comprised the majority of volunteers in recent history, largely as a result of factors such as social conditioning, structural discrimination and a history of servitude to the church and family without the expectation of monetary compensation

(Ollenburger and Moore 1992: 91). In this sense, it can be argued that women were conditioned for the work they accomplished during the pandemic.

This does not make their contributions any less significant, since facing potential death on a daily basis requires nothing less than true courage. Gold argues that before World War II, "meaningful, part-time work was simply not available for women," because of "traditional stereotypes and sex segregation in the workplace" (Ollenburger and Moore 1992: 92). Much of the volunteer work that women undertook included tasks similar to housework and caring for children, including nursing and church activities, thus it was perceived more as an extension of their traditional roles (Rotolo and Wilson 2004: 1095). As such, it posed no threat to twentieth century traditional perceptions of women and their capabilities.

A window to the future? Human behaviour in times of crisis

A discussion of the 1918 Spanish influenza would not be complete without a consideration of the future and an acknowledgment of "lessons learned." There is an essential question that must be posed: in the event of another pandemic, how will we respond?

The 1918 pandemic was certainly devastating both on a personal and a community level, creating doubt in the medical profession but also bringing out the best in many community organizations such as the ones previously discussed. It is commonly assumed that during times of crisis, policy and procedure go out the window and chaos reigns. On the contrary, natural disasters and health crises can precipitate strong social cohesion and a sense of group belonging in the face of impending danger. Most governments and other Canadian regulatory bodies responded quickly and rationally to the crisis, organizing nurses and educating the public.

The City of Hamilton was no exception, constantly encouraging volunteer participation and praising the work that had already been accomplished. Disaster volunteer participation is not uncommon, as the urge to help often overrides other fears. This fosters the creation of pro-social collective mobilization, including emergency networks and organizations (Hoetmer 2005: 5), such as the S.O.S. and diet kitchens. This type of volunteerism often creates a chain reaction: the more people see others helping out, the more they are stimulated to offer their own services. This is exemplified by the advertisement in the Hamilton Herald

discussed previously, in which the women of Hamilton were challenged to engage wholeheartedly in the volunteer effort and "realize the imperative necessity for helping the S.O.S" ("Women Must Help" 1918: 1).

It is undeniable that good nursing and home care were the only truly effective responses to the flu pandemic. In 1918, family played an integral role in the lives of most individuals. When influenza struck, the majority of people relied on the care of close family, and most care and recovery occurred in the home (Schoch-Spana 2001: 33). In the early twentieth century, there was far less reliance than today on paid health care professionals, whom most people now rely on for the slightest of problems (Schoch-Spana 2001: 33), often seeking prescriptive treatment for their ailments. During the 1918 flu, nurses' tasks exceeded what was normally expected of them. This included household chores, cooking and social support, and the use of homemade remedies.

We may be at a disadvantage today in the event of a similar crisis. Professional advice and treatment is heavily used and strong social networks seem to have been replaced by a stronger emphasis on individual achievement and effort. There is no doubt that we are capable of cohesion and support. We could organize emergency networks, but do we possess the social tools necessary to successfully implement such an effort? Would people trust their health to family and volunteer-based home-delivered care? There are many questions to consider, but it is important that we learn from past events, and use this knowledge to prepare for our future. The response to the 1918 influenza pandemic in Hamilton demonstrates incredible acts of human compassion, dignity, perseverance and will – qualities that every human today possesses. Let us remember this if influenza or a different pandemic arises in the future.

11

Steel City Shutdown: The 1918 Quarantine in Hamilton

Adam Benn

Quarantines have been employed for hundreds of years as a method of curbing infection and disease during times of pandemics and plagues. From the 14th century to the present day, government leaders have relied on isolation to protect their citizens from contamination. From 1918-1919, hundreds to thousands of cities across the world employed quarantine to control infection and the spread of disease during the deadly 1918 flu pandemic. The 1918 flu was the deadliest epidemic the world has ever seen, killing an estimated 20 – 50 million people. Hamilton was no exception.

As mentioned in previous chapters, the fall wave of influenza in Hamilton took more than 500 lives, and infected about 8 632 people (Hamilton Board of Health 1907-1922: 380). With a population of 110 000, Hamilton was hit hard, and forced to scramble to accommodate and assist the rapidly growing infected population. Dr. Roberts, the head of the Hamilton Board of Heath during the epidemic, ordered closures of businesses, pool halls, schools and churches twice during the epidemic: first from October 20th – November 9th, 1918 and secondly from November 29th to the 17th of December, 1918. The closing orders transformed Hamilton from a bustling metropolis into a ghost city. The quarantine in Hamilton had profound impacts on business and the social network of the city. Businesses and stores suffered, streetcar workers were forced to work under strenuous conditions and clergymen fought to keep their churches open for service. The resistance to the Board efforts will be further examined in the next chapter, *"The Relics of Barbarism": Resisting Public Health Efforts*. Here,

Michael Pennell outlines the resistance of the Church community as well as Hamilton's commercial community.

With so many cities turning to quarantine to combat the 1918 flu, it is apparent that this technique was deemed appropriate for limiting the spread of infection. Was the Hamilton 1918 flu quarantine successful? Did the measures employed by Dr. Roberts and the Hamilton Board of Health succeed in reducing rates of infection through the closures that were enforced? This chapter seeks to examine the success of the Hamilton quarantine. The Hamilton Herald reports a decline in cases and deaths during periods of quarantine and closures, conveying the impression that the flu was finally abating. However, mortality rates indicate that deaths remained fairly stable both before and during the quarantine efforts in Hamilton, showing the bans and closures were fairly ineffective in preventing death; however, a graph of the rate of new cases does indicate a slight decrease of cases during periods of bans. While there are significant decreases within the rate of new cases, the disease was still transmitted during these times of quarantine. Limiting interactions may be ineffective unless interactions are stopped altogether (Sattenspiel and Herring 2003).

The Hamilton quarantine was fairly successful in reducing infection; however, it still proved to be problematic because infection spread in the workplace and between health care providers, such as the Sisters of Service (SOS), nurses and doctors. By preventing contact at work and other businesses and services deemed essential, the Board of Health could have further reduced the spread of disease. Crowding on streetcars and in factories may have also contributed to the spread of disease.

The concept of quarantine

There is no consensus on the definition of quarantine. Most scholars agree that quarantine involves the separation of the infectious from the healthy. David Musto describes quarantine as the marking off and creation of a boundary to prevent a feared biological contaminant from infiltrating the healthy population (Musto 1986: 67). Similarly, Lerner defines quarantine as "the making of a boundary to separate the contaminating from the uncontaminated (Lerner 1996: 257). Regardless of the definition, the essential idea is that quarantine involves creating a boundary and separating the contagious from the healthy. The word quarantine has recently come to stand for two efforts. The first includes the

attempt to restrict and limit the flow of goods and people between places, as was often the case in the past. The second involves attempts to keep infectious individuals isolated from the healthy population. Both focus on restricting contact between infectious people/material and those at risk. However, one targets all members of society by limiting mobility and movement throughout the environment, while the other targets only the ill, restricting their mobility (Sattenspiel and Herring 2003).

The first known example of quarantine comes from 14th-century Venice. Officials forced arriving ships to sit in the harbour for 40 days before landing in order to prevent the spread of plague (Markel 1997). For the next 100 years, Italian and French communities adopted these Venetian practices to prevent outbreaks of plague (Gensini Yacoub and Conti 2004: 258). During plague outbreaks in other parts of Europe, individuals were prevented from leaving or entering the community (Markel 1997). Quarantine efforts were not restricted to combating the spread of plague; later, such methods were extended to reduce infection rates of tuberculosis in Europe (Gensini Yacoub and Conti 2004: 258). Early quarantine efforts such as these remained largely intact until scientific developments in the field of epidemiology. Girolamo Fracastoro, an Italian physician, lit the way with his discovery that small particles were able to transmit disease (Baldini 2000). Advances in the understanding of disease led to new approaches to preventing infection and disease. With the new knowledge that organisms were responsible for the spread of disease, the medical profession was able to institute more precise quarantine interventions (Gensini Yacoub and Conti 2004: 258). Early quarantine efforts were said to lack uniformity both within and between nation states. Attempts to regulate and standardize quarantine practices were controversial because quarantines are not only efforts to regulate infectious disease, but also to enforce the control the state has and is willing to impose on its citizens (Maglen 2003).

The restrictions on 14th-century Venetian ships demonstrate attempts to limit the flow of goods. Examples of the use of isolation methods include outbreaks of smallpox, tuberculosis and most recently, the 2003 severe acute respiratory syndrome (SARS) outbreak in Toronto, Canada. Toronto experienced the largest outbreak of SARS outside of Asia. Toronto isolated all cases of SARS, confirmed or probable, ensuring that those who had come in remote contact with the disease were removed from the community (Hawryluck et. al. 2004). Quarantine and isolation methods have been continually employed to reduce rates

of infection; outbreaks of the 1918 flu saw various quarantine methods employed as measures to limit the spread of infection.

The Steel City experience

Canadian cities, much like the rest of the world, took immediate action to curb the effects of the 1918 Flu. This so called "Spanish Flu" was spread via airborne transmission and quarantines were initiated to limit unnecessary social interaction and thereby to limit disease spread (Charles 1977). Quarantine proved to be a widely used method for isolating the sick. Boards of Health across Canada banned large scale public meetings and closed schools, churches, pool halls and other large areas of congregation (Herring 2000). In Prairie Provinces such as Alberta and Manitoba, more drastic steps were taken to prevent the spread of the flu. The Alberta government made the wearing of masks mandatory. Similarly, public handshakes and other forms of interaction between persons were illegal because of the sheer infectiousness of the disease (Sattenspiel and Herring 2003). Smaller towns in the region of Halton, Ontario had differing experiences with the flu itself; however, they all instituted various types of closures to limit the spread of infection. Towns such as Acton and Georgetown, Ontario, instituted bans that closed schools and churches in mid-October. Milton and Oakville were not as hard hit as early as these towns, but still utilized quarantines and closures to restrict the spread of the disease. Burlington was the hardest hit of the Halton towns and the town instituted bans and closures on October 9th, 1918. News of closures and requests for assistance from Hamilton hospitals flooded the Hamilton Herald. (McDonald 2006; "Town Hospitals" 1918: 4) Ontario total had roughly 40 000 – 50 000 cases of influenza with about 3 500 deaths. (McCullough 1919: 1085)

Initially, the Hamilton Board of Health employed various techniques, both official and unofficial, to curb the effects of the flu. The Board immediately responded to the flu threat by launching newspaper campaigns and public notice campaigns that described flu symptoms as well as methods of prevention. Several recommendations were made and enforced, such as the no spitting policy, whereby the Board of Health instructed citizens to avoid spitting on the street ("Will not relax order closing churches Sunday" 1918: 1, 4). The Hamilton Board of Health also recommended that people avoid kissing to avoid contagion ("Citizens asked to fight Influenza epidemic" 1918: 1; Hamilton Board of Health

1907-1922: 351). Another precaution advocated prior to the ban was the restriction and voluntary confinement of individuals who showed flu symptoms. People with the flu or with flu-like symptoms were advised to remain indoors and to avoid contact with the healthy. The Medical Society of Hamilton continually published notices advising mandatory 48 hour rest for those displaying flu like symptoms ("Medical Society on Spanish 'flu'" 1918: 1). Similarly, prior to the actual ban, the Board advocated walking as an essential form of travel; the overcrowded Hamilton Street Railway Streetcars (HSR) were a cause for concern, with the congested, enclosed space considered to be ripe for the spread of infection. These were important initiatives that were practiced and promoted to reduce infection rates across cities worldwide, as well as in other Canadian cities such as Brantford, Edmonton and Toronto. (McCullough 1919: 1085)

Conditions in Hamilton nevertheless continued to deteriorate. By mid-October death rates and the number of new cases rose dramatically, forcing the Board to take action in order to protect the health of the citizens. The Board of Health concluded voluntary efforts were insufficient and that bans and closures would be necessary to curb the epidemic. On October 16th, 1918, the Hamilton Board of Health issued a ban that ordered all schools, churches, and business closed. Secretary Brown of the Board of Health declared:

…Resolved that we firmly believe in the interests of Public Health and safety, that all schools, theatres, churches and public places where gathering congregate should be closed for two weeks and that we are prepare(d) to support the Medical Health Officer in that attitude (Hamilton Board of Health 1907-1922: 355).

The first ban took effect on October 20th, 1918 at midnight. The board moved to enforce the ban four days after the initial Board of Health meeting because of the necessity to educate the public about the disease as well as to explain the rationale behind the closures. For those four days, the citizens of Hamilton met in schools and churches to learn about the new measures. Dr. Roberts and the Board of Health urged pastors and teachers to support the need for the ban (Hamilton Board of Health 1913-1920, 357). The Hamilton Board of Health published the ban in the Herald, declaring:

All schools, seminaries, Sunday schools, dance halls, billiard and pool rooms, bowling alleys, theatres (music or concerts), halls – public or places or amusement, places for

public gatherings and amusement are to be closed. Declared: All meetings or assemblies are prohibited, Public funerals prohibited, all utensils in boardhouses/ restaurants must be immersed in boiling water for three minutes, no use of common towel/drinking vessels, only four passengers plus elevator operator, all gatherings essential for the war are excepted…(Hamilton Board of Health 1907-1922: 358).

Hamiltonians continued to go to work as well as to shop at stores; however, churches, schools and theatres remained closed until the situation improved. News of the "abatement of the Flu" soon flooded the newspapers, and raised hopes that the Board of Health would lift the ban. The Herald's Thursday October 31st paper hints at the first glimpses of the lifting of the ban, with news of "no new cases, but many old ones" ("Epidemic of Influenza waning fast" 1918: 3). Newspapers continued to report fewer cases and the abatement of the epidemic, along with Board reports of possible reopening of schools, churches and pool halls. Finally, on November 9th, 1918, the board allowed churches to reconvene that Sunday and all other previous closures were to be rescinded the coming Monday. The cancelling of the ban unfortunately coincided with the end of World War I in Europe, resulting in an increase in meetings and parades, including the Victory Loan parade. Hamilton's Victory Loan Parade celebrated the achievement of Hamiltonians who had purchased war bonds in support of the war effort. The Victory Loan effort culminated in a large parade that brought hundreds out to celebrate. Despite Dr. Roberts's warnings, citizens celebrated in large numbers. Soon the flu became a city emergency once more. Dr. Roberts angrily told the Herald that the citizens of Hamilton were "taking their lives into their own hands" by participating in these large scale parades and events ("May Apply Ban on Gatherings to Check 'flu'" 1918: 4). With reported rises in the death and infection rate, the Hamilton Board of Health decided to again reinstate the ban, closing schools, churches and theatres for the second time on November 29th, 1918 ("Ban goes on at 6 o'clock tonight" 1918:1, 4; Hamilton Board of Health 1907-1922: 378).

The second ban was quite similar to the first; however, the second ban required stores to close at 4 pm and banned "Santa Claus demonstrations". (Hamilton Board of Health 1907-1922: 378) The November 29th ban also placed a limit of five on passengers standing in streetcars (Hamilton Board of Health 1907-1922: 378). The second ban was marred by protests and complaints. Many shop owners complained that reduced hours worked against quarantine because crowds

would rush the stores during peak hours. Businesses complained of losing valuable business and the churches demanded the right to remain open ("Merchants Say order defeats purpose" 1918: 1, 12). With news of the decline in

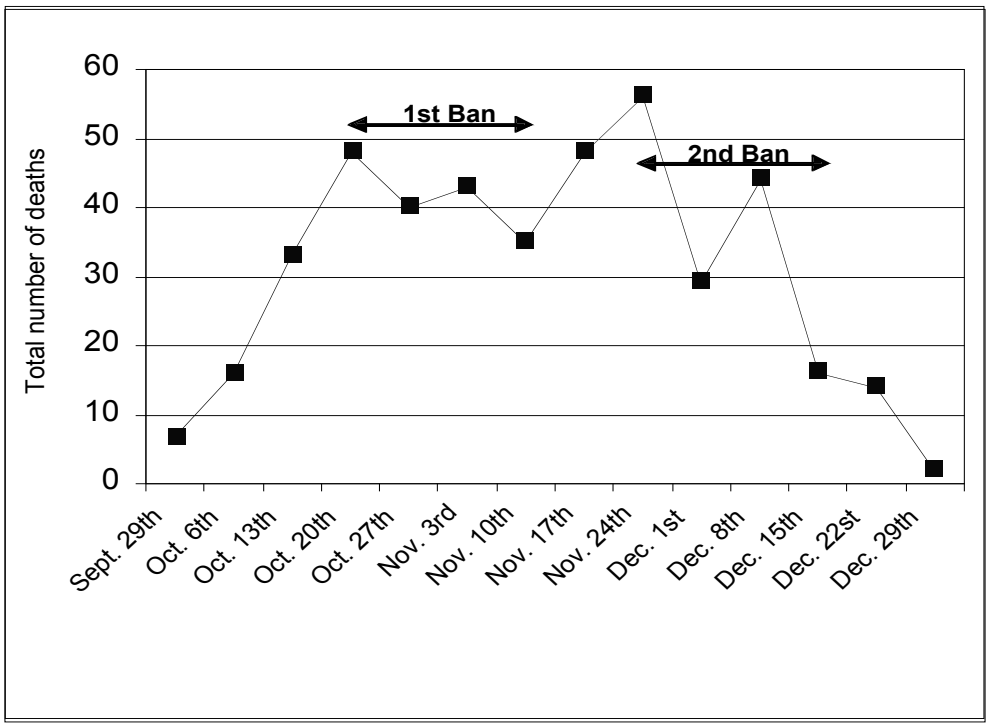


Figure 11.1 - Influenza Deaths in Hamilton
(Government of Ontario 1918-1919: n.pag.)

in cases and deaths, the ban was partially lifted on December 16th, 1918 (enacted on the 17th of December). The Board of Health allowed church services on any day but Sunday and restricted the number of persons permitted in pool halls and game houses. Similarly, the board restricted HSR streetcars to 10 persons per vehicle, attempting to limit the spread of infection in close quarters (Hamilton Board of Health 1907-1922: 385).

Dr. James Roberts – Medical Officer of Health from 1905-1940

James Roberts was born at Woodburn, Ontario in 1877, one of at least twelve children. He married Margaret MacBeth and had two sons. He graduated from McGill University with a degree in medicine in 1900 (Gagan 1992: 175). Practicing in the Muskoka district initially, Dr. Roberts moved to Hamilton to work as an assistant to a senior doctor. Accepting the position of Medical Officer of Health (MOH) in 1905 at the age of 28, he held the position until his death in 1940 (Gagan 1992: 175). In 1907, Dr. Roberts was also appointed by the Board of Education as medical examiner for Hamilton schools (Gagan 1992: 176). In February of 1915, Dr. Roberts was granted a leave of absence for service during WW1. He served at No. 3 Canadian Stationary Hospital in Salonika and resumed his position as MOH in 1916. According to City Hall minutes, in 1917, the Medical Officer of Health earned $2,300 a year, a salary clearly not indicative of the many responsibilities. In 1919, Dr. Roberts was allowed a $5000 yearly salary which he appealed as inadequate ("Dr. Roberts Is Allowed…" 1919: n.pag.). Prior to his appointment, the role of the Medical Officer of Health was primarily one of complaint caretaker. Most MOHs in Hamilton maintained a private practice. However, from the beginning Dr. Roberts focused his energies on improving the health of Hamiltonians. His chief responsibility as MOH was to monitor communicable diseases. Specifically concerned with patients' treatment and recovery, he lobbied for a separate isolation hospital. However, he was defeated in 1909 when the board voted to enlarge the already existing isolation wards in the City Hospital. On December 11th, 1918 Dr. Roberts became an influenza patient at the Jockey Club Hospital ('Everything at Standstill…' 1918: n.pag.). During the 1930's Dr. Roberts was gravely concerned about undernourished children, and mortality increased by the Depression. Despite a heart condition during the last years of his life, he continued to work. Dr. Roberts died on March 14th, 1940 in Hamilton. He was eulogized as one of North America's leading public health reformers. In the 35 years that he was MOH, his reluctance to waive his conviction that health was a city's primary asset made Hamilton a much improved place to live. His personality as 'never one of the herd' and insistence on crowd control during the 1918 Spanish flu outbreak significantly reduced the number of infections in the city (Gagan, 1992).

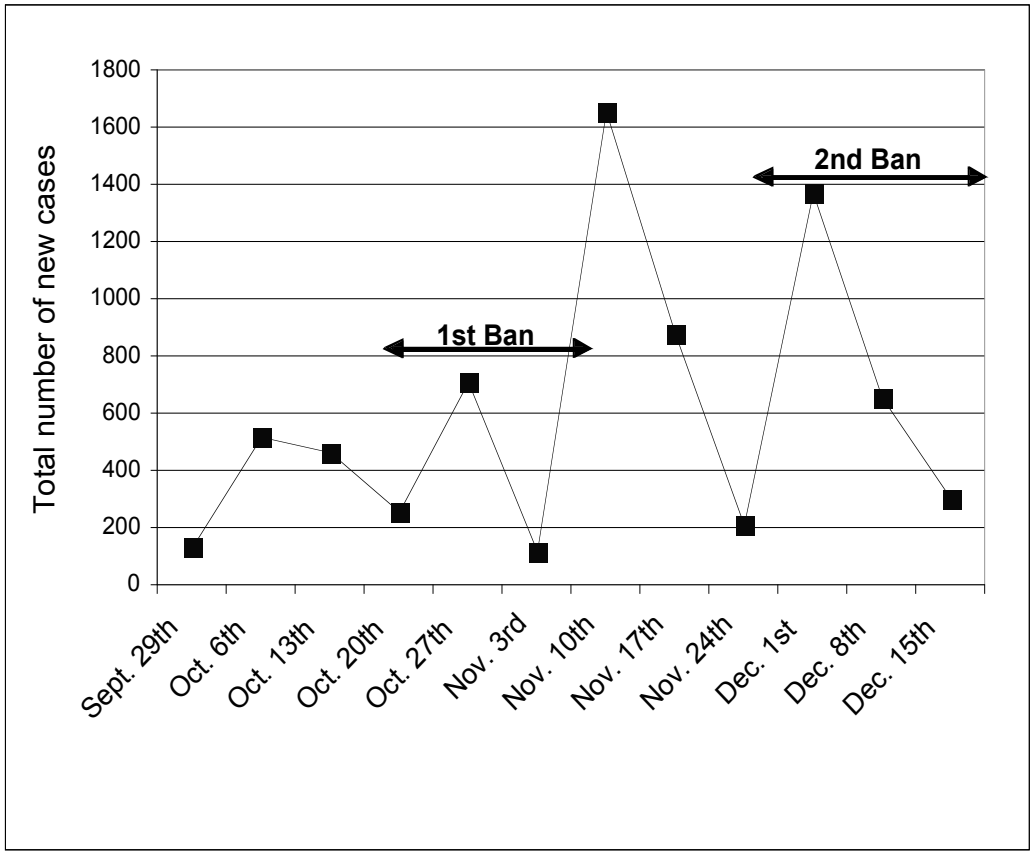


Figure 11.2 - Total Number of New Cases
(Hamilton Herald Oct. 1918 – Dec. 1918)

Success of the Hamilton quarantine

Although there were constant reports of the "abatement of the Flu" and a decreasing death rate, the evidence shows that cases and deaths remained relatively consistent during the entire epidemic in Hamilton, even after the first ban. The first ban was in effect from October 16th to November 9th; the second was in place from November 29th to December 16th, 1918. There is a slight

decrease in deaths during the week of November 10th, 1918, but generally, the deaths continued to rise and peak during the week of November 24th

Figure 11.2 displays the number of new cases reported by the Hamilton Herald and Hamilton Board of Health minutes. Between October 21st and November 7th, 1918 the cases declined from 707 to 117, indicating some measure of success with the introduction of the bans on October 20th, 1918. There is no decrease in cases during the second ban, which began on November 29th. The cases actually spiked during the second ban from the 29th of November until December 17th 1918. The number of cases increases rapidly from 210 new cases during the week of December 1st, to a high of 1 366 during the week of December 9th, 1918. This is not as high as in November; however is the second highest increase in the series. The eventual drop in new cases leads to the end of the ban. Figure 11.2 also reveals a large increase in new cases during the week of November 10th, 1918 – reaching a high of 1 655 new cases.

Discussion

Careful examination shows that the number of deaths during the 1918 Flu in Hamilton remained high, with many people dying each week from October through December. During the period of the bans the death rate is equal to the other periods, with a gradual peak in deaths the weeks of November 17th and November 24th. Although the number of deaths remained high, there is a diminution in *cases* after the bans were implemented. According to Hamilton's Herald this was the result of the successful closure of schools, churches and theatres. One could argue that the decrease in cases does suggest a measure of success for the Hamilton Board of Health.

Support for the effectiveness of the first ban in reducing the number of cases comes from simulations of the spread of the 1918 flu (Sattenspiel and Herring (2003). The simulations show that quarantine reaches its maximum effectiveness (in terms of reducing infection) when it is started well before an epidemic peaks but not right at the beginning of an epidemic. The Hamilton Board of Health did not implement a ban immediately, and this may have contributed to the relative success of the first ban, versus the failure of the second. The second ban proved problematic because of decreased store hours that forced everyone to shop at the same time, resulting in crowded shops and effectively

countering the actions of the Board. The first ban lacked this stipulation, which could account not only for the decrease in transmissions, but the minor spike in transmissions during this period. In their simulations of the 1918 flu, Sattenspiel and Herring (2003) found that quarantine facilitates increased interaction with infectious people. The increased interaction in Hamilton during these peak times may also have contributed to the apparent increase in cases during the second ban.

Despite the ban and the closures, people in Hamilton continued to contract the disease and to die. Why? One possible explanation is the failure to create successful boundaries between the infected and the healthy. The closure of schools, churches and restricted hours of business did limit interactions in these respective areas; however, citizens were still continually *interacting outside of these areas* – at work, in the streets, in shops. People were still interacting in close quarters. This situation was made worse during the second ban, when people were interacting intensively at peak times and hours. McCullough (1919) outlines the futility of the bans considering other businesses were permitted to continue as usual. He also notes that children would be better at school rather than running around the streets and spending their time in the shops, drawn by the warmth and attractions (McCullough 1919: 1084). These recurring exchanges between Hamiltonians were all excellent opportunities for the 1918 Flu to continue to spread and devastate the population, rendering such quarantine procedures ineffective.

The Hamilton Street Railway Company's streetcars also contributed to infection. The Board of Health and Dr. Roberts were extremely worried about the public's use of streetcars. News from across the American border indicated that rates of infection were rising because of streetcar use, and the Hamilton Board of Health attempted to take precautions to ensure that this did not happen in Hamilton ("Four Deaths from 'flu' reported" 1918: 1, 17). Crowds in close quarters with poor ventilation gave the flu ample opportunity to spread. The Board of Health did restrict the number of people in streetcars during the bans and launched a campaign to motivated citizens to walk, however, Hamilton's HSR streetcars still remained overcrowded, and such environments proved to be ideal for spreading influenza. HSR workers were soon required to open all windows to allow ventilation; however, this resulted in a host of complaints from the HSR workers, who suffered from sickness because of the cold ("Shop early and avoid street cars" 1918: 1, 6). There existed a similar situation in London, England; overcrowded omnibuses, tramcars and underground trains at certain times of the

day led to the spread of infection. New York City however employed a system that staggered business hours and use of transportation systems in order to successfully alleviate congestion and reduce the risk of spread ("The Influenza Pandemic" 1919: 386-387). The failure of the Board to come up with a working solution resulted in a failure to reduce the infection rates in the streetcars. Hamilton's continual use of streetcars, during the ban and after the bans, proved to work against the city in the attempts to curb infection.

Similarly, the end of the First World War resulted in large parades and celebrations. Any possible benefits from the brief closures and bans were rendered completely ineffective as literally hundreds of people gathered in close quarters to celebrate the end of the war as well as the success of the Victory Loan program. As indicated in Figure 11.2, a dramatic increase in cases plagued the entire week that these parades were taking place. The data from the Hamilton Herald shows the rise in new cases at 117 during the week of November 3rd to 1 655 during the week of November 10th, 1918. Similarly, deaths peaked during the period of parades. The week after the parades and festivals saw a new high of 56 deaths. The Hamilton Board of Health declared these deaths and infection a result of the public's "own neglect and carelessness in disregarding the department" (Hamilton Board of Health 1907-1922: 372). Although the Board of Health continually protested such gatherings, most people apparently were unconcerned about the possible spread of the disease and took to the streets in celebration regardless of the risk. All the benefits of the previous ban were destroyed in one week of meeting and celebration as the flu again took hold in Hamilton.

Conclusion

With the current avian flu crisis, the issue of the effectiveness of quarantine during the 1918 flu is more important than ever. Many scientists argue that another influenza pandemic is inevitable (Osterholm 2005: 1839). The question is when and whether it will be as catastrophic as the 1918 pandemic. Questions about creating such boundaries between the "contaminated and the uncontaminated" will emerge in the forefront. What is the best way to prevent the spread of disease during such epidemics? It is clear that enacting bans and closing schools, churches and pool halls are only semi-effective because such places are not the end all to human interaction. Isolation of the sick requires stricter regulations and a need for adherence by the citizenry.

Although the deaths due to flu did not decrease, Hamilton did enjoy a measure of success during the Board of Health's bans, with the number of new cases dropping dramatically during the first ban but rising steeply during the second. Like other cities battling the flu, Hamilton failed to create a distinct boundary between the infectious and the healthy, and thus the flu was continually transmitted. Interactions between citizens outside of schools, churches and theatres continued to allow the flu to spread. Traveling back and forth via the HSR streetcars also created an environment that encouraged the spread of disease. Decreased store hours helped contribute to the spread and the possible spike during the second ban, as thousands rushed to the stores, causing crowds and providing the opportunity for viral spread. Finally, the parades after the ban rendered the positive effects of the first ban ineffective, as high levels of interaction brought new cases to the record high of 1 655 persons during the week of November 10th, 1918. Despite such findings, quarantine still plays a valid role in human society in creating such boundaries to prevent infection. Quarantine is not the universal solution to outbreaks and epidemics. Like other health measures, there are limits to how effectively quarantines can curb infection; however, the 2003 Toronto SARS isolation procedures demonstrate that contextualized quarantining can successfully limit the spread of an epidemic. Quarantine procedures must be tailored to specific health, social and geographical conditions in order to be effective (Gensini Yacoub and Conti 2004; Sattenspiel and Herring 2003; Kilwein 1995).

As we shall see in the next chapter, regardless of the effectiveness of the bans, these measures had a significant effect on the dynamics of the community and on public life. Citizens, storeowners and clergymen often disagreed with the bans, with storeowners losing business and clergymen concerned about losing their flock. Hamilton was no exception, as the Steel City resisted the Health Board and its regulations.

12

"The Relics of Barbarism": Resisting Public Health Efforts

Michael R. Pennell

In this chapter, the various forms of resistance displayed by the Hamilton public to the sweeping measures of the local Board of Health are examined in detail. The title of the chapter is taken from the words of one Dr. Hutchinson, of New York. In the December 11th 1918 edition of the Hamilton Herald, this doctor lambastes the efforts of the Hamilton Board of Health in imposing restrictions on the public. In the article, he refers to the use of such measures as 'a relic of barbarism' ("Masks and vaccines only weapon to fight flu" 1918: 1), and goes on to expound the only true 'weapons' to fight the flu: masks and vaccines. The tone of this doctor reflects the general feeling of the public towards the bans, and his advice is counter to what the health board felt was needed. Indeed, evidence now shows that the use of masks and vaccines in 1918 was useless (Arsenault 2005: 172). In all instances of protest, the involved parties would, without fail, have a better plan for the citizens of Hamilton than that of the Board of Health. The War had provided 'a rhetoric of nationalism necessary to usher in these authoritative responses and losses of liberty' (Billings 1997: n.pag.), but this kind of reaction to the loss of personal freedom is only natural.

The following sections reveal the many personalities involved in this debate, including the local Medical Officer of Health, Dr. James Roberts, members of the local merchants association, teachers and principles, and a large contingent of clergymen from all denominations. Through careful examination of the many arguments, it is felt that some direction may be found for current and future generations who may have to deal with such plagues.

Public health policy

Before discussing the details of public health policy in Hamilton, a brief introduction to the Medical Officer of Health (MOH), Dr. James Roberts M.D., may explain some of the directions taken by the Board of Health in combating the flu. More information concerning the doctor can be found in Chapter 12, 'Healing and Treatment'.

James Roberts was born in Woodburn Ontario in 1877, and was one of twelve children. The son of a blacksmith, James grew up as a farm boy. By 1900, he had graduated from the medical school at McGill University, and began practising in the Muskoka region of Ontario. In 1902, he transferred to Hamilton to work under a senior physician, and by 1905 he was installed as the Medical Officer of Health at the age of 28. City Hall records indicate that he pursued a postgraduate degree in Medical Health in London in 1909 under a Professor Kendall (City of Hamilton 1919: n.pag.).

Previous Health Ministers for the city have been described as 'compliant caretakers' (Melville-Bailey 1992: 175); such was not the case with Dr. Roberts. From the outset, he clashed with City Council over new innovations and requests for more funding to aid in his mission to improve the health of Hamiltonians. 'Health is the city's prime asset' (Melville-Bailey 1992: 175) is one quote attributed to the doctor, wherein he is described as being 'feisty' and confident in his own opinion. By the time his first year of service was complete, Dr. Roberts had established himself as a crusader for public health. In September of 1912 he was elected as vice president of the American Public Health Association who described him as a 'diligent public health reformer' (Melville-Bailey 1992: 175). In the early years of the First World War, Dr. Roberts was sent to the No. 3 Canadian Stationary Hospital in Salonika, but returned to Hamilton by 1915. The years directly preceding the outbreak of influenza saw the doctor criticizing the perceived civic apathy over health issues. The flu epidemic was the final impetus needed for the public to heed his suggestions, and the decade following the outbreak saw many appropriations going towards the health department. By the time of his death on the 14th of March, 1940, he was the senior MOH on the American continent (Melville-Bailey 1992: 175), and was eulogized as a leading public health reformer.

Due to his confidence in the policies of the Ontario Board of Health, public health policy in Hamilton mimicked exactly the guidelines distributed to

all municipalities by the Ontario board at the very early stages of the epidemic. All physicians in Ontario were twice sent these circulars (McCullough 1918: 1084). In the circular, it was stated distinctly that the local Medical Officers, in this case Dr. Roberts, had the power to close "schools, churches, theatres and other public assemblages…if it deems desirable" (McCullough 1918: 1084). It also denounced the use of placarding and quarantine as 'impractical'. Specific mention is made to the limited utility of this while stores, streetcars and other interests were allowed to carry on with 'business as usual'. It is here that many a merchant would seem able to hang their arguments, for although businesses were allowed to open, their hours of operation were severely limited. As sales figures dropped, public debate from the merchants reached a near cacophony in the local newspapers. Indeed, the media of the day often allied themselves with the public, something the doctors and boards of health did not fail to notice. This role of the media will be examined in the final section of this chapter.

Also mentioned in the release from the Ontario Board was the debate surrounding the opening or closing of schools. It was felt by the Chief Medical Officer of the Province, Dr. J.W.S. McCullough, that where full inspection of schools was possible, it would be better for them to remain open. By remaining in school, children would not be 'running the streets'. The next section examines this issue in detail.

The school dilemma

> "*I well recall that sad time, when both church and school remained closed, and we sat in our homes apart, fearful even to visit a neighbour lest the plague be spread thereby."* – Mabel Burkholder, prominent Hamiltonian (Burkholder 1953: 152)

As mentioned previously, vigorous debate surrounded the controversial decision by the Hamilton medical authorities to close all schools. There is little doubt that the Provincial Medical Officer's ambiguous stance on this matter had something to do with this. Also exacerbating the problem was the fact that schools in nearby Toronto did not close. Part of the problem was that the public felt that the children would be better looked after at school, where the latest information on

treatment would be available. A Herald article from October of 1918 indicates that Dr. Roberts was in agreement with this assessment (it is to be noted that Dr. Roberts always tended to follow provincial guidelines right until the end of the epidemic). However, it was decided in a close vote of the Board of Health that they would remain open one more week in order to instruct staff and students on preventative measures. This vote took place on October 7th, but it was not until a full two weeks had passed that the schools were ordered to close, along with theatres, churches and public gathering places. It was felt this extra time was needed to continue to educate the children; however some sources indicate disagreement at the time between the board and the medical association over the matter as well (Minutes Board of Health 1907-1922: n.pag.). Also, a Herald article from October 16th mentions that the city clerk and solicitor were out of town and that this delayed the decision (Herald Scrapbooks Vol. H2 pt. 1: n.pag.). Present at this meeting were citizens representing the clergy, theatre managers and school principals, who are all noted as being in agreement with the decision to institute public bans on the 20th of October, 1918. Many felt that the public had never been consulted on the bans, but evidence from the minutes of the Board of Health meetings show this to be untrue. As it stands now, I have been unable to discover what children in Hamilton did while not at school, if they were at home with parents, or simply wandering the streets as implied by Dr. McCullough of the province. A more detailed examination of the plight of children can be found in Chapter 8 of this book.

Church and State

"I believe in a ban that means something and then do not care a continental (sic.) whether or not the whole world is opposed so long as we know that we are right and saving human lives." – Dr. James Roberts, Hamilton Medical Officer of Health when asked if he was in favour of lifting bans.

"A minister told me that the reason why the keeping of the church as open meant health to the people was because they all took a bath, wore clean clothes, and looked their best on church days. No church, no baths, so the keeping of church open helps put down the flu." – L.R. Tobey, prominent local businessman (Hamilton Spectator 3 Dec. 1918: 1)

"The Relics of Barbarism": Resisting Public Health Efforts

The restrictions placed upon the church by the public health ordinances severely limited its ability to fulfil its role in society. By banning all Sunday services and limiting weekday and other gatherings, local officials inspired the immediate ire of the leadership of all local denominations. When a local priest was the first to be fined in relation to the notices, the Holy Roman Catholic Church became embroiled in the matter. Other ministers and officials publicly ridiculed the efforts of Dr. Roberts and the Board of Health for the City of Hamilton (Herald Scrapbooks Vol. H2 pt. 1: n.pag.), even suggesting that the board was controlled by the medical establishment and not composed of Christians. Some felt they were being treated worse than the merchants (after all, one can only serve one master), and made comparisons between empty churches and crowded store, factories and streetcars. Still others felt they were being put on a level with theatres and pool halls, both considered by the clergy a 'dens of sin'. Rarely did a member of the clergy indicate support for the bans. The trial surrounding the imposition of the above mentioned fine, however, was an opportunity for all sides to weigh in.

The Reverend Thomas Tarasiuk was born in 1881 in Blotkow Biala, Province of Lublin, Poland, and studied for his Ph.D. in theology in Rome where he was ordained into the Catholic Church on June 7th, 1906 (Melville-Bailey 1992: 205). He arrived in Hamilton in 1911, and on May 7th of the same year, he was put in charge of the city's Polish community. By July of 1911, Tarasiuk had already begun work on the future St. Stanislaus church on the corner of Barton and St. Anne streets. The first mass there was held in February of 1912. Dedicated to his congregation, they together built the church rectory from the leftover scraps of the main building's construction. The church itself was not completed until 1919.

The Hamilton dailies published detailed accounts of the trial that ensued when the reverend of the St. Stanislaus Roman Catholic Church was charged with 'holding a service contrary to the order against church gatherings'. Only fined $20, the case grabbed the attention of the greater Catholic church, who vowed to 'fight the case through'. The arguments presented in the case by Rev. Tarasiuk's lawyer, Mr. O'Reilly, came from many fronts, as did the arguments of the judge in the case. The case initially was argued from a very broad scope, indicating that no authority in the land could order the closing of churches, mentioning various articles of capitulation in Quebec 1759 and Montreal 1760. Also, the 1763 Treaty of Paris and the Quebec Act of 1744 were shown as giving all churches the

freedom of public worship without interference from authority. The local Board of Health itself was accused of a breach of the Public Health Act. Technicalities of wording were raised. The very existence of Spanish Influenza as a disease was questioned. Even the wording of the notice itself was attacked, as it says *any* churches should close, and not *all* churches. In the end, the judge inferred that as the church was a 'foreign' church (it was and is a Polish church), it felt it could supersede the laws of Ontario. He offered to rescind the fine if Tarasiuk would only obey the bans. The Reverend would not accept this offer.

It is also interesting to note the opinions this case generated in the media and in the Hamilton church community in particular. Headlines were clear: 'Other churches back fight against order'. Bishop Clark, an Anglican, felt it was good to 'limit observances' and asked who we are serving; God or Man? Rev. W.W. McMaster of the James St. Baptist church, upon hearing that the Roman Catholic Church had taken up Rev. Tarasiuk's case is quoted in the Herald as saying 'Good for them'! Five members of his church's administration died of the flu (New 1944: 64). In rare instances, there was support for the Board, or constructive criticism and ideas were offered. For instance, shortly after the trial, a Rev. S. Daw suggested holding multiple small services all day Sunday if need be. Some, however, felt it was the healing power of prayer and the comfort offered by the Church that would alleviate the suffering. Others had different ideas when it came to resisting the bans.

Some continued to hold services. Others moved their services outside of the Municipality of Hamilton, to Dundas, Ancaster and beyond. The churches of St. Stephens and St. Thomas rang the bells of the St. Stephen church, and news reports say a large crowd quickly gathered and were transported to Lee's Hall in Barton Township ("Ban removed from stores" 1918: 1), where the restrictions on public gatherings were not in place. Another unfortunate case outlines the inherent contradictions in applying the ban. In this case, Reverend E.H. Bowden Taylor of the Christ's Church Cathedral was holding a study meeting with three other church members. When someone in his apartment called the authorities to break up this 'illegal gathering', they arrived to find another much larger gathering going on down the hall. However, as this was seen as a social event, not a meeting, Rev. Taylor's party of three was dispersed. Public outcry over this story was intense when it was printed, and led even Dr. Roberts to apologize for the 'regrettable' incident, as the Reverend's gathering should not have been broken up.

Although initial reaction to the bans on public gatherings came in great part from the clergy, it did not take long for the protests of the city's merchants and business owners to be heard by the Board of Health.

An outcry from the merchants

> *"…if you can satisfy every businessman in this city you are a genius, and go to it!"* – Chairman Norman Clark, Hamilton Board of Health ("City clergymen ask for modified order" 1918: 1)

In the initial stages of the epidemic response, theatres, pool halls and merchants were all viewed as being co-operative, as indicated in the Board of Health reports and minutes and in the media in general. Things began to change in the later stages of the first ban, made clear by newspaper headlines of the day. The front page of the November 30th edition of the Hamilton Herald in 1918 reads: "Merchants say order defeats its purpose!" Contained is a story detailing the observations of prominent local businessman, L.R. Tobey. Co-owner and operator of the Trudell and Tobey store (the 2T's) in Hamilton, he suggests that the shorter business hours will only cause more congestion, especially in the crowded streets at 4 pm when the stores close. He goes on to describe the order as 'absurd and foolish' ("Merchants say order defeats its purpose" 1918: 1), that the cities stores are well ventilated, and that its only because the medical establishment is not being hurt financially that doctors in Hamilton don't understand the plight of businessmen in the city. Mr. Tobey's name comes up many times in newspapers and documents relating to institution of bans. Board of Health reports of the 6th of December 1918 indicate that he requested that all his advertising expenses incurred because of the bans be paid for by the city (Minutes Board of Health 1907-1922: n.pag.). Interestingly, the Hamilton Herald headline of the same day reads 'Lift the ban on Saturdays asks merchants', evidently the unanimous feeling of the Board of Trade. A later Herald article quotes Tobey as saying that if the present arrangements continued (i.e. the bans), it would mean

Figure 12.1 - 'L.R. Tobey, Hamilton merchant' (Hamilton Postcards n.d.: n.pag.)

the 'murder of business' ("Ban removed from stores" 1918: 8). His feelings on the matter of store closures are reflective of that of the general business community in Hamilton, so it is not surprising that some merchants defied the orders (although nothing indicates that L.R. Tobey did). One of the earliest fines levied against a merchant went to a James St. N. confectioner, accused of maintaining a full staff of clerks until late Saturday ("City closing order to be modified" 1918: 1). In the newspaper account of the story, Dr. Roberts announced that the case is going to court, and reminds those who feel the fine is worth staying open for, that the maximum fine is not $20 (as documented in the Tarasiuk case of the previous section), but $500, a tidy sum at the time. However, others defied the Board of Health orders: Pantillmon Ceago, a restaurant, was charged and fined $20 for operating with too many people inside;

D. Nazzarine & Co. charged $20 for too many people; George Smearas soda fountain, too many clerks, charged $20. In this last case the clerk would not leave his post for fear of losing his job. James Shrive, accused of the same thing, managed to talk himself out of a fine by arguing to the court that the extra clerks were there to relieve congestion amongst his patrons ("Not to change order" 1918: 1).

Other businesses attempted to use the situation to their advantage, if it was at all possible. Right House Department Store ads of the time shout 'shop early', and 'only 112 shopping hours' until Christmas, due to restrictions of the health department ("Not to change order" 1918: 1). The Armstrong store advertised a 'flu sale: conditions arising out of the epidemic of Spanish Influenza are responsible for this sale.' The T.H. Pratt Co. reduced its prices between 8:30 and 10:30 am to relieve crowding later on, and to make shopping more comfortable in the morning. As the Christmas season approached however, many area merchants could take it no longer, and more and more stories appeared in the newspapers pleading for an end to the bans. The Hamilton Spectator began running more editorial coverage of the story. Their 'Knutty Points' section often contained anonymous shots at the Board of Health similar to the following: 'Is the flu germ more active after 4 pm than previous to that hour? - I. Wonder' ("Knutty Points" 1918: 1) or 'Will the committee of medical men stay on the job after influenza is curbed and assist in healing ruptured business organizations, sickly trade and bruised feelings?- P.B. Publico' ("Knutty Points" 1918: 1). The influence that business interests held over the Board of Health and the City Hall can be illuminated by a brief examination of the Victory Loan Company's dealings with the city during the outbreak.

The development of the Victory Loan campaign came as a direct response to the financial burden placed upon Canada by WWI. Before the turn of the century, most of the money for the country's capital projects came from Great Britain. It is estimated that at least 1.2 billion (W.C. Pitfield and Co. Ltd. 1959: n.pag.) in revenue came from this source, and that by 1914 almost twice that came from both the U.K. and the United States (W.C. Pitfield and Co. Ltd. 1959: n.pag.). When Britain entered the Great War, Canada could no longer rely on capital investment from this source, and when America too became embroiled in Europe, the Canadian government was forced to look to the public for a revenue supply. The countries resource industry had already led to the creation of several large investment agencies, and the government, in conjunction with these firms,

established the Victory Loan Company to fill the need for a domestic bond market.

"The man, be he rich or poor, is little envied, who at this supreme moment fails to bring forward his life savings for the security of his country" ("Canadian Posters from the First World War" n.d.: n.pag.). This quote is a slogan taken from an application for a Victory Bond during the 1917 campaign. These bonds were sold to Canadian citizens, private corporations and to various other organizations in order to pay for the war. These bonds constituted a loan to the government that could be redeemed (at 5.5% interest) after 5, 10 or 20 years, and were issued in five separate campaigns from 1915 until 1919. The initial campaign issued 100 million bonds, all of which were quickly bought up by the public. Each launch was accompanied by an extensive poster campaign overseen by the Victory Loan Dominion Publicity committee. These posters urged all, in vibrant full colour artwork, to buy bonds. Even housewives were encouraged to put aside some of their allowance, and children were encouraged to buy Thrift Stamps, enough of which were redeemable for a Victory Bond. Also, parades and rallies were held in towns and cities across the country. The campaign of 1918 raised $600 000 in just three weeks.

The end of hostilities in Europe on November 11th, 1918, did not signal the end of the Victory Loan program. A new campaign was launched in order to pay for the rehabilitation of soldiers returning home from oversees. Another incentive in the Loan campaigns was the creation of special flags to be given to cities and municipalities who purchased a set amount of bonds. Individuals could receive this flag as a pin, and as a window card. The flag was first given official recognition when it was flown by then Prime Minister Robert Borden on Parliament Hill. The Victory campaign of 1919 added special significance to the flag, as the Prince of Wales, the future King Edward VIII, raised it himself on the Hill on the 27th of October, 1919. At the proceedings, the Prince was recorded as saying, "I hope every City and District will win my flag" (Fraser n.d.: n.pag.), a remark reproduced as a slogan for the poster campaign. These flags may have been an incentive for city council and the Board of Health to give in to the demands of the Victory Loan representatives.

A special note must be made of the efforts of the Victory Loan Company in securing an end to the bans. The Minutes of the Board of Health meetings indicate that on the 24th of October, the Victory Loan Co. asked for permission to hold 'open air meetings', in reality a parade. The company was denied and told

Figure 12.2 - 'The Victory Loan Parade, Hamilton Nov. 4th 1918' (Hamilton Postcards n.d.: n.pag.)

that it could only hold meetings of workers and the executive. On October 28th, the company asked for a definite time when public meetings would be allowed, this time bringing the support of the Minister of Finance, Ottawa. Mr. Coppley of Victory Loan was told that it was inadvisable in the interests of public health to vary the regulations. On the 29th of the month, the entire executive of the Victory Loan Company petitioned Dr. Roberts and the board for an outdoor permit. Dr. Roberts explained to them that the closures were at the urgent request not only of citizens generally, but by the Board of Trade specifically. Their plea being refused, the company withdrew their request. On the 4th of November, the Board of Health agreed to lift the ban on schools, assemblies, churches and the rest at noon on the 9th, and allowed the Victory Loan outdoor meeting. The reasons for this are not stated in the Board of Health minutes, but by the 14th of November, Dr. Roberts reported an increase in the calls for epidemic patients, and noted that the emergency hospitals were all full. He writes that it was likely caused by the large crowds at the Victory Loan parade the previous Saturday. This directly led to the Boards decision to appeal to the public to avoid contact or the bans would be restored.

Of course, other factors were also at work, not the least of these the fact that Dr. Roberts himself was taken with the flu during late December 1918. Unable to attend board meetings, he could not defend the measures he so believed in. By the end of December, city Alderman John Young, while attending a meeting of the legislation and reception committee, declared the Health Board to be too autocratic. Here he asked for the Province to change the Health Act 'so that the Board of Health of anyplace cannot throttle the business interests of any place; taking people by the throat' ("Board declared too autocratic" 1918: 1). Further, he urges that if the Province cannot or will not amend the act, the Board of Health should be made an elected board because 'God help some of the members…if they have to be elected' ("Ban completely lifted by Health Board" 1918: 1). Of all the businesses and organizations affected by the bans, only the theatre owners seemed to refrain from commenting negatively about the subject in the local dailies, although they did petition the Board for compensation, as did many of the merchants once the flu had abated. A.J. Small, the president of the Canadian Theatre Managers Company is recorded in the Board of Health Minutes during the first ban as asking simply for a fixed date as to the end of the closings (Minutes Board of Health 1907-1922: n.pag.), and even offered to close theatres while the bans were lifted in order to assist the Board. The Board declined the offer, feeling that the flu had abated at the time. Unfortunately, this was in mid November, and perhaps these extra measures on the part of theatre owners could have slowed the spread of Spanish Influenza.

The role of the media

> ***"****It isn't the first time that the newspapers of this city took sides against public officials."* – Chairman Clark, Hamilton Board of Health
>
> *"Widely held shared ideas emerge spontaneously when a society is faced with a new phenomenon"* – Peter Washer, social scientist (Washer 2004: 2561-2571)

When faced with a new and unpredictable situation, people will unconsciously utilize 'collective coping mechanisms' (Washer 2004: 2561-2571) to impose order in the face of chaos. Mass media is often the major source of this shared

knowledge, both creating these representations and reflecting them. The media in Hamilton circa 1918, or more specifically the local print media, played many roles in the establishment of these representations to the public, and of the public health measures which were to follow.

Initially, the Hamilton newspapers were viewed as being of service to the city and the Board of Health, by helping to disseminate information to the public. Indeed, the official notices issued by the Board were printed therein. However, as public disgust with the bans grew, more and more stories were printed from disgruntled merchants, angry clergy, and other voices of dissent. Some editorialized about the effectiveness of the measures being taken and the competency of the Board of Health and Dr. Roberts himself. Doctors themselves viewed the newspapers as always taking a side, and that in this case; they had allied themselves against the Board ("Ban completely lifted by Health Board" 1918:1). Although the measures taken were in line with what was being done in the rest of the Province (and even around the globe [Phillips 2005: n.pag.]), many had their own opinion, and the newspapers were the only forum available to voice them. Comparative research may have indicated that at least one paper misread the original circular issued by the Province, and used it to criticize the health department under the headline "Ban on churches and theatres ill-advised" ("Ban on churches and theatres ill advised" 1918: 1). One specific quote from Dr. Glassco, where he states that the bans aren't 'worth a hoot' in the Spectator, caused a vigorous debate at the Board meeting as to the truth of the quote. Board members speculated on the allegiance of the media, and all was covered in the pages of the rival Hamilton Herald. A Hamilton Spectator story under the headline 'As to the ban', goes on to state that 'the board has not inspired confidence by removing the ban and then restoring it with scarcely any warning, and while the city was in the midst of its social and business activities. It is not too late to undo some of the mistakes, but the board by its announcement last night, does not seem to be in the mood to do so' ("As to the ban…" 1918: 1). Dr. Roberts himself seems unaffected by any protest or negative publicity, except perhaps with the exception of appearing somewhat frustrated in most of the articles in which he is quoted. As for the rest of the Board of Health, they were generally in agreement with the doctor, and in response to his defence of the bans they are quoted saying the following: 'You are quite right. This committee is not going to worry about what the newspapers may say or do' ("Ban completely lifted by Health Board" 1918: 1).

Who was right (and what did we learn)

> **"***In 1918, non-medical interventions such as closing churches and schools helped delay the spread of the disease. Today, Canada must utilize reliable crowd-control measures, enforcement of quarantine, restriction of travel and use of privately owned buildings for hospitals and must consider compulsory vaccination to control the spread of the outbreak.*" -- Kirsty Duncan, author of "Hunting the 1918 Flu: One Scientist's Search for a Killer Virus" (Duncan 2005: n.pag.)

It seems clear even from today's standpoint, that the measures adopted by the Board of Health for the city of Hamilton were the most effective measures available at the time to combat the flu. Evidence shows a correlation between the premature ending of restrictions (possibly due to business pressure) and an increase in flu. This issue is dealt with more fully in Chapter 11. Would people today resist similar precautions if they were imposed now? One is led to believe that we would, but if we could learn from the past, we may be better prepared for the future. At the end of the epidemic, Dr. Roberts made several suggestions on how we could be more prepared, including purchasing a permanent emergency hospital, stockpiling supplies and hiring more nurses. It is unclear at this point how Hamilton stands on these issues in 2006.

13

Hamilton's Response to the 1918 Influenza Pandemic: Advertisements, Stigma, and War Metaphors

Alexandra Prescott

Introduction

When a city is hit by an epidemic, or worse yet a pandemic that is sweeping across the world, changes are bound to happen. This book is focusing on the anatomy of a pandemic: what a town experiences socially, economically, politically, and how that experience changes the people and the place. This chapter examines the social responses to the pandemic, mainly how the public reacted to the growing threat of the disease of influenza.

There are many ways to examine an epidemic. Historically, doctors focused on how many people died, how the disease was transmitted, how it was treated, and even whether a cure was found (Kudlick 1999: 1051). These are of course important pieces of information and play crucial roles in solving the mystery that is usually hidden within all epidemics; however, it is also important to examine the interaction between the medical perspective on the disease with the perceptions of the people threatened by it. Since an epidemic disrupts many features of everyday life, from an increased number of patients in hospitals, businesses closing, or a large number of citizens dying as a result of infection, there is bound to be public reactions to the situation, as was discussed in the previous chapter.

In this chapter I explore the response of the citizens of Hamilton to the influenza pandemic of 1918 as revealed through newspaper accounts of the event. This is because newspapers, like all media, reflect the values beliefs and overall

morale of the community they are reporting on (Clarke 2006: 2592). The newspapers during the 1918 outbreak provide a good representation of Hamilton society at the time because they report on everything, not just the epidemic. For example, at the time of the Spanish influenza pandemic, World War I was also affecting many areas of the world. This affected how the flu epidemic was treated in the news; sometimes it was a very important part of the news that day and sometimes it was of little concern. The newspapers are a rich source because they provide fresh stories and updated information almost every day, allowing one to see how the stories were being told, how the information was spreading and how people were reacting to what was being written. Because of this I focused on collecting information from The Hamilton Spectator from September 1 to December 31, 1918.

Advertisements are especially interesting because they are geared towards what the public wants to see and what will catch their attention. By studying the advertisements, much can be learned about what was attracting the public at the time, and how this changed. For instance, when the epidemic first appeared in the Hamilton area, there was no mention of influenza in any ads, although there was the occasional reference to colds. This shows that the flu was not a threat at the time and of no special interest to the public. But as the epidemic took off in Hamilton, advertisers began to target influenza as a means to attract people to their product, store or theatre.

There are many ways a public can react to a disaster like the influenza disease brought upon the town: they pay attention to the advice of health officials, obey authority, follow their own remedies or resist the rules and regulations. Resistance to the public bans or health officials notices is taken up in chapter 12. In this chapter, I explore the public's reaction to the crisis at hand, through the lens of the newspaper accounts. I show how newspapers provide a great deal of information on a society's reaction to an event like this, but also demonstrate that their reports should be viewed with caution because there may be other agendas at work. I examine three issues: (1) how advertisements changed during the epidemic, what they advertised and how they attracted the public to their products or locations; (2) whether stigma was associated with having influenza; and (3) the use of war metaphors for describing the disease itself, the treatments and the people helping to rid the community of the flu.

Advertisements

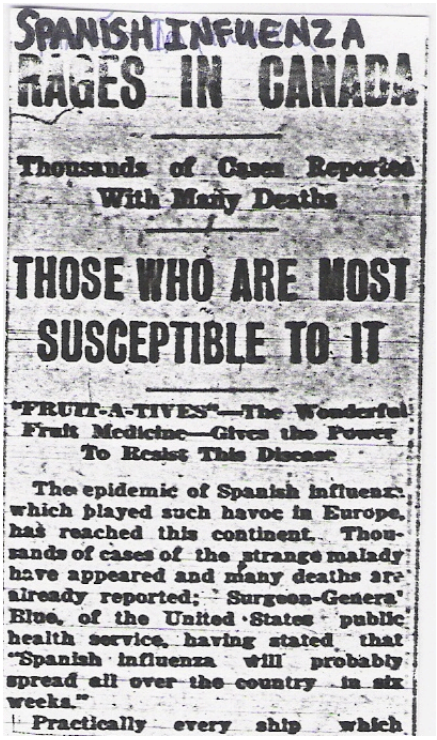
The advertisements in papers, or in any media, reveal a lot about the preoccupations and available products of a period. Initially, I expected to observe an increase in healthcare related ads such as home remedies, cough syrups, pills, etc. when the epidemic began. I also expected that such ads would become larger during the epidemic and that even ads not directly related to the flu would use the epidemic to advertise or generate business.

Healthcare Products and Services

Interestingly there was no noticeable shift in the number of health ads. This was determined, roughly, by counting the number of health-related ads in the newspaper each day, starting on Saturday September 1, 1918 through to Tuesday December 31, 1918. A 'health ad' was defined as such if it pertained to improving one's health but not beauty. For example, there were many kinds of liver pills, pain medications, laxatives, cough syrups, nasal sprays, nerve foods and remedies for indigestion. All of these were counted as health related. I did not count beauty treatments aimed at improving hair quality or skin colour. For instance, soaps, remedies for grey hair, skin tightening and skin lightening were not included, but remedies for acne were. Jergen's body cream for dry skin was included, but a wrinkle cream was not. Vaseline used for curing burns was included, but lemon juice cures for skin lightening were not. I also included Dandruff ads as health-related because they fit in with the definition I created.

Size of Ad

Some advertisements were considerably larger during the flu epidemic and some health care ads increased in size, such as advertisements for Tanlac and Fruit-a-tives. Previously, ads for Tanlac (24 September 1918: 9) and Fruit-a-tives (5 October 1918: 7) were small and simply stated what the product was and what it cured. However after the epidemic reached Hamilton and the risk associated with influenza increased, these two products in particular changed and the ads began to mimic actual reports on the progress of the flu. In fact I initially mistook them for stories, but then realized they were advertisements.



SPANISH INFLUENZA RAGES IN CANADA

Thousands of Cases Reported With Many Deaths

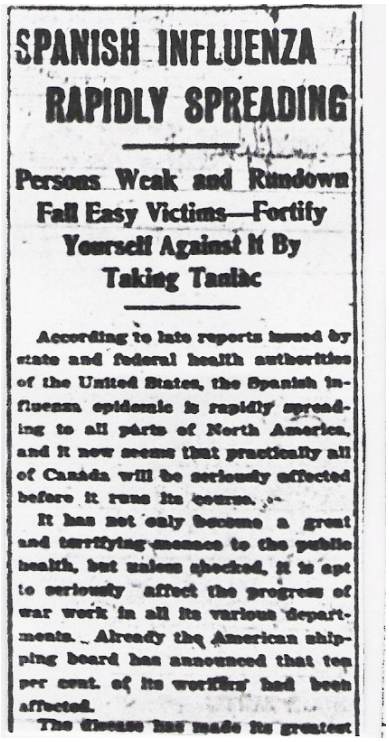
THOSE WHO ARE MOST SUSCEPTIBLE TO IT

"FRUIT-A-TIVES"—The Wonderful Fruit Medicine—Gives the Power To Resist This Disease

The epidemic of Spanish influenza, which played such havoc in Europe, has reached this continent. Thousands of cases of the strange malady have appeared and many deaths are already reported; Surgeon-General Blue, of the United States public health service, having stated that "Spanish influenza will probably spread all over the country in six weeks."

Practically every ship which

Figure 13.1 - Advertisement for Fruit-A-Tives (Fruit-a-tives 19 October 1918: 5)



SPANISH INFLUENZA RAPIDLY SPREADING

Persons Weak and Rundown Fall Easy Victims—Fortify Yourself Against It By Taking Tanlac

According to late reports issued by state and federal health authorities of the United States, the Spanish influenza epidemic is rapidly spreading to all parts of North America, and it now seems that practically all of Canada will be seriously affected before it runs its course.

It has not only become a great and terrifying menace to the public health, but unless checked, it is apt to seriously affect the progress of war work in all its various departments. Already the American shipping board has announced that ten per cent. of its workers had been affected.

The disease has made its greatest

Figure 13.2 - Advertisement for Tanlac (Tanalac 19 October 1918: 29)

Headlines such as "Spanish Influenza Rages in Canada! Thousands of cases reported with many deaths" (Fruit-a-tives 19 October 1918: 5) or in the Tanlac ad "Spanish Influenza Rapidly Spreading, Persons Weak and Rundown Fall Easy Victims…" (19 October 1918: 29) contributed to the illusion that these were reports, not product ads. These examples can be seen in Figures 13.1 and 13.2.

Using Influenza to Advertise a Company

Companies also began to prey on the public's fears. Clothing store advertisements, which made no mention of colds, flus or sickness of any type prior to Wednesday October 9, 1918 began to exploit the epidemic. The first 'flu' related ad was posted on that day and was for Murray & Sons Limited. It stated in

large letters “A warm coat is the one prevention of influenza” (pg 8). That same day a Parke’s Nasaline ad with the heading, “Infection from flu” (pg. 20) claimed that the nasal spray would cure infection and prevent the flu. One of the companies that exploited the flu epidemic most through their advertisements was Loew’s theatre company which advertised its theatre as “The house of perfect ventilation!” (Loew’s Theatre 10 October 1918: 20). As another way of bringing in customers they offered the official bulletin issued by the board of health on Spanish Influenza to any customers that day, and along with this they advertised influenza masks on display and demonstrations on how to make them. (See figure 13.3) Loew’s also announced that the air in the theatre was changed every three minutes. This was an important piece of information because at this point it was understood that influenza was transmitted through the air and infected air was a major fear. On Saturday October 12, 1918, Loew’s reports that it is has perfect ventilation “because not one employee has been infected yet” (pg. 24). This coincided with a period when announcements of stores closures due to staff sickness were appearing in the city. Loew’s was even luring people into the theatre with promises of famous actresses modelling the new masks. Others used

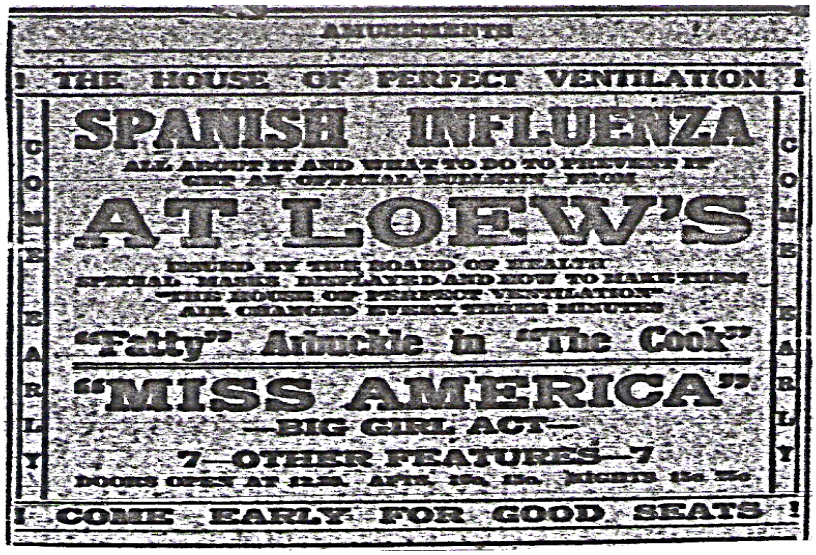


Figure 13.3 - Advertisement for Loew’s Theatre
(Loew’s Theatre 10 October 1918:20)

the masks themselves to bring in customers. The Right House, which was predominantly a clothing store, started advertising "Get your influenza mask now! We make them and they are approved by the local board of health" (Influenza Masks 1918: 2). On the next page, a full page ad for The Right House included this information (seen in Figure 13.4) in the hope of bringing in more customers.

Figure 13.4 - Advertisement for The Right House's influenza mask (Influenza Masks 1918: 3)

Bovril, which prior to the epidemic was simply advertised as a weight or body builder (17 September 1918: 6), began to advertise that gaining weight improves the immune system; in late October its ads read "For the Epidemic" and "For Flu" (22 October 1918: 3). Other companies began listing influenza as a disease cured by their product, along with coughs, colds, etc, such as this ad for Humphrey's "77" in Figure 13.5.

There also seems to be a link between public health bans and ads for clothing stores in the Hamilton Spectator. When schools were closed, some companies took this as an opportunity to advertise children's clothes. Shannon & Grant advertised "Mothers! School closing gives you another chance (Shannon

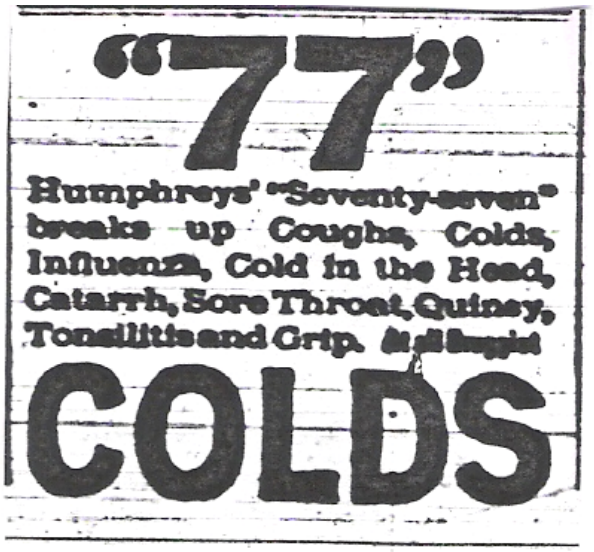


Figure 13.5 - Advertisement for Humphrey's "77" (Humphrey's "77" 1918: 7)

and Grant 1918: 20). A dry cleaner's ad caught people's attention with large print "Of course, you don't want to catch the flu!" (Dry Cleaners 1918: 4). However at the end of the half page ad, they offer a solution: dry-cleaning frees clothes from infection. At once relief is felt and the panic subsides, offering the public some control over the disease. An important point to note is that although these ads have been discussed as 'luring' people in and taking advantage of the epidemic, they also provided a great source of information for people, in this case offering information on health, cures and illness. These ads illustrate how the people of Hamilton reacted to the epidemic. One theory that explains social reactions in times like these is the social representation theory.

Social Representation Theory

Social representation theory states that when a society is faced with an unexpected phenomenon, in this case an epidemic, shared ideas emerge spontaneously and this can be seen as a coping mechanism, offering the illusion of control (Washer 2004: 2561). One important aspect of representations in such

instances is that they voice the common sense knowledge of non-specialists because social representation refers to knowledge shared by a community about a certain subject (Washer 2004: 2562). The ads that I have discussed fit into the social representation theory because although they seem to heighten the public's fear by drawing attention to the risks of getting the flu, they also seem to lessen anxiety by offering people some control, or at least the illusion of it. When people saw the dry cleaner's ad they may have panicked, seeing the word flu; the fact that the ad goes on to refer to the flu as a 'callous murderer' must have made matters worse; but then the solution (dry cleaning) was offered and the public was reassured.

Stigmatization

I turn now to the question of whether people suffering with influenza were stigmatized during Hamilton's epidemic. One way to investigate this is through the reporting of cause of death information in the "Deaths and Funerals" section of the newspapers. Prior to about September 15th 1918, cause of death was often listed, and most were "due to an illness of some period of time". After September 15th fewer causes of death were mentioned, and hardly any were 'due to illnesses'. Perhaps this was because of the fear of stigmatization and the concern that the rest of the family might be assumed to be infected.

Outbreaks are usually associated with fear; especially where serious illness and death are factors (Person et al. 2004: 358). Although this fear associated with outbreaks and spreading infectious diseases is often exaggerated, manipulated and heightened by the media, fear is a reasonable response, and in some ways can not only be seen as a coping mechanism but a survival instinct. In an article discussing the stigma associated with cancer, Clarke (2006: 2591) notes that "Fear has led people with cancer to be stigmatized and isolated from social life". Stigmatization can also lead to diminished social status, negative self-perceptions and emotional well-being, as well as social rejection and limitations in employment opportunities (Clarke 2006: 2591). There are obviously strong reasons why a person would want to avoid being stigmatized. Later on in October and November people began reporting causes of deaths more often and even stated that influenza was the main cause. Perhaps the stigma once felt when the epidemic first reached Hamilton lessened because so many people had been affected by it by the late fall of 1918.

War metaphors

"Treatments are often portrayed with metaphors of war and aggression" (Clarke 2006: 2597). There was little evidence for this in The Hamilton Spectator until Wednesday, October 16, when "Volunteer Army to Fight Epidemic" (1918: 4) appeared as an article title. Other articles used phrases such as 'combat the disease' and 'training and supplying nurses' as if they were weapons or infantry. War metaphors were especially salient during the influenza epidemic of 1918 because the outbreak was set against the backdrop of World War I. Such metaphors evoke even stronger feelings because all the emotions surrounding war are fresh in people's minds, patriotism is flowing in people's veins and the public is primed for another enemy and another hero to save them.

Many examples of war metaphors are found in the Hamilton Spectator. As mentioned above, volunteer nurses were referred to as an 'army' sent to 'fight' the epidemic. Later in that same article a volunteer group was being described as "a body organized with the object of recruiting nursing force" and this body "will form branches" ("Volunteer Army to Fight Epidemic" 1918: 4). Here the type of organization and chain of command of an army are invoked. On the next page, a large notice cried out, "Wanting Volunteers!…Ontario Emergency Volunteer Health Auxiliary- organized to combat influenza outbreak…training and supplying nurses…volunteer nurses will wear authorized badge 'Ontario S.O.S.' (Sisters of Service)"("Volunteer Army to Fight Epidemic" 1918: 5). Terms such as 'combat', 'training and supplying' are commonplace, as if the nurses were being shipped out to deal with the enemy. A dry cleaner's ad refers to the flu as 'stalking grimly around like a CALLOUS MURDERER, a THIEF in the NIGHT…" (Dry Cleaners 1918: 4) and goes on to say it is "as fiendish as the HUN, treacherous as the TURK…sparing no one….slaughtering without fear...authorities are doing everything to combat the silent, unseen enemy…Doctors bravely battling…protect yourselves from its evil and deadly effects" (24 October 1918: 4).

War metaphors are constantly applied to diseases and treatments (Clarke 2006: 2597), and the influenza pandemic of 1918 was no different in this respect.

Conclusion

At a time of social vulnerability, such as in the event of war, natural disaster, or deadly disease there are many ways a society changes, reacts and attempts to defend itself. Media reports offer a window on what a community is feeling and what is taking place. At the time of the 1918 influenza pandemic, the best source we have available is the newspaper, its stories and advertisements. The primary source for this chapter was The Hamilton Spectator from September 1, 1918 to December 31, 1918. As stated previously, there are many ways a community will react in the face of public panic, in this case brought on by an infectious, quickly spreading, deadly influenza virus. This chapter illustrates how, in times of weakness and panic, a society can and does rely on the media for solutions, reasons, reports, meaning and prognosis (Clarke 2006: 2597). The advertisements present in a newspaper can be a special source of information about a community because they provide insight into what was important to ordinary people, as well as their reactions to disease in their midst.

14

Children, School, Influenza: How are they Intertwined?

Laura Fuller & Nurit Vizcardo

Children are continuously affected by contagious diseases such as influenza (Wald 1905: 89). Known to be a deadly disease, influenza can be transmitted easily and spread within schools because their cramped environment creates the perfect conditions for the spread of infection. In this chapter we explore the impact of the 1918 influenza crisis on school-aged children and on the education system in Hamilton. In order to assess how influenza affected school children, decided to study the school system and closures; we also analyzed primary attendance records and considered the role children may have played in the spread of the 1918 influenza pandemic. To do so, we selected five schools and analyzed attendance rates before, during, and after the epidemic. The five schools selected for this study were: Hess Street School, King Edward School, Lloyd George School, Queen Mary School, and Queen Victoria School. We hoped that these examples would provide an overall representation of the general circumstances in the Hamilton school system during the outbreak. Among the schools operating then, several had suffered devastating fires and floods that destroyed their records. Schools with incomplete records were automatically eliminated from our study, as were those with a limited number of attendance records. Given the time limit for this project, we decided to focus on five schools with good records.

The education system in 1918

Hamilton, Ontario's education system is included in the Hamilton-Wentworth district school board, which currently administers one hundred elementary schools within its boundaries ("The Hamilton-Wentworth District School Board"

1997). This large education system arose from modest beginnings in the early 1800's (Spalding 1972: 3). The very first public school opened in what was called the "village of Hamilton", in 1821 with John Law serving as its first headmaster (Spalding 1972: 3). It is not until 1838 that a school curriculum is first mentioned at a school for boys (Spalding 1972: 3). This nameless school had a total number of twenty-five students who were divided into five classes; the first class was comprised of two students, the second five, the third eleven, two in the fourth and finally five students in the fifth class (Spalding 1972:3). The curriculum differed depending on the class. The first class focused on reading, spelling and tables, the second class was taught reading, spelling and writing and finally, the last three classes focused on reading, spelling, writing, tables, arithmetic, grammar, geography and history (Spalding 1972:3). The ages, or age range, for each class was not given, but it is our belief that the older children were situated in the last three classes because older children are more likely to have carried the harder and heaviest courses.

Figure 14.1 - Hess Street School

Hess Street School was named after the street in which it was situated. Hess Street School was constructed at the corners of Hess Street and Cannon Street in 1882. This school originally taught kindergarten to Grade 10 students; today it houses kindergarten to Grade 8. Hess Street School had alterations done to its tower in 1914 and in 1974 the entire school was replaced.

(Educational Archives: Hess Street 1917-1919)

By 1918 the number of elementary schools expanded to around twenty-seven due to the rapid increase in attendance (Educational Archives 2006) and immigration in the city (Coats 1923: 2-3). Despite the growth in schools in the eastern region of the city, the northeast faced a space shortage until the construction of Lloyd George School started in June of 1917 (Spalding 1972: 43). The grade levels evolved from the humble five class structure of the 1820's to a more elaborate break down of ages by the 1900's. Between 1900 and 1940, the grades were broken up into the current ten categories, but were known by different names than they are today. The first class, known as the kindergarten class, was comprised of children between the ages of four and six. The next class was known as kindergarten primary or reading readiness, which consisted of children between the ages of five and six. At this moment we are unaware of the differentiation between the two kindergartens. Grade one was known as Junior one, grade two as Senior one, grade three as Junior two, right up to Junior four (also know as grade seven) and Senior four (grade eight). The number of classes for each grade varied depending on the availability of teachers and space within the schools.

Schools at the turn of the century suffered from problems similar to what we see today. According to Murray, Aikman and Williamson (1997), "large classes were the rule" during the war years, which agrees with the attendance records for 1918. According to the five schools under study here, the number of students per class varied between 33 (King Edward school) and 70 (Hess St school) students. The large discrepancies could be a result of location in the sense that schools situated in heavily congested areas may have found themselves with larger classes compared to their counterparts in areas with sparser populations.

Each school day in 1918 began with the saying of the "scripture, prayer and the singing of one or more, of the following: 'O Canada', 'The maple leaf forever', 'God save the King' or 'May God preserve thee Canada". After performing the morning services, the day progressed into classes. The classes included arithmetic, spelling, geography, history, writing, and grammar were the course load held by the students. The curriculum also consisted of courses in art, music and physical education. Other creative teaching methods included spelling bees, minute arithmetic drills and memorizing English poems (Murray Aikman and Williamson 1997: 43).

External members of the everyday school system were Professor Johnson,

Mr. Bruce Carey, Sergeant Major Huggins, and the health care professionals. Professor Johnson was the music supervisor who traveled from school to school throughout the year (Murray Aikman and Williamson 1997: 43). Mr. Bruce Carey took over for Professor Johnson (Murray Aikman and Williamson 1972: 43) after his death in 1917 (Murray Aikman and Williamson 1972: 32). Sergeant Major Huggins was the physical/drill instructor of the school board whose duty was to create strong Canadian youths (Murray Aikman and Williamson 1972: 43). Other members of the school board system included professional health care workers. In 1907, medical examinations, especially visual examinations and vaccinations were arranged for each school and each child (Murray Aikman and Williamson 1997: 43) and these medical examinations continued long after 1907.

The school system and its curriculum were altered during the war years. Underage children enlisted in military service despite their age and served for the commonwealth during World War One. The children who remained at home also contributed to the war. They knitted socks, made face cloths and rolled bandages for the soldiers. For these contributions, the children received extra points on their reports (Murray Aikman and Williamson 1997: 44).

The controversy: school closures

One of the most frequently discussed and debated health measures during the 1918 influenza outbreak was the closure of schools and the banning of public gatherings. The closing of schools was not universally accepted and its effectiveness was questioned. During the 1918 Influenza pandemic, efforts to control contagion were organized to prevent those infected from sharing the same air as the uninfected (The Pandemic Response 2005). Public gatherings and the coming together of people in close quarters was seen as a potential opportunity for the transmission of the disease (The Pandemic Response 2005). The public health authorities believed that good ventilation, fresh air, the use of masks, closing of schools, and restrictions on large public gatherings and meetings were recommended to prevent community spread (Flu Pandemic Mitigation 2005). These strategies have proven not to be effective, partly because they tended to be instituted late in the outbreak and were not strictly adhered to or because the control measures were not appropriate to the principle modes of transmission of the influenza virus (Flu Pandemic Mitigation 2005).

The closing of schools and other public institutions to reduce the spread of the epidemic was not universally accepted in Hamilton or elsewhere. Yet, school closures can be effective in decreasing the spread of influenza and reducing the overall magnitude of disease in a community (Flu Pandemic Mitigation-Social Distancing 2005). In addition, the risk of infection and illness among children is likely to be decreased, which is important if the pandemic strain causes

Figure 14.2 - King Edward School
Originally Mary Street School, King Edward School opened on September 11, 1903 named after King Edward VII's accessed to the throne. This 10 room structure closed its door in 1971 allocating the students to the Dr. J. Edward Davey School.
(Educational Archives: King Edward 1913-1917)

significant morbidity and mortality among children (Flu Pandemic Mitigation-Social Distancing 2005). According to Billings (2005), the desirability of closing schools in a large city in the presence of an epidemic is a measure of doubtful value and the effectiveness of this measure has been questioned against the loss of educational standards. Generally, school closures are thought to be less effective in large urban metropolises than in rural centers where the school is often the point of dissemination of the infectious agent (The Pandemic Response 2005).

The people of the city of Hamilton expressed strong, mixed feelings regarding the closure of schools. Hamilton schools were closed for the influenza ban from October 20, 1918 to November 9, 1918 and for the entire month of

December in 1918 ("Ban on Churches and Theatres Ill Advised" 1918: n.pag). Dr. McCullough, Chief Officer of Health, stated in 1918 that he had received the impression that the local board had not acted on its own initiative with regards to closing schools, but that it was a decision based on popular demand ("Ban on Churches and Theatres Ill Advised" 1918: n.pag). The provincial board's circular was addressed to health authorities and claimed most of the public health authority was against closing schools and other public places ("Ban on Churches and Theatres Ill Advised" 1918: n.pag). Health authorities believed that in cities and towns it was impossible to prevent children from mingling in the streets and playgrounds, where they lacked the supervision found in schools ("Ban on Churches and Theatres Ill Advised" 1918: n.pag). The city officials of Hamilton felt that closing the schools was economically wasteful and usually had no influence on the cause of an outbreak like influenza. Children were believed to be less likely to infect one another in the classroom than in the home or on the playground. Dr. McCullough claimed that there was no great danger of spreading disease in churches and other public places as long as these areas were well-ventilated ("Ban on Churches and Theatres Ill Advised" 1918: n.pag). He argued that any good derived from closing places of assemblage would be counter-balanced by the conditions in crowded street cars, railway cars, shops, and in restaurants where food and dishes may be handled by persons having the disease ("Ban on Churches and Theatres Ill Advised" 1918: n.pag). The public health authorities felt it would be just as rational and much more effective to stop all travel on street cars and trains, and to stop people from entering shops, eating places, and similar locations as to close schools, churches, and theatres ("Ban on Churches and Theatres Ill Advised" 1918: n.pag). Dr. McCullough claimed that health officers should not do anything inconsistent with the welfare of the public as it would likely dislocate business or the ordinary affairs of life ("Ban on Churches and Theatres Ill Advised" 1918: n.pag).

School attendance during the 1918 outbreak

To determine how school-aged children were affected by the influenza outbreak we examined the attendance records of the 1918-1919 school year for five Hamilton schools. Unable to find similar studies, we chose to study school attendance records instead of other government records because we felt they were the best kept records for children available. We pursued other channels, including

hospital records and accounts of family physicians, but concluded that they were biased towards the more affluent members of society. We felt that school records could provide the best representation of both affluent and non-affluent children because by 1918 the schools were subsidized by the government; this allowed every child the ability to attend a school (Murray Aikman and Williamson 1997: 43). Representation of children from all ethnic groups was also a concern during the process of this study. We were pleasantly surprised to know all records included children from all ethnic and racial backgrounds due to the protest of 1843, which allowed all children the right to attend any school in the Hamilton district (Spalding 1972: 3). Knowing that the school board appeared not to present cultural or economic barriers to children validated our confidence in the accuracy of the school records.

Collecting school attendance records

The school records were collected in a three-week period spent at the Educational Archives and Heritage Centre of Hamilton Wentworth in Hamilton, Ontario. Each attendance record was initially recorded onto an Excel© spreadsheet and then double checked to ensure the accuracy of transcription. If during the double checking discrepancies were found, that class was eliminated from the study to reduce inaccurate data. In this study, four classes out of fifty-three were thrown

Figure 14.3 - Lloyd George School
Constructed in honour of British politician David Lloyd George, Lloyd George School opened in 1918 on Beach Road.
(Board of Education Archives: Lloyd George 1918-1923)

out because of transcription errors. Efforts were made to maintain all classes in the study, however we felt it was important to keep as accurate records as possible, which meant eliminating erroneous or dubious data. Once the data was entered into Excel© and checked, five graphs were compiled, one for each school. To better compare the five schools, a single line graph (Figure 14.4) was constructed to provide clarity for comparison of attendance trends for the five schools.

As previously stated in this chapter, the 1918 influenza outbreak caused two school closures. The first closure occurred between the dates of October 20 and November 9, 1918 (Minutes Board of Health 1918). This closure caused the dramatic drop in attendance for both months among the school-aged children seen in Figure 14.4. In October and November we see the lowest attendance of all. The second closure resulted in schools closing for the entire

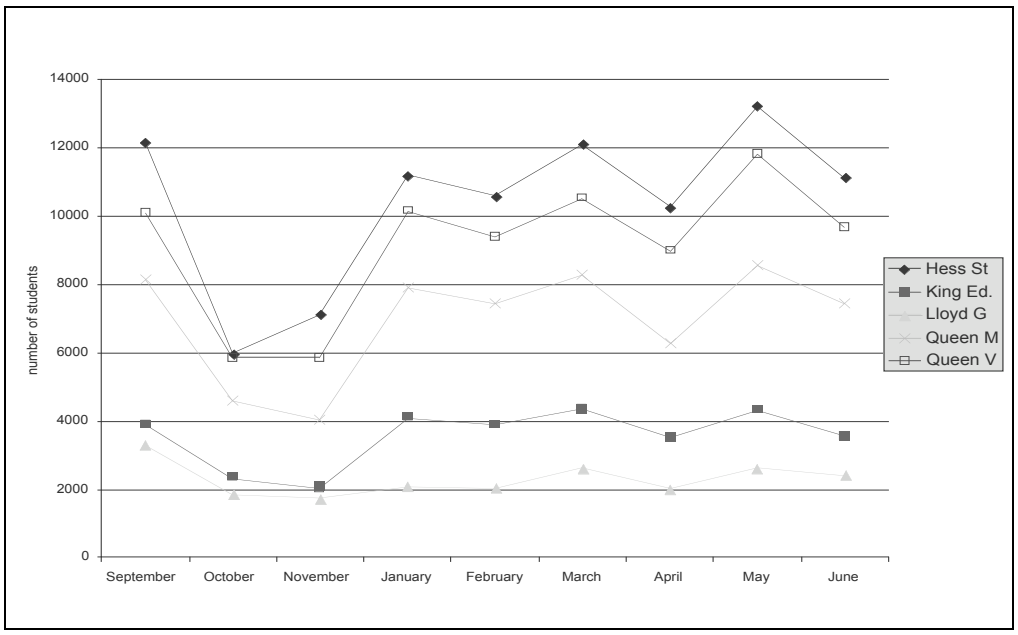


Figure 14.4 - Attendance Records for Five Hamilton Schools during 1918-1919 Pandemic (Educational Archives: Hess Street 1917-1919; Educational Archives: King Edward 1913-1917; Educational Archives: Lloyd George 1918-1923; Educational Archives: Queen Mary 1917-1920; Educational Archives: Queen Victoria 1917-1920)

month of December. Because of this, the month of December is not represented in Figure14.4, resulting in a gap from November to January.

What is striking among the five schools seen in Figure 14.4 is the similarity in the attendance patterns for 1918-1919. This leads us to believe each school was affected similarly and perhaps this was the general trend for all the Hamilton area schools during this time. Overall, during the month of September each school had a high attendance record compared to other months for all five schools (Figure 14.4). The high attendance rate for each school suggests a normalcy within the schools during September of 1918. At this point, we assume,

	Hess Street	King Edward	Lloyd George	Queen Mary	Queen Victoria
	School	School	School	School	School
September	12145	3905	3306	8121	10102
October	5971	2319	1856	4570	5862
November	7116	2026	1736	4038	5862
January	11195	4092	2093	7917	10160
February	10586	3911	2036	7427	9381
March	12118	4345	2616	8279	10529
April	10261	3514	2011	6287	8992
May	13219	4331	2615	8540	11817
June	11131	3566	2409	7421	9658

Table 14.1 - School Attendance during 1918 Influenza Pandemic
(Educational Archives: Hess Street 1917-1919; Educational Archives: King Edward 1913-1917; Educational Archives: Lloyd George 1918-1923; Educational Archives: Queen Mary 1917-1920; Educational Archives: Queen Victoria 1917-1920)

school aged children were not affected by the influenza outbreak. The following two months show a drastic decline with the attendance record dropping in all five schools. This drop is directly related to the school closure between the last days of October and the beginning of November. This closure brought attendance down (Table 14.1). Because of the closure it is difficult to determine the extent to which schooled-aged children were affected by influenza during the months of October and November. The month of December was eliminated from the study as the schools closed for the entire month, with classes resuming in January.

In January, attendance rose again. Lloyd George was the only school to have not drastically increased its attendance record in January. However, the attendance is still higher than the two preceding months. February, March, April, and June show consistent dips and falls. February saw a decrease in school attendance for all five schools when compared to January. This dip is followed

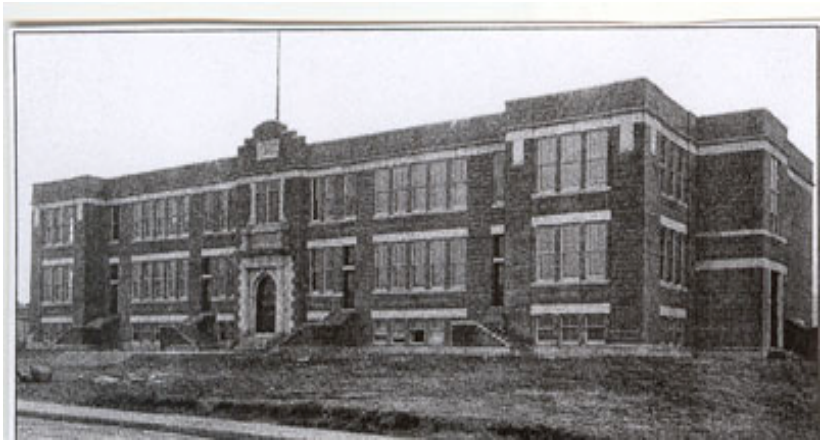


Figure 14.5 - Queen Mary School
Queen Mary School was originally built in 1913 and named after King George V's consort. This 20 room school was constructed on Cannon Street. Teaching kindergarten to grade 8, the school experienced many structural changes. In 1931, the school added 16 rooms and in 1995-96 the school was reconstructed into a new modern building. A.W Morrell became Queen Mary School principal in 1914 until 1923, serving during the 1918 Influenza. The school continues to be situated in its original site and name.
(Educational Archives: Queen Mary 1917-1920)

by a peak in the month of March. Attendance in March surpasses all previous months except for September. The last two months of the school year show a peak and a drop respectively. Through this analysis of the attendance records, we have concluded that all five schools were similarly affected during the school year of 1918-1919. The most prominent peaks occurred in September, January, March, and May, again represented by all five schools.

The role of children in the spread of epidemics

School-aged children are one of the groups at low risk for developing severe outcomes from influenza during annual epidemics, but they play a major role in the spread of the disease. In a typical flu outbreak, children usually become ill first due to several factors, including lowered immunity, closer contact with other people, spending a lot of time in crowded schools, and a longer period of viral shedding (Do Public Health and Infection Control Measures 2005). All of these factors make it very easy for children to catch influenza and spread it quickly within their home.

Children play an important role in the transmission of influenza within schools, families, and communities. Children are the major route of transmission of influenza viruses to household contacts, thus highlighting the potential of influenza to affect the quality of life of children and their families (Burden of Influenza in healthy children and their households 2004). Healthy children attending day care and school are the most frequently affected by influenza and

Figure 14.6 - Queen Victoria School

Queen Victoria School originally constructed on Hunter Street in 1889 is presently located on Walnut Street. Named after Queen Victoria, it was the first Hamilton school named after royalty; it served students between kindergarten and Grade 10. The original Queen Victoria School was closed in 1963 and moved to its present location on Walnut Street location, teaching kindergarten to Grade 6.

(Educational Archives: Queen Victoria 1917-1920)

their illness is often associated with a high familial disease burden (Burden of influenza in healthy children and their households 2004). The socioeconomic impact of influenza in healthy children on household contacts is demonstrated by the fact that their parents and siblings fall ill, receive more antibiotics and prescriptions, and require more medical visits (Burden of influenza in healthy children and their households 2004). They are also more frequently absent from work and school and require help at home for a longer time to care for ill children (Burden of influenza in healthy children and their households 2004). Children's absence from school not only has direct impact on illness in adults, it also has indirect effects, since adults must care for ill children (Burden of influenza in healthy children and their households 2004). This shows that influenza in otherwise healthy children has a significant effect on the children themselves and on other members of their household.

Conclusion

Based on the school attendance data, we have concluded that school-aged children were affected by the 1918 influenza in a manner similar to the rest of the general population of Hamilton. The records show high attendance rates in September, a decrease in October and November, and three peaks in January, March, and May. This shows that the school closures affected the attendance of children but we are unable to determine the extent to which illness and death of children from influenza contributed to the patterns observed. Other limitations in our study include incomplete and lost records, the disparity between class sizes at each school, and the accuracy of the data. Based on our study of The Hamilton Minute Books, school attendance records, and other studies such as Eric Toner's, suggest that school closures are an ineffective way of controlling the spread of influenza. School closures were implemented too late during the 1918 influenza to have reduced the spread of the disease. A more effective solution would have been to close down all of Hamilton and not just specific venues and institutions. The common assumption that schools increase the spread of influenza is not useful because other locations, such as playgrounds, businesses and public gatherings remained open, allowing the spread of influenza to continue. Children likely played a vital role in the spread of the 1918 Influenza and likely created a high disease burden within their families. Often, children are the missing link in population studies regarding influenza. By ignoring this particular sector,

scholars may be missing different perspectives and important information on the impact of influenza epidemic.

15

Life from Death: The Effect of the 1918 Flu on Fertility in Hamilton

Caitlin Hoffman

Introduction

The intent of this article is to discuss the issue of the 1918 flu and its possible effect on fertility. This pandemic remains to this day a bit of an enigma - there is still a great deal that is not known about the Spanish Flu. However, this flu has become well known for its unusual epidemic curve. In typical influenza outbreaks, the curve is U shaped. This indicates that there are large numbers of infant deaths and deaths of the elderly, but very few deaths of those in the middle (Barry "The Great Influenza…" 2004: 239). This was not the case with the 1918 flu. The curve for the 1918 flu looked like a W, with the greatest number of deaths in the middle. The greatest number of deaths occurred in men and women in their late 20s (Barry "The Great Influenza…" 2004: 239). These individuals were dying at an age when they were at their most fertile.

Though little has been written on the subject, it is known that influenza does have an effect on pregnant women. As far back as the 16th century, connections were made between influenza and miscarriage. Influenza was also connected with the death of pregnant women (Barry "The Great Influenza…" 2004: 239-240). As mentioned above, the individuals most affected by the 1918 flu were those in their mid to late 20s (Barry "The Great Influenza…" 2004: 239). However, out of those individuals, the most likely to die were pregnant women (Barry "The Great Influenza…" 2004: 239). Studies of the relative risk of influenza morbidity associated with each stage of pregnancy suggest that women

in later stages of pregnancy are at higher risk for hospitalization for influenza and pneumonia. This risk is especially high for women in their 3rd trimester (Neuzil et al. 1998: 1100).

BIRTH ANNOUNCEMENT-HAMILTON HERALD
WEDNESDAY DECEMBER 11, 1918

GROVES- On December 14th, 1918, to Mr. & Mrs. Harold Groves, 74 East 24th Street, Mount Hamilton, a daughter.

Studies during the 1918 flu examined its effect on pregnant women. Barry describes thirteen studies that focused on hospitalized women during the 1918 outbreak. The death rate ranged from 23 percent to 71 percent (Barry "The Great Influenza…" 2004: 239-40). Of those women who survived, 26 percent lost the child (Barry "The Great Influenza…" 2004: 239-40).

Another study conducted during the outbreak of the 1918 flu was done by Dr. John Harris. One conclusion drawn from this study was the fact that roughly half of the patients developed pneumonia, and roughly half of those individuals died. This indicates a gross mortality of 27 percent (Harris 1919: 978). Harris found also that the mortality was slightly higher in the last trimester. Sixty percent of those individuals who developed pneumonia in the last trimester died (Harris 1919: 979). He also found that in the cases of influenza complicated by pneumonia, the frequency of miscarriage was 52 percent (Harris 1919: 979). It was also evident from Harris' study that the prognosis is much worse for those individuals who experienced a termination of pregnancy. The mortality rate was as high as 41 percent in cases with an interruption compared to 16 percent in cases with no interruption (Harris 1919: 980).

It becomes clear from the few studies that were done, that influenza has an impact on pregnancy. However, considerably less is known about the effect of influenza on conceptions. There has been virtually no work done in order to investigate the connection between influenza and lowered conception rates. In view of the fact that so many young individuals were dying, it is plausible that there was an effect on conception. It is this issue that I address in this chapter. I examine whether there was a significant reduction in the number of births in the 9

months during and after the flu outbreak in Hamilton. Hamilton's outbreak occurred during September to December of 1918. Therefore if there is an impact on conception, one would expect to see a reduction in births in June to September of 1919.

Another question is raised alongside this one. Was there a significant increase in the number of births after the time of the flu? If there was an increase, I would expect to see it manifest in birth rates from October of 1919 to October of 1920. If both of these are true, how long did it take for birth rates to return to pre-influenza levels? These are all questions that I address in this chapter.

BIRTH ANNOUNCEMENT-HAMILTON HERALD
SATURDAY DECEMBER 7, 1918
McBRIDE- On Thursday December 5th 1918, at St. Joseph's Annex, to Mr. & Mrs. John J. McBride, a daughter.

Materials and methods

Data on the number of births and deaths per month for the years 1912 to 1922 were collected from the Hamilton Board of Health Reports for those years. This data was presented per month for each year, with a year running from November to October (Hamilton Board of Health 1912-1922). For the purposes of this study, the data was rearranged in order to coincide with a standard calendar year.

Once the data was collected, it was used to create graphs and tables which enabled any existing patterns to become visible. These graphs provide an illustration about what was happening in Hamilton in regards to births around the time of the flu. The tables and graphs are presented in the data section below.

BIRTH ANNOUNCEMENT-HAMILTON HERALD
THURSDAY DECEMBER 5, 1918
DENTON- On December 5th, 1918, to Mr. & Mrs. R.A. Denton, 218 Wood Street east, a son.

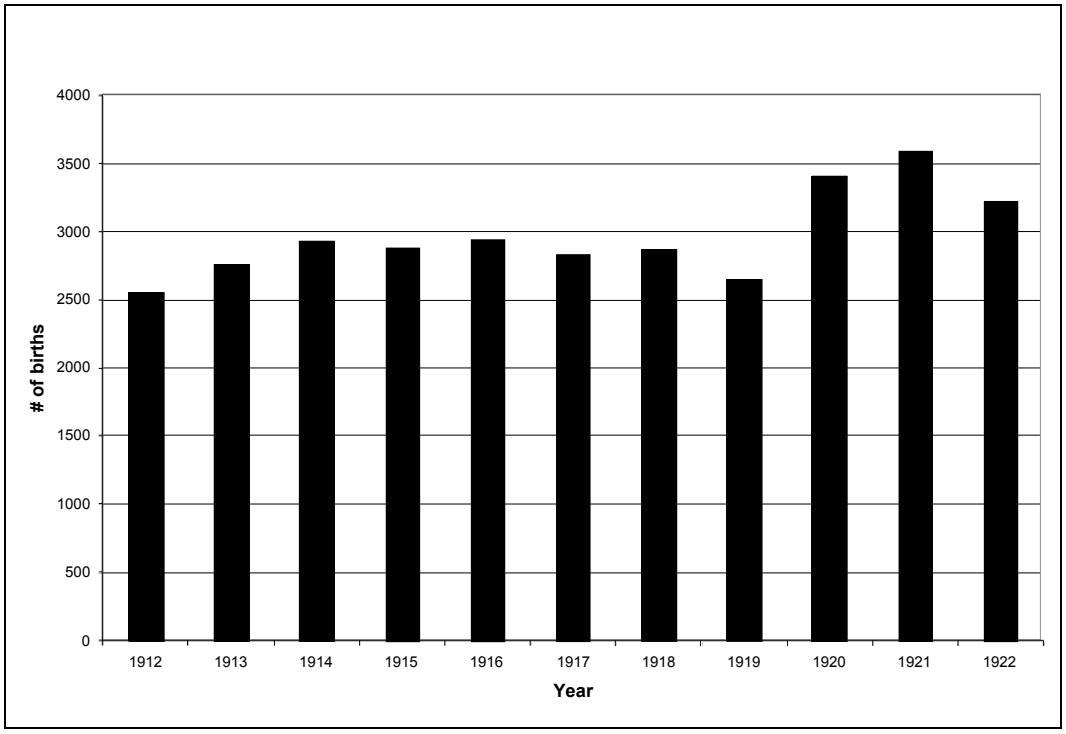


Figure 15.1 - Number of births in Hamilton from 1912-1922
(Hamilton Board of Health 1912-1922)

Figure 15.1 shows the number of births per year in Hamilton for the years 1912 to 1922. Some general observations can be made. A decrease in the number of births can be seen in 1919. This is followed by an increase in 1920, 1921 and 1922. This would suggest that there was something occurring approximately nine months prior to the decrease which affected reproductive behaviour. This change in behaviour resulted in a suppression of fertility. Previous studies have shown that mortality crises often result in a suppression of fertility. During times of crises there is often a decrease in the number of conceptions due to decreases in sexual relations (Caldwell 2006: 8). It is

therefore possible that the decrease in births observed in 1919 could be traced back to a suppression of conceptions during the epidemic in 1918.

Figure 15.2 breaks the births down for 1918 and 1919 per month.

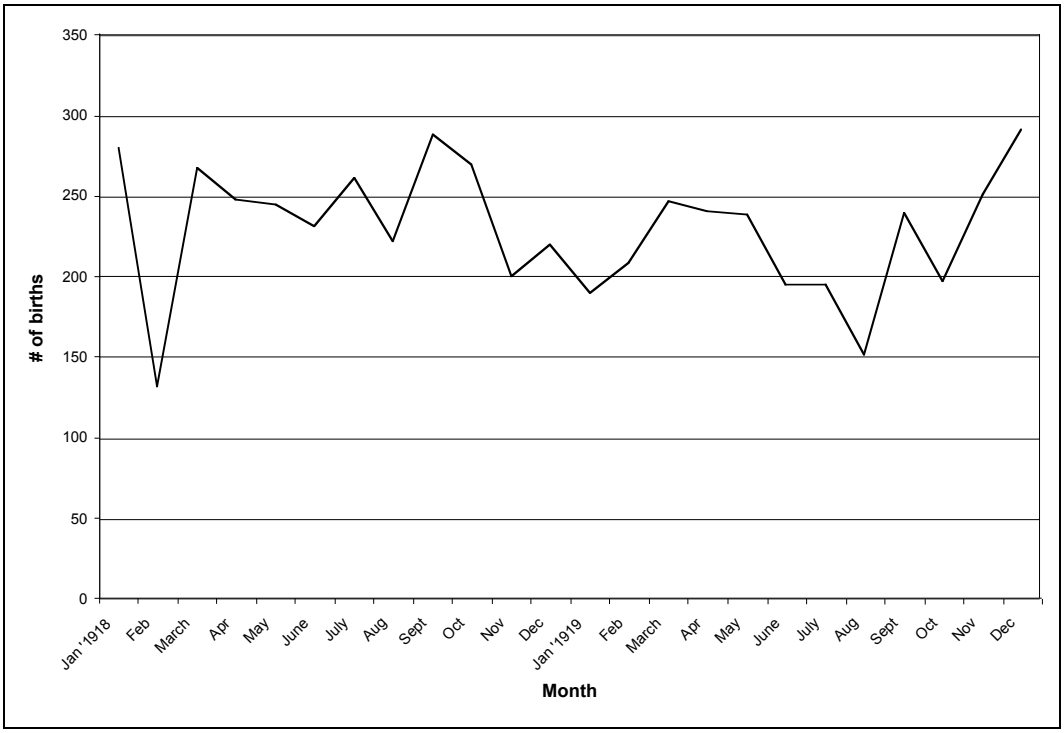


Figure 15.2 - Hamilton births for 1918 & 1919
(Hamilton Board of Health 1918-1919)

Figure15.2 illustrates more clearly the possibility of a decrease in births due to the 1918 influenza epidemic. We know that the second wave of the epidemic began in Hamilton around October of 1918. If there was a suppression of fertility as a result of this epidemic, it would be seen in the number of births approximately 9 months after the epidemic. Interestingly, there is a decrease in births in July and August of 1919, which is roughly 9 months after the epidemic.

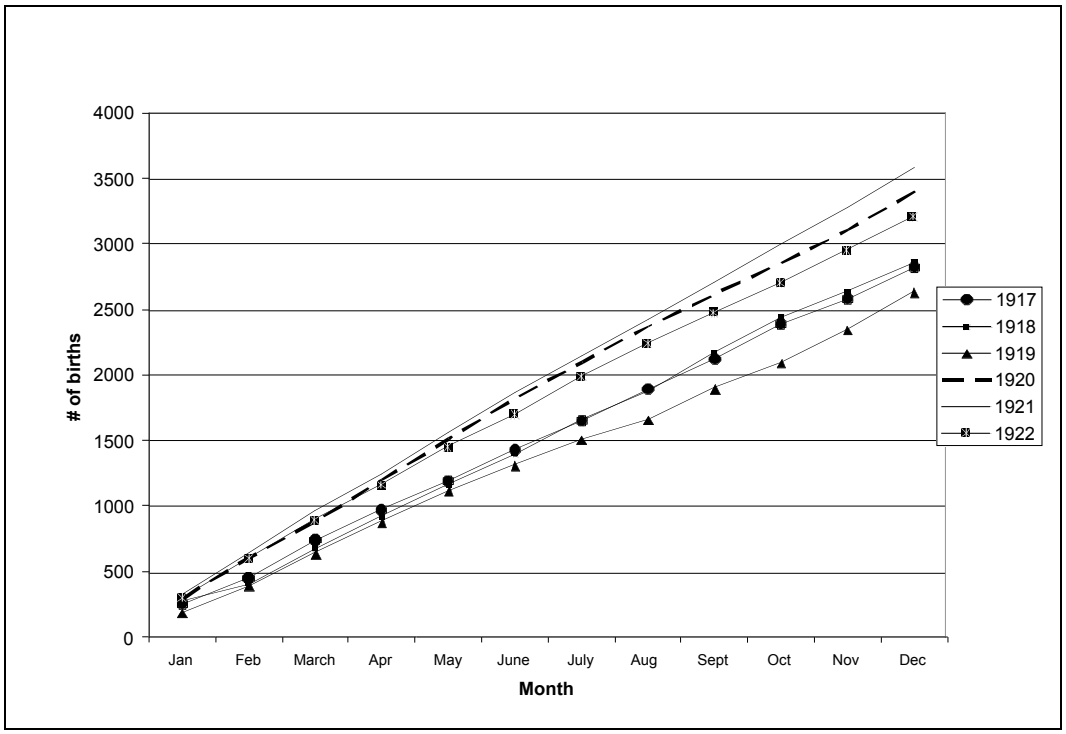


Figure 15.3 - Cumulative births in Hamilton for 1917-1922
(Hamilton Board of Health 1917-1922)

Figure 15.3 illustrates cumulative births for the years 1918 to 1921. It can be seen that there was no impact on births during 1918 as these numbers track very closely with those of 1917. It is not until 1919 that we begin to see the impact on the number of births. This graph is a good illustration of the deviation in number of births between 1918 and 1919. It can be seen that the numbers of births are fairly similar at the beginning of the year. Until about June the numbers of births in the two years track closely. However, the lines begin to diverge around July. This corresponds to the period of 9 months after the epidemic. It can be seen that around this time the gap starts to widen. This illustrates the decreased number of births that were occurring in 1919 as compared to 1918, indicating a suppression of conceptions in 1918.

It can also be seen that there is an increase in the number of births in 1920 and 1921. This would suggest that there may have been some kind of post-influenza baby boom. Nothing conclusive can be said regarding when the numbers of births returned to a pre-influenza state as data was only collected up to 1922. However it can be seen that in 1922 the number of births was beginning to drop closer to those of pre-influenza years.

It is clear that something was occurring with the number of births that seems to be associated with the 1918 flu. It does appear that there was some kind of suppression of fertility that had an affect on the population, but the number of births is not the only factor in population change at the time. The number of deaths also played an important role.

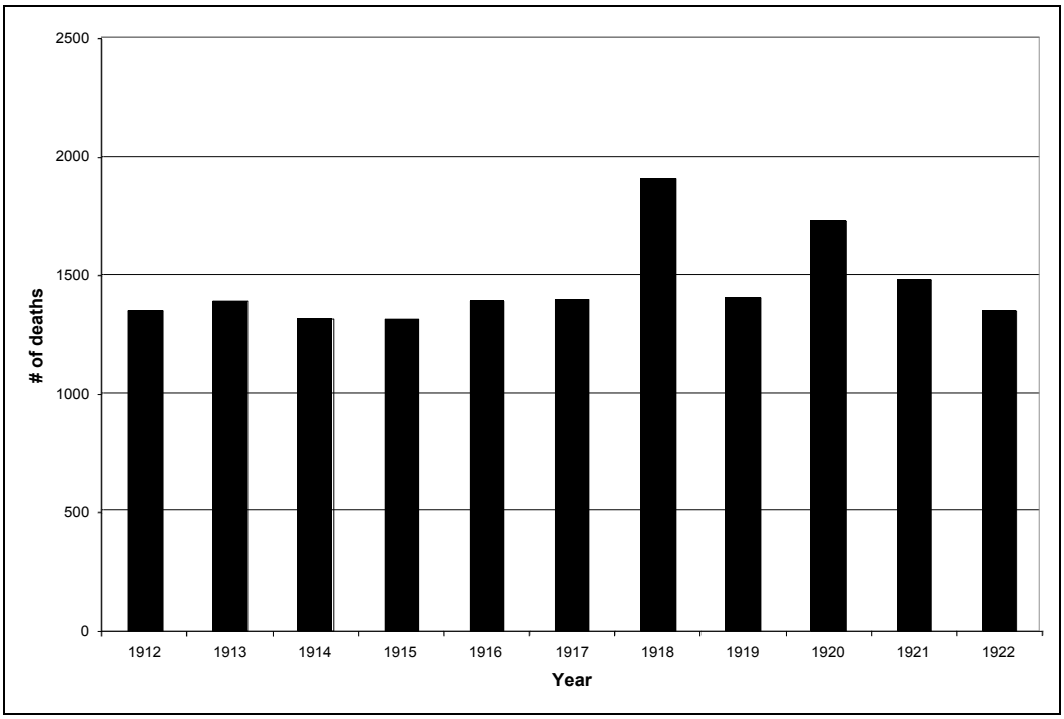


Figure 15.4 - Deaths in Hamilton from 1912-1922
(Hamilton Board of Health 1912-1922)

Figure 15.4 is a representation of the number of deaths in Hamilton from 1912 to 1922. It can be seen that there is an increase in the number of deaths in 1918, corresponding to the 1918 flu epidemic. Taking into consideration the fact that there was a decrease in births and an increase in deaths, the question is raised as to what kind of effect these two parameters had together on the growth of population in Hamilton.

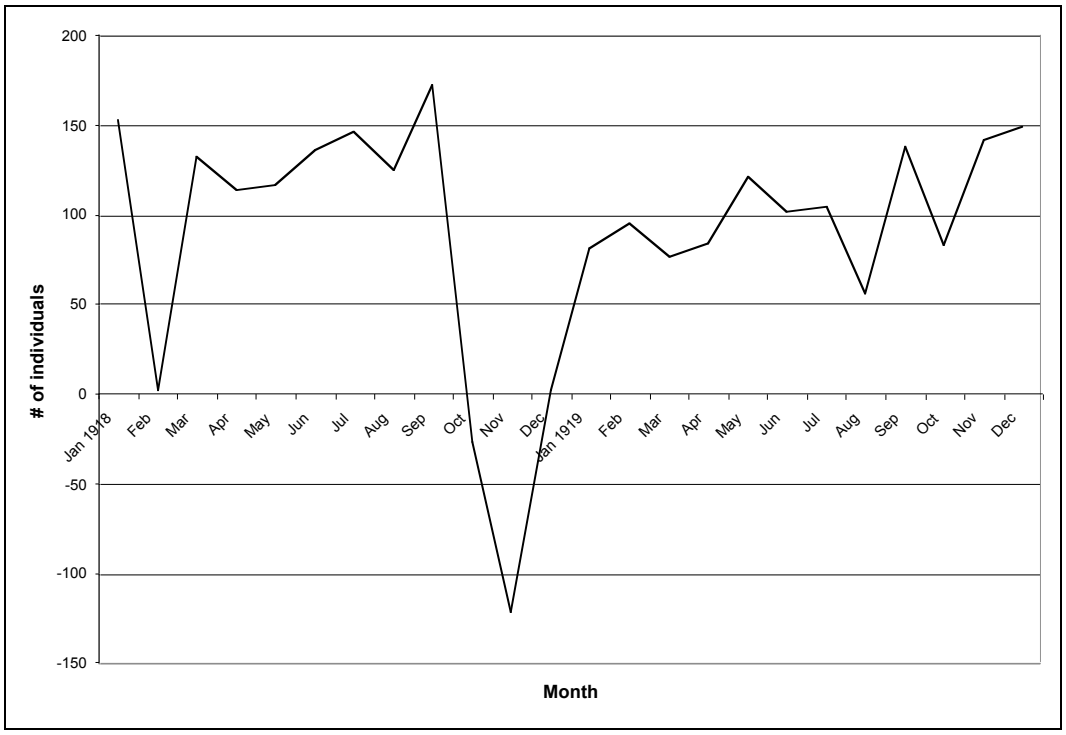


Figure 15.5 - Births-Deaths in Hamilton 1918-1919
(Hamilton Board of Health 1918-1919)

Figure 15.5 focuses exclusively on 1918 to 1919, as this is the time period of interest. This graph illustrates the dramatic effect on population around the time of the epidemic with negative population growth evident from October to December of 1918. This reduction is due to the large number of deaths. The

graph also illustrates the slight affect on population which occurred approximately 9 months later, in June to August of 1919. This decrease is related to the decrease in number of births.

YEAR	RATIO
1912	1.88
1913	1.98
1914	2.22
1915	2.18
1916	2.10
1917	**2.02**
1918	**1.49**
1919	**1.87**
1920	**1.97**
1921	2.42
1922	2.38

Table 15.1 - Birth/Death ratios for Hamilton 1912-1922
(Hamilton Board of Health 1912-1922)

Table 15.1 gives the birth/death ratios for Hamilton from 1912 to 1922. The years surrounding the flu epidemic are shown in bold. This table illustrates in a different way the effect of the flu on the population. There was an all time low in 1918 which again would correspond to the increased number of deaths during that year due to the flu. There is then a slow increase throughout 1919 and 1920. Note that in 1921 the ratio was at 2.42, which is higher than pre-influenza times. This again would suggest a possible post-epidemic baby boom.

Figure 15.6 is an illustration of the cumulative effect that births and deaths had on the population. The effect of the epidemic can be seen in the line for 1918. There is a significant decrease from October to December of that year. The effect of the suppression of fertility can be seen throughout 1919. The values are much lower than in 1917, which represent pre-influenza levels. This graph also nicely illustrates the post-influenza effects. It can be seen that the values for 1920 and 1921 are much higher than those of 1917.

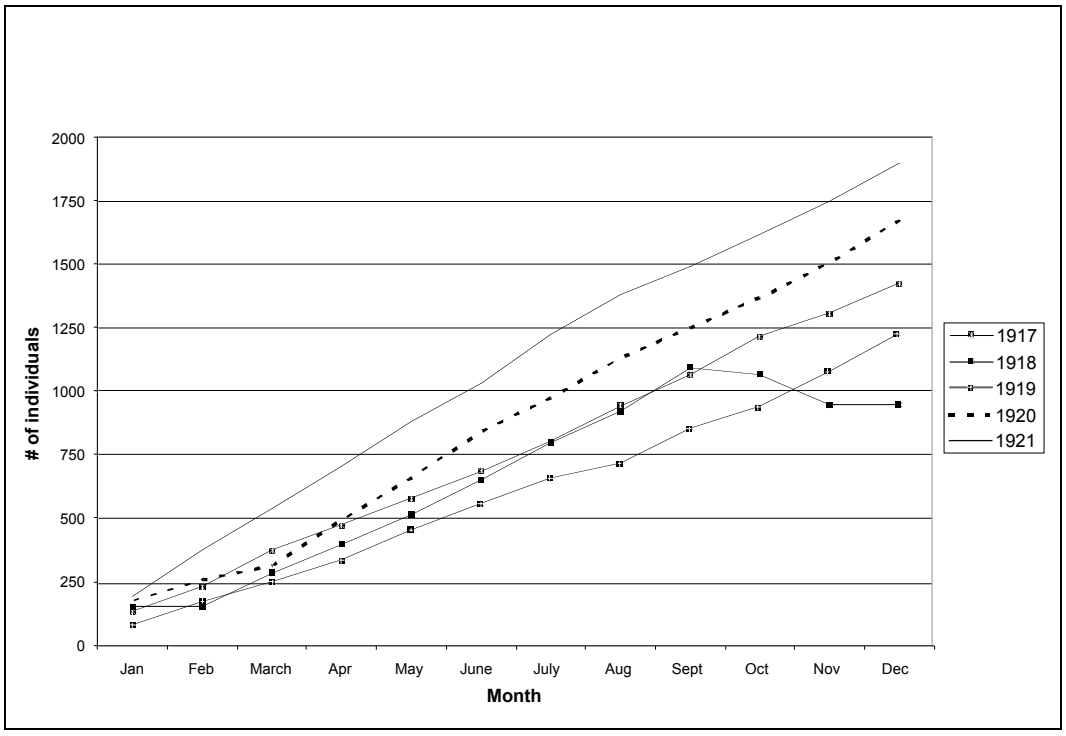


Figure 15.6 - Cumulative births-deaths for Hamilton 1917-1921
(Hamilton Board of Health 1917-1921)

Discussion

It is clear from this analysis that the 1918 epidemic influenced birth rates, as well as deaths in Hamilton. There was a visible reduction in the number of births in 1919 approximately 9 months after the epidemic. It is reasonable to attribute a reduction in births to a suppression of conceptions during the 1918 flu. It is clear that some event changed reproductive behaviour, which led to a decrease in the number of babies born after the outbreak. In tracing the decrease in births back 9 months, we arrive at the time of the epidemic. Therefore it is likely that as in other times of mortality crisis, the 1918 flu caused suppression in fertility. This suppression led to the decrease in births in 1919.

The data also illustrate an increase in births following the epidemic. Specifically, there was an increase in births in 1920 and 1921, relative to 1918 and 1919. It is difficult however to draw any definitive conclusions about this. Although it is clear that there was an increase in births during these years, it cannot necessarily be attributed to a post-influenza boom. There may be other reasons for such a change. It is possible that the increase in births is due to soldiers returning home from the war. The end of the First World War saw the return of many soldiers to Canada, and it is possible that this led to an increase in sexual activity, which resulted in the increase in births in 1920 and 1921.

Conclusion

In regards to the data collected and presented above, some general conclusions can be drawn. It can be said that Hamilton's 1918 influenza epidemic did result in a decrease in the number of births 9 months after the outbreak. It can also be said that there was an increase in the number of births in the years following the epidemic. It is also clear that the births and deaths, in combination, had a significant impact on the population at the time of the epidemic. However, the question remains as to whether there were any long-term impacts on the population of Hamilton.

BIRTH ANNOUNCEMENT-HAMILTON HERALD
SATURDAY NOVEMBER 30, 1918

SMITH- On November 30, 1918 to Mr. & Mrs. C. Smith, 200 Bold Street, a daughter, Emma Ardell.

It would appear that the city of Hamilton was able to recover fairly quickly from the epidemic. Perhaps this is due in part to the fact that Hamilton was not as hard hit as other cities. In December of 1918, the Hamilton Herald published data about the number of deaths attributed to the flu for several cities. The death rates per 100,000 were given and Hamilton fared much better than several other Canadian cities, including Ottawa, Montreal, Halifax and Toronto

("Death Rate in Hamilton Under Average" 1918: 4). No definitive conclusions can be reached however as no information on births in these cities was gathered.

BIRTH ANNOUNCEMENT-HAMILTON HERALD
FRIDAY NOVEMBER 29, 1918

WATSON-To Mr. & Mrs. F.B. Watson, of 221 John Street south, a daughter (Marion Isabelle)

It is also possible that the epidemic had only a small effect on populations in general. J.H. Underwood discusses the impact of the 1918 flu on the fertility of a population in Guam. She found that the long-term demographic effects on the population were minimal (Underwood 1984). This appears to be the case in Hamilton as well. It is clear that although the epidemic did have a visible effect on population in the short term; the population was able to recover fairly quickly. The 1918 influenza epidemic appears to have had no significant long term effect on fertility in Hamilton, simply on conceptions during the outbreak.

BIRTH ANNOUNCEMENT-HAMILTON HERALD
MONDAY DECEMBER 2, 1918

CLEWELL- On Sunday December 1, 1918, at Grant Avenue hospital, to Mr. & Mrs. C.W. Clewell, 22 Mount Royal Avenue, a son.

16

The 1918 Influenza Epidemic as an Agent of Transformation

Vanessa Manning

Introduction

The development, organization and quality of public health care are at no time more exposed than during the onset and progression of a major disease epidemic. In the year of 1918, a dreadful influenza epidemic swept the world, taking the lives of millions of people. As this disease spread across various nations, the lack of public health care and poor organization of health departments became exposed. In revealing the inadequacies of health care, the influenza epidemic of 1918 acted as an agent of transformation. It brought to light the insufficient nature of many health care facilities across the world, and in doing so influenced the transformation and reform of such institutions. Essentially, the severity of the influenza epidemic resulted in the development and expansion of public health care.

The experience of the influenza epidemic in Hamilton, Ontario presents an excellent illustration of medical reformation. In particular, the Hamilton Board of Health (BOH) was radically transformed as a result of the influenza outbreak. In examining the structure of public health care in Hamilton before, during and after the epidemic, this chapter discusses how the outbreak significantly influenced health care reform. To illustrate this reform the chapter examines: background information on the Hamilton Board of Health, the focus of the Board of Health before and after the epidemic, problems encountered in achieving

public health care reform, staff allocation before and after the epidemic, and finally Board of Health budget and expenditure before and after the epidemic.

Sources of information on Hamilton's Board of Health

The materials used to discuss the transformation of the Board of Health come from a variety of sources. Primary sources were heavily utilized in order to obtain first hand information on the state of public health in Hamilton in 1918. Secondary sources were used as background for the primary data and to add further discussion.

The overall development of the Health Department was pieced together from historical accounts of health care history in Hamilton, Ontario. Carolyn Gray provides an excellent discussion of general topics in Hamilton's history, including a history of the Health Department from 1847 to 1973 (Gray 1986). In addition, Rosemary Ruth Gagan's thesis on mortality and public health in Hamilton describes the changes in health care and the effect this had on mortality and overall health (Gagan PhD thesis 1989). Also, Eileen Pettigrew depicts the state of public health following the 1918 influenza epidemic and how this influenced reform and collaboration (Pettigrew 1983).

Information on the priorities of the Board of Health before and after the epidemic comes from a variety of scrapbook and newspaper archive sources. Individuals attempting to improve public health faced many problems; their accounts were also extracted from primary archive scrapbook and newspaper collections such as The Herald, The Spectator, and The Hamilton News. Such newspapers were used during the influenza outbreak because actions of the Board of Health and Dr. James Roberts were considered big news and monitored by both city newspapers and Hamiltonians alike. Consequently, the newspaper scrapbooks provide an invaluable source for the direction and challenges faced by the Board of Health in 1918.

Accounts in the Board of Health Reports were used from various years to illustrate the changes in staffing and budget allocation before and after the epidemic. They provide a detailed account of the increasing demands that each passing year placed on the state of public health care. In addition City Minute Reports and newspaper articles were found relating to the inadequacies of both BOH staff and budget allocation.

In order obtain a sense of the vast changes and development surrounding the Board of Health during the influenza years; it is clear that a mixture of sources is necessary. Together primary and secondary accounts of the progression of medical reform provide a comprehensive understanding of how the Board of Health has advanced throughout the years.

Development of Board of Health: 1875-1925

Prior to 1884, the Board of Health in Hamilton was temporarily assembled as public health crises occurred (Hamilton Public Library 2005). In 1875, a By Law on Public Health was passed leading to the appointment of a Medical Officer of Health (MOH) and allowing for the permanent position of the Health Inspector (Hamilton Public Library 2005). By 1878, an assistant Health Inspector was hired and the city was divided into two separate wards for inspection purposes (Gray 1986: 58). From this point on there was a focus on the formalization of the Board of Health. Pressure from organizations such as the Canadian Medical Association stressed the importance for increased cooperation between the provinces in terms of public health (Pettigrew 1983: 134). Cooperation between provinces improved and The Public Health Act of 1882 required the sharing of medical information between local and provincial boards (Hamilton Public Library 2005). It was not until 1884 that this Public Health Act became more comprehensive, enforcing the mandatory creation of local Boards of Health (Gray 1986: 60). At this point the Hamilton Board of Health was now permanent. By 1890 there were 576 Boards of Health and 356 appointed Medical Officers of Health established across the country (Gagan PhD thesis1989: 16).

The first official meeting of the Hamilton BOH was held on February 1st, 1892 ("Hamilton Health Department…" 1927: 2). The BOH ensured the responsibility and enforcement of the new Health Department, and the MOH held the position of managing sanitary work, directing bookkeeping, and preparing monthly reports for the Local and Provincial Boards (Gray 1986: 59). The position of the Medical Officer of Health was made permanent and full time with the passing of By Law #140 in April of 1900 (Hamilton Public Library 2005). The MOH from 1905 to 1940, Dr. James Roberts, was largely responsible for developing the Board of Health. During his position as MOH, he influenced the building of a Public Health Laboratory, enforced the monthly medical inspection

of schools and other institutions, and was responsible for endorsing of the Health Center and creating isolation units (Hamilton Public Library 2005).

During October of the 1918 of the influenza epidemic, reports were circulated on the establishment of a Federal Department of Health (Pettigrew 1983: 134). These reports explained that the recent epidemic of the Spanish flu highlighted the need for federal health authority (Pettigrew 1983: 134). Throughout the entire influenza epidemic it seemed like there was no organization substantial enough to deal with the disease problem on a large scale. The control of influenza was left in the hands of local health boards. In response to this lack of coordination, a bill to establish a Federal Department of Health was read in March of 1919 and implemented in the fall of that year (Pettigrew 1983: 134). The passing of this bill meant that the Federal and Provincial Health Boards could now work together.

After the influenza epidemic had subsided, there were many further developments. The year 1920 saw the establishment of a Social Services Branch, and in 1921 a Superintendent of Nurses was appointed (Hamilton Public Library 2005). By 1925, the Hamilton BOH consisted of 9 separate divisions with a total of 75 staff members and a large Health Center for conducting work (Gray 1986: 62). It is evident that in the fifty years from 1875 to 1925 the BOH developed quickly and extensively. Since 1884, the province and the city had adopted a great interest in the future direction and expansion of public health services. Although much of this development occurred before the devastating influenza epidemic of 1918, it was during and after this time that the BOH truly experienced extensive growth and transformation.

Focus and priorities of the Hamilton Board of Health

The impact of the 1918 influenza epidemic had the effect of shifting the focus of the Health Department away from sanitation and towards disease prevention. Prior to the Public Health Act of 1884, health officials in the city seemed to collaborate only during times of necessity. During this time the city seemed to be in a process of 'sanitary awakening' along with the majority of other cities in Ontario (C. Harris n.d.: 1) and the focus of the Board of Health was mainly sanitary in nature. The Public Health Act of 1873 gave councils the right to regulate a number of sanitary concerns, including the drainage and disposal of sewage, eliminating smells from factories, and prevention of other nuisances (C.

Harris n.d.: 5). The Department of Health was responsible for scavenging, waste removal and sanitary inspection of various businesses and homes in the city (Gagan PhD thesis 1989: 143). In fact, most of the reports from health officers dealt with these issues. The Hamilton Spectator in November of 1888 presented a health report with some 'sanitary facts' (Ryall 1888: n.pag.). This article expressed concern and the need for plumbing, privy vault, and cesspool inspection and stressed that "in many instances sewer connections were found to be imperfect…and water closets were in some instances badly located," (Ryall 1888: n.pag.). In addition, The Hamilton Times of 1892 noted that health scavengers were to remove piles of ashes from alleyways and pick up paper and other debris ("The new Board…" 1892: 9). This article provided a description of the first Hamilton Board of Health meeting and nowhere in it is there any mention of disease or ill health prevention. From 1900 to 1905 the health officer at the time boasted that his team had collected 9595 loads of refuse and initiated 5320 sanitation checks (Gagan PhD thesis 1989: 143). The limited goals of the Department of Health were revealed in Dr. Langrill's statement that he was doubtful the city would need more assistance for many years to come (Gray 1986: 58). Dr. W. F. Langrill served as the Medical Officer of Health from 1901 to 1905.

The early reports from the Hamilton Board of Health illustrate the notion that individual infection was connected to the environment (Roberts 1922: 4). This is evident in that the primary focus of the department was on sanitation, burying dead animals, and cleaning ash and debris from the streets. At this time in Hamilton's history there was a preoccupation with the economy and the presentation of Hamilton as a healthy and beautiful city. It was important to present the city as looking beautiful and having a good sanitary record. Good health was believed to be associated with clean surroundings. Reports from the Hamilton Health Department from 1880 to 1905 stressed the city's excellent sanitary conditions (C. Harris n.d.: 1). Importance was also placed on keeping detailed records. Detailed and positive reports of Hamilton's clean state would attract potential residents and consequently provide the city with a booming economy. Overall the city officials viewed health as an important issue in the well-being of Hamiltonians; however, it seems as though the desire for a successful economy and attractive city took priority in the minds of many professionals.

When the 1918 influenza began to take control over the city in October of that year, the focus of residents and experts began to shift away from sanitation and towards disease control and prevention. Thousands of people were getting sick despite extensive efforts to keep the city clean. At this point the city officials began to realize the importance of preventative measures. From 1918 and onwards, the influenza epidemic acted as an agent of transformation in influencing the development and reorganization of the Hamilton Board of Health.

With the introduction of Dr. James Roberts as Medical Officer of Health in 1905 the Department of Health began to be completely reformed. The onset of the influenza outbreak made city dwellers realize that disease prevention was even more important than the cure ("Prevention is…" 1950: n.pag.). The gap in public health was realized in 1918 when the city had to rely on volunteer nurses (Hamilton Public Library 2005). The epidemic enabled health care services to be reorganized and expanded. Initially Dr. Roberts employed the use of more stenographers to keep records. This allowed the sanitary inspectors to take time away from paper work and double their inspections (Hamilton Public Library 2005). In 1920 Dr. Roberts insisted on the creation of an isolation unit because of problems with communicable diseases in the city ("Health Officer Urges…" 1920: n.pag.). In December of 1920 the Hamilton Spectator reported that Roberts believed a large percentage of the illnesses could have been prevented if appropriate hospital care had been available ("Health Officer urges…" 1920: n.pag.). By 1921 a Health Center was endorsed and created in the old public library building ("Health Center…" 1921: n.pag.). In addition, by 1925 and 1926 Dr. Roberts became adamant about the importance of expansion of the epidemiology departments; this was due to the fact that the level of contagious disease had increased and the current staff was not large enough to handle it ("Health Officer not…" 1926: n.pag.). It is clear that in the aftermath of the epidemic, the Board of Health began to focus on disease prevention and overall expansion of public health care services in Hamilton.

Challenges and successes: Problems facing the Hamilton Board of Health

Before, during, and after the influenza epidemic of 1918 the Hamilton Board of Health faced a variety of challenges. Specifically, Dr. Roberts faced a constant struggle against apathetic city council members who were more interested in keeping costs down than protecting public health (Hamilton Public Library 2005).

Roberts stressed the importance and need for a city laboratory, extension of sewer construction and increased staffing (Hamilton Public Library 2005). However, he was continuously confronted with defending Health Department expenditures against public disapproval (Hamilton Public Library 2005).

In 1905 the population of Hamilton was approximately 57,568; by 1914 the population had grown to 101,190 (Gagan PhD thesis 1989: 157). This rapid expansion of Hamilton's population coincided with the appointment of Dr. Roberts (See Figure 16.1).

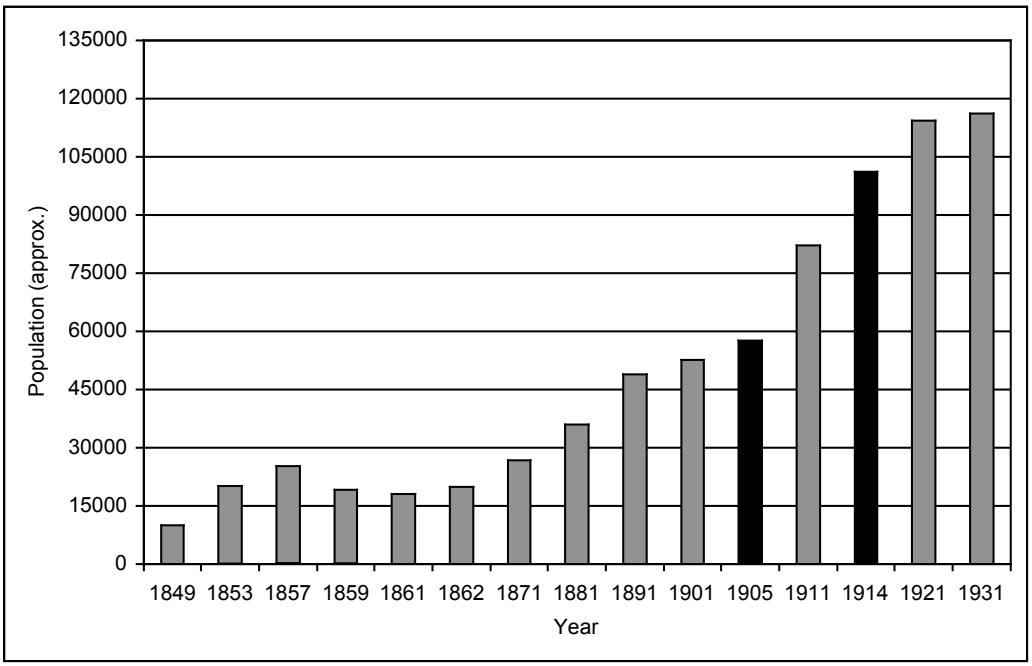


Figure 16.1 - Population Growth in Hamilton, Ontario
("Ontario's Population" 2006)

The result of the expansion was the introduction of numerous social problems, the majority of which were felt by the Health Department (Gagan PhD thesis 1989: 18). Not only did Dr. Roberts have to deal with re-organizing and developing the Board of Health, but he also had to experience the adverse affects of sudden

urban expansion. The dual processes of industrialization and immigration created problems of ill health within the city (Gagan PhD thesis1989: 83). Improvements in sanitation and inspection might have made up for the negative impact of urbanization, but such expansions were almost always rejected by ratepayers and politicians (Gagan PhD thesis1989: 170). Roberts was of the opinion that "no right thinking man or woman, in this enlightened day would place the saving of human life in the balance against dollars and cents," but this view was not shared by city council (Gagan PhD thesis1989: 170). As a result, in the early years of his career as Medical Officer of Health, his plea for an isolation hospital went unanswered (Gagan PhD thesis 1989: 170).

When the 1918 influenza epidemic swept across the city, Dr. Roberts and the Board of Health had to be even more adamant about improving the quality of public health. Roberts had to convince city officials to implement bans on public gatherings, as was discussed in earlier chapters. Schools, theatres, churches, businesses and other public meeting places were closed and people across the city were outraged (McCullough 1918: 1084). Despite such preventative measures, the work of the Board of Health was once again hindered by budgetary restrictions. When the number of influenza deaths began to rise, Dr. Roberts stressed the need for sanitary, sewage, and food inspection improvements. Most of his requests were denied and the Health Department had to try and contain diseases using conventional methods like scavenging and privy vault inspection (Gagan PhD thesis 1989: 170). Considering the respiratory nature of influenza infection, these methods were of little value during the pandemic. Roberts also emphasized the need isolation units and a new health center. He explained that the efforts of the Board of Health and its staff were frequently handicapped due to the need for a properly equipped and up-to-date contagious disease hospital ("Health Officer urges…" 1920: n.pag.). After years of convincing a health center was finally endorsed in 1921, 3 years after influenza took the lives of thousands of people throughout the city ("Health Center…" 1921: n.pag.).

Despite the endless challenges placed in the face of Dr. Roberts and the Hamilton Board of Health, Roberts was still influential in the development and expansion of public health care in Hamilton. His eagerness and dedication allowed him to accept the challenges of health care improvement and introduce a course of public health reform (Gagan PhD thesis 1989: 169). Before, during, and especially after the 1918 influenza epidemic, Roberts did his best to acknowledge and reform most of the problems and solutions facing health care in

Hamilton (Gagan PhD thesis 1989: 169). For more information on Dr. James Roberts refer to Chapter 9 and Chapter 12.

Board of Health and hospital staff: Before and after the epidemic

Examination of the staff allocation before, during, and after 1918 demonstrates how the influenza epidemic was influential in increasing the quality and quantity of health care personnel available in Hamilton. The number of staff in the Board of Health increased after the epidemic, wages were increased, and the mortality rate in Hamilton improved overall as a result of improvements in health care.

In terms of staff allocation, in 1910 the Hamilton Board of Health consisted of only a single Medical Officer of Health and 3 sanitary inspectors ("Get little aid…" 1932: n.pag.). When the epidemic came to Hamilton it became so widespread that the local health authorities had to request aid to deal with the overwhelming level of influenza sufferers in the city (Henley 1990: 1). Elizabeth Bagshaw, a Hamilton nurse at the time, recalled, "no doctors kept office hours and all of their attention was directed towards flu patients," (Walter 1966: 30). The city was forced to rely on help from volunteers. A group of Hamilton women formed a group referred to as Sisters of Service to provide home care to influenza patients (Henley 1990: 1). At the First Methodist Church the Daughters of the Empire set up a diet kitchen to prepare foods for families affected by the disease (Henley 1990: 1). In addition, temporary hospitals were set up and filled beyond capacity. The Jockey Club Hotel was converted into a bed area for the ill, and the Ballinahinch mansion was used as a hospital (Henley 1990: 1). For more information on volunteer services refer to Chapter 10 and for more information on Influenza Hospitals refer to Chapter 9. It is clear that during the time of the influenza epidemic the city had no choice but to use volunteers. This forced City Council and Health Board members to realize that there was a substantial gap in public health services.

A closer look at the Board of Health staff directly before, during and after the 1918 influenza shows an increase in the number of personnel on hand. The Hamilton Board of Health reports show staff numbers for each year (See Figure 16.2)

After 1918, the Board of Health personnel shows a definite increase. The number of laboratory staff, food inspectors, nurses and sanitary inspectors increased. The number of nurses and sanitation inspectors increased most

dramatically, presumably in response to the heavy reliance on these types of volunteers during the epidemic.

After 1918 the Board of Health continued to call for larger health care budget and more personnel. In January of 1921 the Hamilton Herald describes how Dr. Roberts was still calling for more nurses (Henley 1990: 1). He argued that the city of Toronto had 99 nurses alone, while Hamilton had 20 people employed in the entire Board of Health, only 5 of which were nurses (Henley1990: 1). In 1925, Roberts suggested the addition of 3 more inspectors ("Health Officer not…" 1926: n.pag.). He described how the incidence of

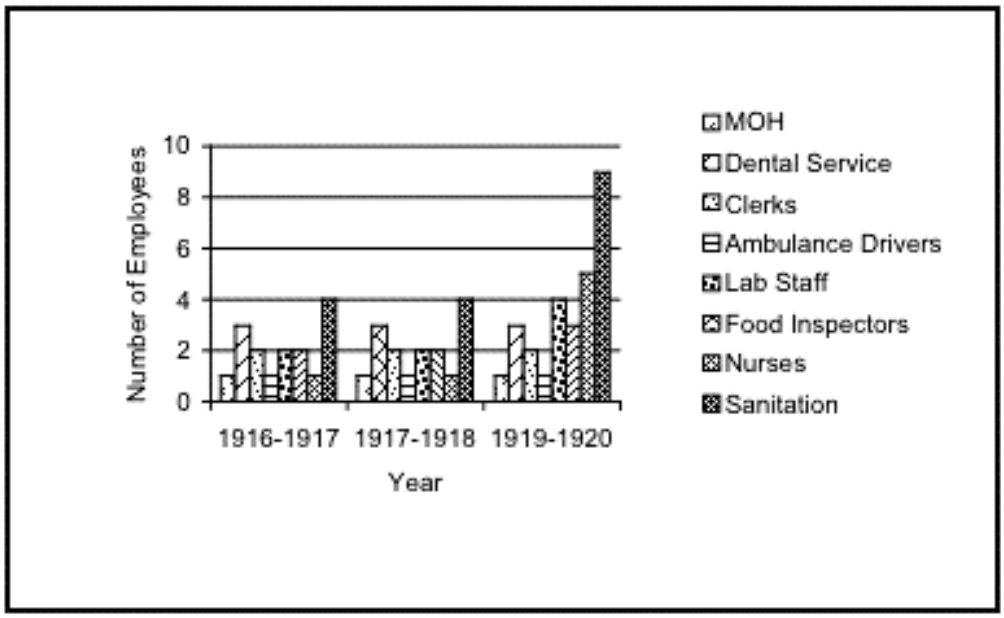


Figure 16.2 - Board of Health Staff 1916 to 1920
(Board of Health Reports 1916-1917, 1917-1918, 1919-1920)

contagious disease had increased and his current staff was not sufficient to handle the situation ("Health Officer not…" 1926: n.pag.). His plea seems to have worked because by the end of 1925, the Department was made up of 9 separate divisions with a total of 75 staff members (Hamilton Public Library 2005).

Furthermore, by 1967 there were 138 full-time and 20 part-time employees on the Hamilton Board of Health (Hamilton Public Library 2005). Along with a variety of other influences (i.e. Improved sanitation, diet, use of vaccinations, more physicians, better housing conditions), this increase in staff may have had a positive affect on the mortality rate in Hamilton. In 1905, before many of the future improvements to public health, 14/1000 Hamiltonians died annually; by 1949, this mortality level had decreased to 9.8/1000 city members ("Prevention is…" 1950: 4).The examination of public health care and Board of Health personal demonstrates the impact the 1918 influenza had on the quality of health care. The epidemic allowed council and BOH members to realize the need for more health care personnel and overall improvement of health care in Hamilton.

Board of Health budget and expenditure: Before and after the epidemic

The amount of money allocated to public health in Hamilton was surely inadequate in the late 1800s and early years of the 1900s. Prior to the introduction of the Board of Health, health care concerns were managed by City Council committees ("Hospital costs…" 1913: n.pag.).

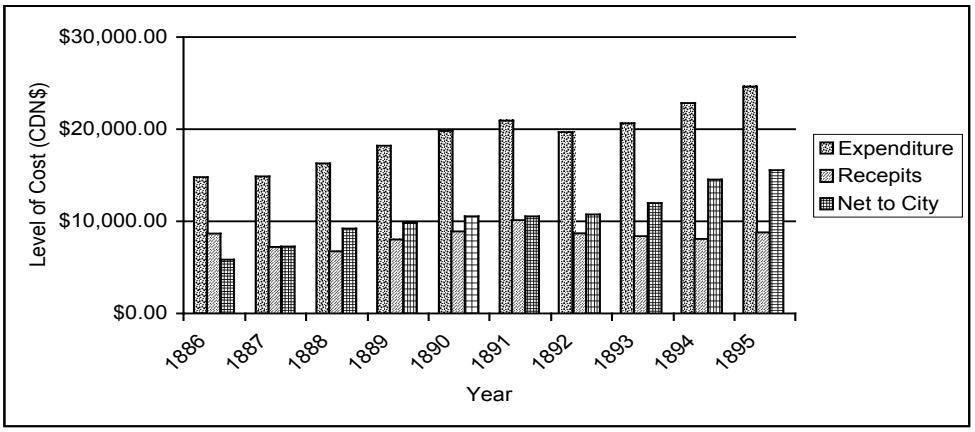


Figure 16.3 - Hospital Costs: Ten Years of City Council Management ("Hospital costs…" 1913: n.pag.)

Figure 16.3 presents hospital costs and revenues from 1886 to 1895 under City Council management. It illustrates the overall low hospital expenditure (never rising over $25,000) and the relatively high cost to the city considering the small budget allocation. After this period of time, health care and hospital concerns were taken over by Board of Health management, headed by Dr. James Roberts ("Hospital costs…" 1913: n.pag.). During the ten years from 1903 to 1912, the expenditure on hospitals extensions and improvements was substantial.

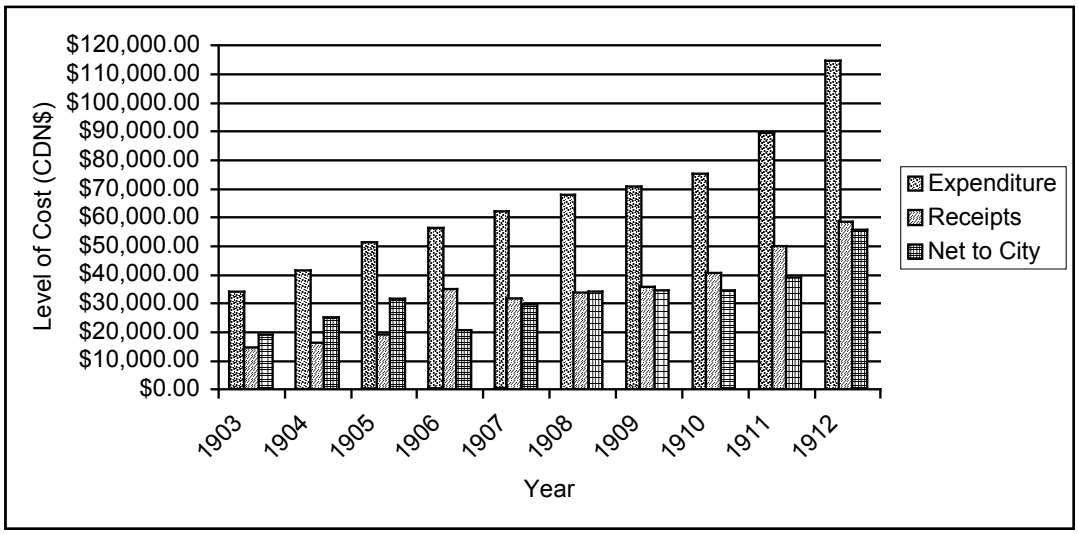


Figure 16.4 - Hospital Costs: Ten Years of B.O.H. Management ("Hospital costs…" 1913: n.pag.)

Figure 16.4 presents hospital costs and revenues from 1903 to 1912 under Board management. It illustrates the expenditure improvements (reaching $114,219.32 in 1912), as well as the positive influence the Board management had on hospital revenue. It is clear that the introduction of Board of Health management in Hamilton resulted in improvements in health care expenditure. In 1905, 1906, 1907, and 1908 there were new hospital additions, and in 1911 and 1912 there were new sites created for hospital work ("Hospital costs…" 1913: n.pag.). Without the influence of the Board of Health many of these achievements would not have been possible.

When influenza came to Hamilton in 1918 the inadequacies of public health care were further exposed; Dr. Roberts and the Board of Health continued to express the need for budget expansion. The Hamilton Herald reported on Dr. Robert's appeals for salary increases. He explained the need for more nurses and stressed the fact that his nurses were underpaid ("Dr. Roberts wants…" 1921: n.pag.). This article compared the present salaries of nurses in Toronto, St. Catherine's and Hamilton. Toronto nurses got $1400 to start, St. Catherine's nurses made $1200, but Hamilton nurses were only paid $1080 each year ("Dr. Roberts wants…" 1921: n.pag.). This number seems absurd especially considering at the time Toronto had 99 nurses and Hamilton had only 5 nurses employed on the Board of Health ("Dr. Roberts wants…" 1921: n.pag.). In 1920 Roberts suggested an increase in the staff of the Health Department due to the heavy workload nurses and doctors had to take on ("Roberts finding…" 1920: 3). He recommended the salary of nurses to be increased by $100 per month but his recommendation was denied ("Roberts finding…" 1920: 3). In 1924 Dr. Roberts appealed for an increase in his own salary. He explained that added circumstances and responsibilities made his current salary of $5000/year inadequate; once again he was denied ("Medical Officer…" 1924: 16). In 1925 Dr. Roberts appealed for an additional $15,769 from the city to expand his work ("Wants…" 1925: n.pag.). Roberts felt that he needed more funding for preventative medicine in the city ("Wants…" 1925: n.pag.). He explained that, "this total, at first sight, may appear rather large, but is insignificant when measured by the incapacity and suffering which could be prevented by this modest addition to our budget," ("Wants…." 1925: n.pag.). These accounts from various newspapers and scrapbooks demonstrate how during and after the 1918 influenza epidemic there was a constant appeal for addition to the Health Department budget in order to further expand and develop services.

In examining monthly reports from the City Council minutes, it is evident the influenza epidemic had a great influence on Hamilton's health care budget. Figure 16.5 shows the monthly expenditure for health care. After many Hamiltonian's were infected with influenza in October, the cost of quarantine and isolation measures swelled throughout November and December of 1918 and January of 1919. This demonstrates the severity of the epidemic in that at the beginning of October the cost for quarantine from infectious disease was only $4.00; by December this cost had risen to over $11,000.

Looking back, in 1905 the approximate cost of public health care was $17,250, 80% of which was spent on garbage collection (Hamilton Public Library 2005). In 1937 this number had increased to $131,231, and by 1967 it had expanded even further to $1,157,425 (Hamilton Public Library 2005). Throughout these years the city officials shifted their focus away from sanitation and towards disease prevention, a trend that is illustrated by the dramatically increasing budget. In this sense the 1918 influenza epidemic acted as an agent of transformation, influencing city officials to increase funding given to the Board of Health, hospitals and other health care institutions.

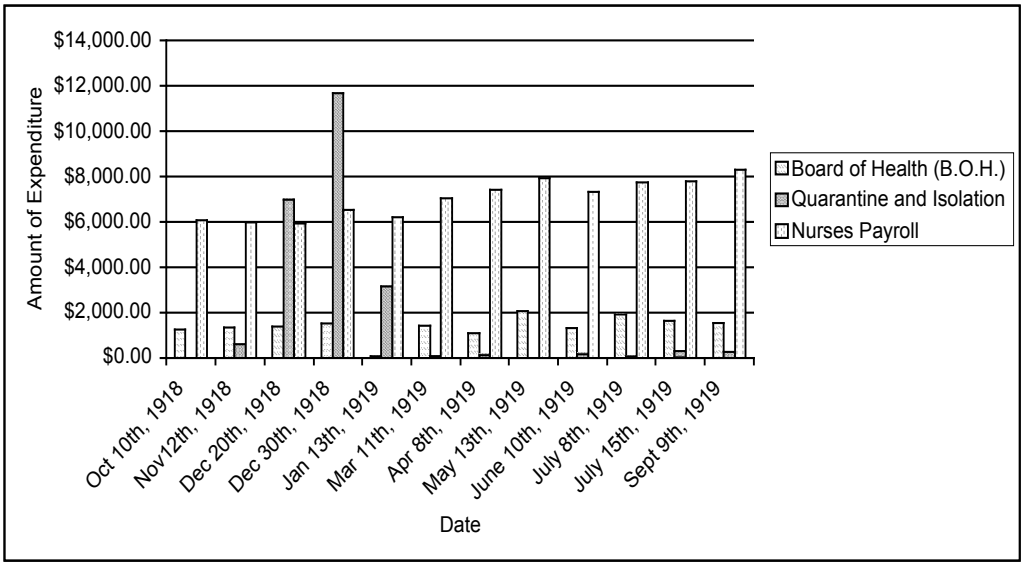


Figure 16.5 - Health Care Spending Data (City Council Minutes 1918-1919)

Conclusions

In examining issues surrounding the focus of the Hamilton Board of Health, problems encountered in achieving health care reform, BOH staff allocation before and after the epidemic, and finally BOH budget before and after the epidemic, it is clear that the experience of the influenza epidemic presents a

model illustration of medical reformation. As the influenza epidemic spread to Hamilton, the insufficient nature of its health care structure became exposed; consequently, this disease acted as an agent of transformation in influencing the reform of health care structure throughout the city.

In general, past, present and future societies have been and will be at the mercy of epidemics in regards to transformation. There is a definite interest in the influence of disease on public health policy and how this disease has been linked with the explanation for societal changes throughout the years (Rosenberg 1992: 308). For centuries, disease has played the role of framing issues surrounding people and social policy (Rosenberg 1992: 316). "A perceived gap between what is and what ought to be, between real and the ideal, has often constituted a powerful rationale for social action," (Rosenberg 1992: 316). This was the case for the 1918 influenza experience in Hamilton in that the actual state of public health care was measured against the ideal; consequently, the Hamilton Board of Health and other health care institutions were radically transformed. Basically, an epidemic can provoke responses in every segment of society, and as the disease unfolds the result is ultimately the transformation and reformation of the society (Rosenberg 1992: 110).

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