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The Spanish Influenza and Canada's Criminal
Justice System: Lessons for Pandemic Planners

Volume 1: The Community

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Mr. Fred Burch was the SIPP 2006-2007 Government of Saskatchewan Senior Fellow.

THE SPANISH INFLUENZA AND CANADA'S CRIMINAL
JUSTICE SYSTEM: LESSONS FOR PANDEMIC PLANNERS

VOLUME 1: THE COMMUNITY

Mr. Fred Burch
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INTRODUCTION

The Spanish Influenza pandemic of 1918-19 has been the subject of multiple epidemiological, historical and anecdotal publications,¹ but few contain specific reference to the impact of the event on the Criminal Justice System (CJS).² Almost a century later, multiple public and private sector agencies, including CJS administrators, are in the process of adding or updating contagious disease components to their existing contingency plans in anticipation of a future pandemic. In doing so, many will consult publicly accessible Canadian government pandemic plans. Although all government pandemic plans refer to the Spanish Influenza³ in background or history sections, and most have a “prepare for the worst” theme, few use information from the Spanish Influenza to predict future impacts, confident that the event was an anomaly.

Historical reviews are dominated by authors from the United States and Great Britain,⁴ however, a number of Canadian scholars have provided insightful accounts on the affect of the Spanish Influenza on different regions in Canada. Similar to studies conducted in other countries, Canadian reviews rarely mention CJS components but still should be of general interest to CJS policy makers. McGinnis (1976), for example, focuses on challenges faced by Calgary’s Medical Health Officer who imposed quarantines, without legal authority, and masks, with legislated

1. A review commissioned by the American Medical Association (Jordan, 1918) published what is still considered to be “the best single book on the 1918 pandemic” (Crosby, 2003, p. 297). Jordan’s work includes a bibliography with over 1000 items published primarily between 1914 and 1926.

2. The CJS consists of four major components: community, police, courts and corrections. Each contains interrelated sub-systems; a change or issue in one area may affect another. Agreement on the components of the CJS is not unanimous. Boydell and Connidis (1995, p. 7), for example, exclude the “community” component suggesting definitional problems become too unwieldy.

3. Various post-Spanish Influenza studies indicate the infection was in other countries well before it was reported in Spain. Explanations for the “Spanish” label often focus on Spain’s neutrality during the Great War. Its uncensored press reports may have created the appearance that it was the country of origin.

4. Phillips and Killingray (2003) include a bibliography containing 600 items sorted by country.

authority. Andrews (1977) describes the opposition faced by Vancouver's Medical Health Officer who attempted to keep schools open; suggests a class distinction in the type of tasks volunteers were assigned; and, touches on the failure of the emergency to overcome the normal antipathy between management and labour. Lux (1989) reviews Saskatchewan's situation in 1918, emphasizing the impact of the pandemic on social reform (labour movement, health and hospital inadequacies, and women's rights). The three studies reveal that most Canadian jurisdictions experienced identical problems and responded in similar ways, all without benefit of a national public health system.⁵

A fourth Canadian scholar, Tomkins (1992), describes problems in Great Britain where, similar to Canada, a national "Ministry of Health" did not exist. There was, however, "a well established and self consciously scientific medical profession and public health establishment" (p. 435). Tomkins argues that in Great Britain it was the dogma of an entrenched scientific medical profession that exacerbated morbidity and mortality rates. Although this may have been a contributing factor in Canada, the fact is that most, if not all, government responses in 1918 were developed after deaths started to occur. Canada, in common with the rest of the world, was simply unprepared.

Between 2000 and 2007, all provincial governments and the Government of Canada, including numerous segments of the CJS, started, completed, or revised plans for a major contagious disease outbreak.⁶ These initiatives may have been sparked by low frequency outbreaks of H5N1 in humans, initially reported in 1997 by the World Health Organization (WHO), but were fuelled by traumatic and disastrous events such as 9-11, Severe Acute Respiratory Syndrome (SARS), and devastating hurricanes in the United States. These incidents resulted in an explosion of interest in Business Continuity Planning (BCP). The growing BCP industry, and

5. The Spanish Influenza is often cited as a major catalyst for the creation of a national health agency. The minutes of the *Dominion Council of Health* (Saskatchewan Archives Board - hereafter referred to as SAB, 1919-1921) suggests, however, that widespread venereal disease amongst returning soldiers consumed the attention of the male dominated council. A national approach was needed.

6. The federal government has been involved in pandemic preparedness since 1983. A first draft of a pandemic contingency plan was developed in 1988 (CPIR, 2004, p. 7).

increased reporting of Avian Influenza since 2003 by WHO and the United States Centres for Disease Control (CDC), mobilized all levels of government and major corporations⁷ to include, or at least consider, the impact of contagious disease in their business continuity plans.

Current publicly accessible Canadian government pandemic plans⁸ are Business Continuity (BCP) and Disaster Recovery (DRP) plans initiated and authored by, and for, public health administrators and professionals. These plans do, however, contain information and guidelines that have general applicability to a range of public and private sectors. A few of these plans do provide specific guidance to CJS administrators, most notably the Canadian Pandemic Influenza Plan (CPIP), which contains an Annex devoted to Corrections (CPIP, 2004, Annex G, pp. 327-331; and the more recent version CPIP, 2006, Annex G, pp.107-112). The Toronto Pandemic Influenza Plan (TPIP, 2006), developed with a substantial police presence (as stakeholders), also appears to have more “police specific” guidelines. Few other Canadian plans mention the courts or corrections, and when “policing” is included, it is usually in reference to expectations and additional duties.⁹

It is the intention of Volume 1 of this report to review the impact of the Spanish Influenza on the community component of the CJS with a focus on Regina, Saskatchewan, and to elaborate on specific issues. The issues (problem areas) were selected following a literature review that included provincial and federal sessional papers (departmental annual reports for police and Corrections) from 1918 to 1921, limited federal and Saskatchewan archives files, historical and current publications related to

7. For example, BMO Nesbitt-Burns (Cooper & Coxe, 2005) and Deutsch Bank have generated discussion documents on contagious disease and investing. The Massachusetts Institute of Technology has held training exercises with leaders of information technology corporations and the *Harvard Business Review* first printed a review of contagious disease Business Continuity Plan basics in their May 2006 issue.

8. A comprehensive list is available at <http://www.safecanada.ca>. Plans reviewed in this report include the Canadian Pandemic Influenza Plan (CPIP, 2004), Canadian Pandemic Influenza Plan for the Health Sector (CPIP, 2006), plans for the provinces of British Columbia (BCPIP, 2005), Alberta (APIP, 2003), Saskatchewan (SPIP, 2006), Manitoba (MPIP, 2005), Nova Scotia (NSPIP, 2007), Ontario (OPIP, 2006, 2007), Prince Edward Island (PEIPIP, 2007), Toronto (TPIP, 2006), and the Calgary Health Region plan (CHRPPIP, 2005).

9. The Calgary Health Region plan (CHRPPIP, 2005, p. 11), unlike most plans, excludes in its assumptions the availability of the RCMP or local police for transportation or security.

contagious disease, and a review of publications between July 1918 and July 1920 in four specific medical journals.¹⁰

For additional context, three newspapers were reviewed: the *Regina Morning Leader (RML)*; the *Manitoba Free Press (MFP)*; and, the *Toronto Globe (Globe)*. The newspaper review was limited to the period between September 1, 1918 and November 30, 1918.¹¹

Based on the literature review, six issues faced by the community and public officials in 1918-19 were common regardless of region. These are discussed in Volume I in relation to existing Canadian pandemic plans. The six issues are communication, the use of volunteers, quarantine and isolation, personal protective equipment, vaccines and antiviral drugs, and liability.

Volume II will review the impact of the Spanish Influenza on the remaining, more traditional, CJS components—courts,¹² police and corrections—and, where applicable, relate the six identified problem areas to these components. Although general in nature, Volume I should assist current CJS administrators and employees in developing an appreciation for the anxiety likely experienced by their 1918 counterparts (and the population in general) as the pandemic approached.

The starting point for Volume I is the City of Regina, located in Saskatchewan, Canada's third most populated province in 1918.¹³

10. The journals reviewed are the *Journal of the American Medical Association (JAMA)*, *British Medical Journal (BMJ)*, *Canadian Medical Association Journal (CMAJ)*, and *The Lancet*. These articles, all with dates of 1918 to 1920, appear in a separate section of the bibliography grouped under the appropriate journal name.

11. The 1918 *MFP* and *RML* newspapers are only available on Micro-fiche; back issues of the *Globe* can be accessed through the *Globe and Mail* electronic database. All newspaper articles appear in a separate section of the bibliography grouped under the appropriate newspaper name.

12. Archival information on the court component was difficult to locate. Although a search of the individual fonds of noteworthy lawyers and judges active in the 1918 era may have born fruit, time restrictions resulted in a focus, in Part Two, on policing and corrections.

13. The June 1, 1916, Census of Prairie Provinces shows Saskatchewan's population as 647,835. The 1921 national census reports 757,510. The 1921 census report presents estimated populations for each year between the national surveys. Saskatchewan's population is estimated at 691,027 on June 1, 1918, and 712,926 in 1919. A figure of 700,000 is a close approximation of Saskatchewan's population in the fall of 1918. The Saskatchewan Bureau of Public Health, (hereafter referred to as SBPH) 1921 annual report however, uses an estimated population of 826,000, almost 69,000 more residents than the official numbers released in 1921 and, probably closer to 120,000 greater than the true figure for Saskatchewan's autumn 1918 population, which means death rates were significantly understated.

I. COMMUNICATION:

REGINA (1918) DIFFUSION AND CONFUSION

In late September 1918, articles in the *Regina Morning Leader* (*RML*) reported on Spanish “Grippe” outbreaks in American and Canadian military camps. Similar stories appeared in most major Canadian newspapers. Reference was made to infection and death in Quebec (military camps) and in the United States in Boston, Philadelphia, New York and Washington. Notice of outbreaks in the states of California, Minnesota and Iowa began to appear at the same time. Headlines were alarming, “New Spanish Grippe Runs Riot in Army” but the contents often calming, “Officers of the provincial health bureau report that they have the epidemic now quite in hand” (*RML*, 1918, September 26, p. 1).

On September 28, 1918, the *Globe* printed an article entitled “Spanish Influenza May Sweep Westward” citing the US Surgeon General who cautioned that citizens could expect a “greater increase in mortality in the next few weeks” (p. 14). Two days later the *Globe* reported the infection was in Toronto, but over a dozen references were made to the mild, ordinary and “not severe” nature of the “flu” (1918, September 30, p. 8).

In the October 1, 1918, *RML*, the Medical Health Officer (MHO) for Saskatchewan advised that the influenza, “which has broken out in Eastern Canada [reaches] its height in two or three days and is followed by a complete and rapid recovery as a rule” (p. 2). Although the source of the MHO’s comments is not acknowledged, five phrases contained in the article are verbatim from an editorial in the *Journal of the American Medical Association* (*JAMA*) published on August 24, 1918. The editorial, entitled “Spanish Influenza,” however, describes an unusual summer outbreak in England and among the allied troops on the continent and points to a “death rate, which in any event thus far has been very low” (p. 660).

On October 2, the *RML*, *MFP* and the *Globe* all reported that Toronto may have three cases, two of pneumonia and one “la Grippe,” but nothing to indicate cause for alarm. The October 3, 1918, *RML* cites 24 deaths in Montreal but, as with previous articles, it was unclear if the cases were entirely from adjacent military camps or if portions were from the civilian population (p. 2). On Saturday October 5, 1918, readers of the *RML* were informed of additional deaths in Montreal (there were now a total of 32)

amidst other reports covering high mortality rates from influenza in American, and, to a lesser extent, Canadian, military camps. These same articles, however, also quoted a Canadian military official who stated he “believed that the worst of the epidemic is over” (p. 5).

Civilian deaths along the United States Atlantic seaboard had been reported in the *RML* since late September 1918. Within the first few days of October 1918, reports of civilian infections south of Saskatchewan (North Dakota and Minnesota) and west (Vancouver and San Francisco) began to appear. News reports of developments from these directions were limited; emphasis in the *RML* and *MFP* was on eastern Canada and there was little to indicate the infection had spread west past Toronto. In Toronto, residents may have been led to believe problems only 400 kilometres away were not that serious. The October 2, 1918, *Globe* noted, “Three deaths occurred today in Montreal” but reports of larger scale influenza deaths such as the report of 32 deaths in Montreal that appeared in the Manitoba and Regina papers of October 3, do not appear in the *Globe* until October 5, 1918 (p. 2). Although Toronto’s public officials may have known of the serious situation in their own city, readers of the *Globe* would not. On October 3, 1918, the MHO for Toronto declared Spanish Influenza had officially reached the city, citing one death and expressing hope that “it may prove ... to be a mild form” (p. 6). Multiple news articles appear in the *Globe* over the next week reporting on deaths in Hamilton, Kitchener, Sherbrook, and elsewhere but little is reported on deaths in Toronto. On October 9, 1918, Toronto’s MHO noted in the *Globe* that there is “not the slightest cause for a panic which would lower the vitality of nervous individuals and cause them to contact the disease more readily” (p. 8).

Selective reporting, and the reporting of cases in newspapers other than the one actually serving the infected area, was not limited to the *Globe*. The *MFP* reported on Saturday October 5 that five different families in Meacham, Saskatchewan, were infected—a story that did not appear in the *RML* or the *Watrous Daily Signal* (the weekly paper that served the Meacham, Saskatchewan, area). The *Watrous Daily Signal* did not mention Spanish Influenza until the October 31, 1918, edition when it reported the death of a railway employee in a neighbouring town.¹⁴

14. The Annual Report of the SBPH published in 1921 covers 1919-1920, however, the section on Spanish Influenza covers the event over all three years 1918 to 1920 and includes

The events of World War I combined with the linear presentation of hard copy news meant that certain items normally occupied the front page. Usually newspaper accounts of the diffusion of the infection were covered in the second sections and followed a general pattern in all three newspapers: 1) the problem is elsewhere; 2) it is either under control or waning in the distant problem location; and 3) we now have our first death(s). In the two weeks after a community acknowledged fatalities, there was typically a flurry of publicized debate in the local press over the efficacy of closing public places and whether or not to quarantine areas, isolate individuals, or begin “placarding” houses and enforcing the use of masks. This pattern was replicated across North America,¹⁵ often concurrently, in areas separated by thousands of kilometres.

The citizens of Regina, relying on their only form of mass communication, had to reconcile daily media reports with the memory of an earlier devastating pandemic (1889-90) and recent claims of significant advances in medical science. The general public may have had little choice but to develop a belief, or hope, that a serious epidemic would be averted by “fate” or diverted by science. If not, there was little that could be done and the population had already been numbed by the daily barrage of reported deaths from the conflict in Europe.

On Monday October 7, 1918, any doubt about Regina’s fate should have been erased with the confirmation of the city’s first Spanish Influenza fatality. The *RML* noted that the deceased had been sick for a week. Public officials debated appropriate responses for the next two weeks. By the end of October 1918 there would be 144 deaths in Regina and an official tally of

detailed listings of Spanish Influenza deaths in each city, town and village. The village of Meacham recorded two fatalities. Of the 331 villages reporting, 239 noted from one to 17 deaths. Three towns reported zero deaths (Alsask, Macklin and Strasbourg). The remaining 73 towns reported deaths ranging from one to 30 with the top three affected towns being Melville (30), Melfort (26) and Biggar (25). Railway employees were amongst the hardest hit occupational group. Estimates of railway workers off sick in eastern Canada ranged from 10,000 to 14,000 (McGinnis, 1977, p. 465).

15. This pattern is based on accounts from Canadian historians McGinnis (1977), Andrews (1976) and (Lux, 1989), and worldwide reviews provided in Crosby (2003) and Barry (2004, 2005).

330 fatalities in the city between October 1918 and March 1920.¹⁶ The SBPH (1921) estimated the population of Regina as 40,250 although, with benefit of hindsight, a figure of 34,000 is likely more accurate.¹⁷ Over a 20-month period, 5018 people in Saskatchewan would die from the infection. The majority (3906) died between October and December 1918, with November being the worst 30-day period (SBPH, 1921, p. 125).¹⁸

Influenza with Complications

The initial dismissive response by a number of officials, and the press, was not necessarily the result of a conscious “conspiracy,” but it could be argued that circumstances conspired to create an atmosphere of resigned complacency. The inability of the scientific community to identify the virus combined with the status of the First World War (October 1918 newspaper accounts suggested victory was weeks away) and anachronous reports in prestigious medical journals suggests Canada’s initial portrayal of the fall outbreak as a low risk event was a pragmatic response. Canadian officials (and government officials worldwide) needed to keep civilians and troops focused on the war effort. Pettigrew (1983, p. 15) quotes a Canadian military official who, in a letter to the assistant director of medical services in Toronto, dated October 2, 1918, cautioned that, “the disease, although extremely contagious, is not a serious one and every effort must be made to control alarm, not only among the troops but among the public and in the press.”

16. All infection and death statistics are generally acknowledged to be minimum figures due to diagnostic difficulties (pneumonia vs. influenza) and the fact that Spanish Influenza was not made a reportable disease until it became established in one or more communities within each province.

17. Canadian Census data from 1911 and 1921 present figures of 30,213 and 34,432 respectively; nonetheless, the SBPH in 1921 appears to have used a population of 40,250 when calculating the mortality rate for Regina. This figure has been derived from the 8.2 per 1000 rate and the number of deaths of 330. It may be based on estimated populations in the Department of Municipal Affairs, *Annual Report 1918-19*, figures that are used for tax assessment purposes. The inflated population results in a smaller mortality rate.

18. Table LVIII in SBPH (1921, p.132) compares death rates per thousand by groupings—“City,” “Towns” and “Villages”—as well as rates compared by specific cities in Saskatchewan. Of the cities, Saskatoon experienced the highest rate (9.5), North Battleford the lowest (5.5), and Regina’s rate was 8.2 deaths per thousand population.

Compounding the apparent confusion was the fact that previous influenza epidemics generally came in waves, usually separated by fairly predictable time periods and normally in the spring or autumn/winter.¹⁹ But the Spanish Influenza did not follow the normal time periods. Outbreaks occurred in the summer of 1918 and concurrently in different countries.

Canadian medical health officials and practitioners in 1918 would have relied on, or referred to, medical journals published by the American, British and Canadian medical associations, and *The Lancet*. Community health data, which often formed the basis for items published in these journals, were subject to collection and interpretation delays likely considered lengthy by today's standards. Further, the actual printing, publication and delivery systems common to the wartime era added weeks, if not months, to the arrival of journals subsequently distributed across Canada. Medical practitioners and officials in North America were reading information in medical journals describing the summer epidemic in Europe unaware that as they were quoting this information a new deadly wave had become entrenched in Europe and was well under way in Canada. These delays played a key role in exacerbating morbidity and mortality rates and may have added to an apparent common belief that various risk reduction responses implemented in 1918 were ineffective. "Closures" and other preventative measures *may* have had limited, or negligible, impact because they were routinely implemented too late, not necessarily because they were inherently ineffective.

Dr. M. Seymour, the Medical Health Officer (MHO) for the Province of Saskatchewan, was the first government medical authority to discuss the Spanish Influenza in the Regina press (Search Train in Attempt to Stop Disease, *RML*, 1918, October 1, p. 11). Dr. M. R. Bow, the MHO for the City of Regina, also commented on the virulence of the disease, but it is difficult to determine through news accounts who was an official spokesperson as other medical professionals were also quoted in the local media. For example, a member of the board of governors of the Regina General Hospital stated the *British Medical Journal (BMJ)* had indicated that "the death rate on the other side was not very high" and "he did not place much credence in the newspaper reports" that had recently suggested the

19. Sir Arthur Newsholme presents an account of previous epidemics (in Great Britain) and pandemics from 1803 to 1918 (Newsholme, 1918, pp. 689-93).

influenza outbreak in Regina was serious (Nurses Reported Sick, *RML*, 1918, October 9, p. 12). This medical professional's opinion appears to be based on a *BMJ* editorial (The Influenza Pandemic, *BMJ*, 1918, July 13, p. 39) that contains statements later repeated in the August 24, 1918, *JAMA* article. Both articles, describing the first (summer 1918) wave in Great Britain, continued to influence Saskatchewan decision making into mid-October.

On October 8, 1918, the *RML* quoted various "medical men" who were "unanimously of the opinion that Spanish Influenza was no different from the old influenza except that it is more epidemic ... [I]t is influenza with complications" (p. 9). Doctors in Regina were of the opinion that "it would be altogether too drastic a step to impede the ... social life of the city by closing down all large institutions and gathering places" (*Ibid.*).

Newspapers were not the only medium to contain reports questioning the virulence of the infection. The October 1918 edition of *The Public Service Monthly: A Periodical Bulletin on Matters of Public Interest in Saskatchewan* commented on the "alarming rapidity" of the spread of the disease in the United States but quotes the same August 24, 1918, *JAMA* editorial: "Usually crisis has occurred after two or three days with rapid and complete recovery" (Saskatchewan Department of Agriculture, 1918, p. 38). Articles in the *BMJ* describing the first wave in Great Britain were published up to the actual start of the second, most deadly, wave in that country. An editorial appearing in the October 19, 1918, volume of the *BMJ* reported, "1600 to 1700 deaths in London" between June 15 and August 3, 1918, but noted that by the end of August 1918 mortality rates had returned to normal levels (*BMJ*, 1918 A). Between July and late September 1918, *The Lancet* also published three articles describing the Spanish influenza as "grippe in a mild form" and "none so far of a grave nature" with affects that "last at most a few days" (Chalmers et. al., 1918, p. 35; The Prevailing Epidemic, *The Lancet*, 1918, p. 51; Hunt, 1918). Sequential coverage in leading medical journals such as *The Lancet* and the *BMJ* did not reflect any sense of transition. The tone of articles went from "a mild nature" to "devastating" within less than three weeks.

After the seriousness of the outbreak in Great Britain became indisputable, multiple letters appeared in *The Lancet* (The Influenza Epidemic, 1918, pp. 642-645) suggesting the British medical community should have predicted the second deadly wave. The Medical Officer of the

Local Government Board in Whitehall, Sir Arthur Newsholme, noted in *The Lancet* that the norm in previous epidemics (and pandemics) was generally six to 12 months between waves, and peaks normally occurred in the winter (Newsholme, 1918). Few British or American authorities anticipated that within four months from the peak of the summer outbreak (a summer outbreak in itself being unusual) a second wave would emerge. The week of October 6 to 12, 1918, (probably when the October 19, 1918, *BMJ* editorial was being written) was the start of England's deadly second wave. Coincidentally, it was the same week that Regina recorded its first Spanish influenza death.

Regina and Saskatchewan's Response Fall 1918

An Order in Council issued by the Province of Saskatchewan on Thursday October 10, 1918, amended *The Public Health Act 1909* (Statutes of Saskatchewan, 1909, c. 8) to include "Epidemic Influenza (Spanish Influenza)" as a notifiable disease. Regulations were approved on October 16 and appeared verbatim in the October 22, 1918, *RML*. The initial amendment and subsequent regulations meant that, in addition to a legal requirement for cases to be reported, isolated and placarded, local MHOs had discretionary power to order closure of places of amusement and entertainment within their jurisdiction. On October 14, 1918, Dr. Bow received telegrams from three MHOs in response to his inquiry on the status of preventative measures in other regions (Ontario, Toronto, and Hamilton). The short responses were mixed: one indicated quarantine was effective, another stated school closure was not considered effective, and a third was non-committal (City Of Regina Archives (CRA), 1918).

On October 17, 1918, Regina's MHO requested, through the media, that all public assemblies cease. It appears, therefore, that the gap between the first confirmed death (October 6, 1918) and the decision to *start* modest preventative measures was approximately ten days.²⁰ The ten day delay between the "first death" and the decision to react may have had a significant impact on morbidity and, hence, mortality rates.

Regina City Council and the city MHO did investigate possible courses

20. Although the October 17, 1918 *RML* article stated that schools were exempt, the Separate School Board trustees chose to shut Regina's three Catholic schools indefinitely.

of action in mid-October, but officially, an Influenza Relief Committee (IRC) was not formed until October 24, 1918 (CRA, 1918 A). During the first meeting an acting chairperson had to be appointed as Dr. Bow became ill with Spanish Influenza. The committee met on October 29 but the acting Chair, Dr. Rose, and committee member Alderman MacKinnon were unable to attend as they too had become ill with Spanish Influenza (CRA, 1918).²¹ The committee did manage to find replacements (medical doctors) and began discussing potential responses to a situation that was out of control well before the first actual meeting.

In addition to problems such as a shortage of nurses and medical doctors (due to overseas needs) and conflicting demands to close places of public gatherings (businesses, places of amusement, schools and churches), the Regina IRC faced other, unexpected issues, such as job action from seconded gravediggers. Unable to keep up with burials via normal channels, the City attempted to re-assign employees from the Parks and Works Department. Employees refused and asked for a wage increase, resulting in a backlog of body storage for a two-day period until the issue was resolved. By Sunday November 3, 1918, the records of the City of Regina Influenza Relief Committee note that there was “one burial every 45 minutes” (CRA, 1918 A). Against this reality, members of the local medical community may have been dismayed to read in the November 1918 issue of the *Canadian Medical Association Journal (CMAJ)* that “it appears from the testimony of reliable medical witnesses that the disease in England is of a relatively benign type” (The Present Epidemic, *CMAJ*, 1918, p. 1028). Unknown to the author of this *CMAJ* editorial, mortality rates from the second wave in England (which began to rise the week of October 6, 1918) reached a peak the week of November 3 to November 9, 1918. The information being relayed in the *CMAJ* was out of date when it went to print and almost “historical” in nature by the time it would have reached Canadian distribution points.

The war effort created an environment where intervention was not always considered to be in the public interest; that is, accurate information may not have been relayed even if a more timely communication system existed. For example, on November 23, 1918, *The Lancet* published a speech

21. All three survived. However, prior to creation of the Influenza Relief Committee, untimely rumours of Dr. Bow's death (from Spanish Influenza) must have been circulating as on October 11, 1918, the *RML* printed an article clarifying that he was in fact alive.

from Sir Arthur Newsholme to the Royal Society of Medicine in which he notes there “were national circumstances in which the major duty is to ‘carry on’ even when risk to health and life is involved” (p. 692). Referring to an intention to “sound the alarm” Sir Newsholme divulged that he had prepared a memorandum for public release but did not distribute it as “the relentless needs of warfare justified incurring the risk of spreading infection, and the associated creation of a more virulent type of disease or of mixed diseases” (Ibid). He continued, noting that, “crowded trains, trams, and buses [are] prolific sources of infection; but the service cannot immediately be increased and meanwhile the vast army of workers must not be impeded by regulations as to overcrowding of vehicles”(Ibid).

Eyler (1997, p. 269) in a comprehensive review of Sir Arthur Newsholme’s contribution to state medicine notes that some have argued the most effective response to the 1918 influenza was from medical personnel and civilians at the local level. A similar situation seemed to exist in Canada where a few public officials, perhaps without ready access to expert, albeit untimely commentary, appeared to favour quicker, more encompassing responses. For example, although Ontario’s provincial MHO in the fall of 1918 was initially opposed to closing institutions, banning large gatherings, and taking other preventative measures, the mayor of Ottawa strongly suggested that inaction would affect attempts to address other issues and “intimated that many people were likely to die unless help reached them immediately.” More bluntly, the mayor, referring to Ontario’s provincial MHO, said “he was satisfied that the doctor was wrong” (Says Closing Schools is not Necessary, *RML*, 1918, October 10). This “media arena” dispute represents a significant problem that may re-emerge during the next pandemic. Such disputes will still occur in media outlets but the Internet, blogs, and group e-mails will provide a new theatre of engagement.

Communication 2007

In 2007 elected officials will rely on those responsible for health-sector based Business Continuity Plans to implement plans designed to reduce morbidity and mortality rates and the concomitant negative impact on the economy. Van Zwanenberg and Millstone (2005), however, caution against public policy determined via a flawed relationship between politicians and

scientific advisors. Discussion on evolving models²² provides background for their thesis that the United Kingdom's disastrous response to bovine spongiform encephalopathy (BSE) was not just a consequence of isolated communication failures. Systemic problems, developed over a ten-year period, resulted in questionable decisions and a "sharp disjunction between the cautious warnings of expert advisors and back-room officials and the confident ministerial reassurances that were articulated for public consumption" (van Zwanenberg & Millstone, 2005, p. 7).

In 1918, the initial "confident ministerial reassurances" for public consumption were, in part, driven by Canadian medical officials' faith in specific authoritative but outdated medical journal articles. At present, the plethora of material available on the Internet combined with the ease of instantaneous mass distribution may result in "diffusion confusion" quite different from what occurred in the fall of 1918. Public trust, recognized in most current pandemic plans as vital for civilian and workforce adherence to government directives, can be swayed if there are any inconsistencies in the information communiqués that are available from a wide variety of sources, official and otherwise. Too much official information was not a problem in 1918, nor was there an overwhelming amount of information from unofficial sources, although at least one newspaper quote from an unidentified Regina General Hospital medical doctor (noted earlier) may have exacerbated public confusion.

As noted in the communication sections of all Canadian government plans, the World Health Organization (WHO) bears primary responsibility for coordinating worldwide surveillance and, in turn, notifying federal government officials if the severity is sufficient to raise alert levels; the federal government would then notify provincial governments. Multiple individuals and interest groups, likely viewing these alerts and announcements almost simultaneously, will provide their readership networks with opinions and interpretations as policy-makers and bureaucrats attempt to develop recommendations and decisions that will balance moral and fiscal concerns. While most publicly accessible Canadian pandemic plans contain

22. A summary of evolving models of the relationship between science and policy-making appears in the introductory chapter of *BSE: Risk, Science and Governance* (van Zwanenberg & Millstone, 2005).

communications guidelines, only the Ontario, Toronto and Nova Scotia plans mention the importance of a system to quell rumours quickly and with sensitivity. Nova Scotia's plan contains as a communications objective the need to "address rumours, inaccuracies, and misconceptions as quickly as possible and prevent stigmatization of affected groups" (NSPIP, 2007, pp. 2-3).²³

Unless those responsible for establishing alert levels and distributing information make unequivocal announcements, the problem in a future pandemic could be too much (conflicting) information, too quickly and from multiple sources. Vague, cautionary announcements are almost a certainty. The Canadian plan cautions that since "multiple jurisdictions will be affected simultaneously, the sharing and exchange of resources may not be possible between jurisdictions," a clear "Declaration of Emergency" is unlikely (CPIP, 2006, p. Annex H3). With the exception of areas under federal jurisdiction (air and seaports for example) the provincial governments will be responsible for communicating information and direction on preventative measures similar to those attempted in 1918 (closures, quarantine or isolation, masks, gloves, etc.); these may be delegated to, or assumed by, regional or municipal authorities. The timing of WHO and Public Health Agency Canada (PHAC) announcements is crucial as it impacts initiation of the next level of preventative measures and subsequently public trust in all future announcements and initiatives.

Scientific understanding²⁴ (or lack thereof) of the 1918 influenza was one of multiple contributory factors in what "went wrong" in Regina and Saskatchewan in the fall of 1918, but ineffective communication compounded the problem. Conflicting reports on the diffusion of the Spanish Influenza and initial reports that it was "influenza with complications" added to the anxiety faced by medical practitioners and civilians, and all but guaranteed a backlash once the morbidity rate began to decline. Currently—autumn 2007—we are in the "Inter-pandemic Phase"

23. A similar message appears in the Canadian Public Health Association (CPHA) report on "Strengthening Communications Capacity in the Non-Governmental Sector for Pandemic Influenza," retrieved July 26, 2007, at http://www.pandemic.cpha.ca/en/docs/Risk_Communication_Guide.pdf.

24. Electron microscopes, which enabled identification of the virus, did not exist until the early 1930s.

but information still needs to be compiled and communicated as accurately as possible as inconsistencies and errors may affect public trust when alert levels change.

A few minor errors and information problems exist in Canadian pandemic publications that should be addressed in subsequent plan revisions. Alberta's pandemic plan, for example, states that the Spanish Influenza killed eight million people in Spain. This would have represented over one-third of Spain's entire population of 21 million in 1918. The reference to eight million deaths in Spain also appears in a Stanford University e-publication (Billings, 1997). A number of sources²⁵ have suggested that up to one-third of Spain's population may have been infected; the conversion of "infected" to "killed" appears to be the result of human error.

The Nova Scotia plan (NSPIP, 2007, p. 1-3), states that from 500 to 1500 Canadians die each year from influenza. Manitoba's plan (MPIP, 2006, p. 12) refers to 4000 deaths annually, while Skowronski (2004, p. 6) indicates 7000 Canadians die annually from Influenza. The Canadian plan notes 4000 die annually from "normal" influenza but during severe influenza A epidemics between 6000 and 8000 could die (CPIP, 2006, p. Background-7). These diverse figures will be cited in other publications and may be subject to interpretations that could inadvertently impact implementation of preventative measures. The National Union for Public and Government Employees, for example, notes in its own Canadian Pandemic Planning document "ordinary flu is responsible for the deaths of 8000 Canadians annually" (NUPGE, 2006, September, p. 4). Statistics are often easier to recall than lengthy narratives and any official awareness or education campaigns that are prefaced by a review of past data may lose credibility if the figures conflict with those recalled by the target audience.

The United Kingdom's Trades Union Congress (TUC) has advised its members that the use of gloves or facemasks in most workplaces (during a

25. An editorial in the July 13, 1918, *BMJ* appears to be the origin of the claim: "eight million killed in Spain." Pettigrew (1983, p. 5) and Crosby (2003, p. 26) refer to the 8,000,000 figure, the former stating "eight million Spaniards fell victim" and the latter noting "[a]n estimated eight million Spaniards caught flu in May and June 1918." The author of the *BMJ* editorial actually states, "It appears to have been particularly widespread in Spain during the month of May; that there were eight million cases of the disease in that country, as was alleged by the French press at the time, is a statement requiring perhaps a grain of salt for deglutition, but certainly pointing to a very high incidence" (p. 39).

pandemic) is not supported “as they are not generally recommended by health professionals” except in health care settings (TUC, 2007, p. 6). Making reference to the 8000 annual flu deaths and citing little support for certain types of personal protective equipment from health professionals are valid quotes from Canadian (and British) pandemic plans, but neither is completely accurate. As noted in the most recent version of the Canadian plan, “the effectiveness of these types of measures for the control of disease within a population has not been systematically evaluated” (CPIP, 2006, p. Preparedness-17). More recent studies, however, suggest that public health measures, such as the use of masks, may have been effective in 1918 (CIDRAP, 2007 A; Markel et al., 2007).

A third potential information problem that exists in all Canadian pandemic plans is the reporting of how much lead time Canadians will have once human to human transmission is confirmed. Canadian plans predict a pandemic infection will be present in Canada “within three months after it emerges in another part of the world, but it could be much sooner because of the volume and speed of global air travel” (e.g. CPIP, 2006, p. Background-2; SPIP, 2006, p. 4). The plan for British Columbia notes that, based on expert opinion, there will be approximately one to six months after a pandemic strain is identified globally before outbreaks will occur in that province (BCPIP, 2005, p. 3).²⁶ These time periods are usually based on the Hong Kong and Asian pandemics although the 2006 Canadian plan does note the 1918 Spanish Influenza was considered (CPIP, 2006, p. Background-3). The plans that rely on the experience of the two more recent outbreaks (neither event had much impact in Canada)²⁷ are, probably unintentionally, using a form of political reassurance that should be reconsidered. In many work environments, particularly in the CJS, problems in the “here and now” take priority. Preparations for something that may occur in “one to six” months, three months after an outbreak somewhere else, may be delayed or given less effort in favour of the need to address more

26. As noted in an on-line August 31, 2006, revision to British Columbia’s plan at <http://www.health.gov.bc.ca/pandemic/101.html>, accessed on-line December 5, 2006.

27. The Saskatchewan Department of Public Health Annual Reports for 1958 and 1969 each contain a paragraph mentioning each respective pandemic.

pressing day-to-day matters that continue to be the major time consumer.²⁸ In combination this concern and the minor data problems noted earlier may impact the effectiveness of public health announcements.

Multiple theories exist to assist communication experts in designing effective public protection health communiqués. Theories such as Protection Motivation Theory (PMT) dictate that attention to specific variables can improve the chances of the public actually recalling and acting on public service announcements. According to Cismaru (2006), “PMT, which combines some of the features of the Health Belief Model, the Theory of Reasoned Action and the Self-efficacy Theory, is the most influential theory of health behaviour” (p. 2). Cismaru provides an overview of other communication theories but in concentrating on PMT concludes (in part) that:

In sum, when the perceived threat is low, the audience does not worry about efficacy and so they do not respond. When perceived threat is high and perceived efficacy is low(er), the result is avoidance, denial or anger towards the source or issue (fear control). Finally, when perceived threat is high and perceived efficacy is high, the recommended behaviour is adopted (danger control). Consequently, the goal of a public policy announcement is to create a high threat, high efficacy message. (p. 8)

Cismaru (2006) is quick to point out that increasing the persuasiveness of a public service message, however, is not a simple matter. If Canadians perceive the threat to be low, believe there is little they can do (low efficacy), and consider individual efforts to be personally costly, then the success of any public awareness/education campaign is likely to be low. Add to this a lack of trust, conflicting messages from multiple sources, and competing interests (e.g. global warming, terrorism) and the resigned complacency attitude that appeared to be evident just prior to the October 1918 outbreak may be repeated.

28. Anecdotally, provincial government staff who had just participated in Pandemic Awareness sessions (2005-2006) informed the author that “we” will have two to three months to get ready once a pandemic starts. There was little recall of the “may be much sooner” qualifier.

A July 2007 poll in the United States by Associated Press–Ipsos Public Affairs (CIDRAP, 2007) indicated that concern over, and knowledge of, a pending pandemic has declined amongst the general population in the United States (from 2006 to 2007). Similar to 1918, there are other pressing issues in 2007 and if there appears to be any question about the certainty of a pandemic, or if there is conflicting information, an attitude similar to 1918 may develop: a pandemic will be averted by fate or diverted by science.

In 1918, once the mortality rates subsided, criticism of governments' lack of communication and ineffective action to prevent or reduce the spread of infection was common in a number of regions.²⁹ In fact, with a few exceptions, positive accounts of any response to the Spanish Influenza are difficult to find. In Canada, and to a lesser extent in the United States, one such exception was the mobilization of volunteers.

29. McGinnis (1976) and Andrews (1977) each note that as long as the risk of death from the Spanish Influenza was rising, the community placed considerable faith in direction from medical health officials. When the problem began to subside, officials were occasionally vilified and advice often ignored; Lux (1989) reports a similar pattern in Saskatchewan.

II. VOLUNTEERS

The debilitating physical effect of the Spanish Influenza combined with a shortage of trained medical personnel, the absence of antibiotics to combat secondary infections (primarily bacterial pneumonia), and what was described as an unusually cold and early winter in Saskatchewan, resulted in large numbers of civilians, particularly in rural areas, being trapped in their homes too ill to stoke the fires, prepare basic meals, or access medical care. Both rural and urban communities needed volunteers.

The Saskatchewan Bureau of Public Health (1921) inventory of “Death by Occupation” reports that the two largest occupational categories were “farmers” with 1448 deaths, or 49% of all male deaths, and “housewives” with 1170 deaths, or 57% of all female deaths. Female morbidity and mortality rates may have correlated with the perceived role of women during that era. It is suggested, however, that large numbers of females in Canada died not solely because they were considered the principal caregivers in their households, but because they were compelled by overwhelming community and self-imposed pressure to risk their lives on a level equal to that of the “boys over there.” In all provinces, the shortage of nurses and doctors resulted in a constant plea for (female) volunteers. Ontario’s MHO placed an “urgent appeal” in the *Globe* for 500 young women to register for volunteer training (*Globe*, 1918, October 21, p. 2). Males were not viewed as having a suitable temperament for nursing related duties, although in Saskatchewan (and Alberta) males with vehicles were utilized to transport volunteers and supplies (Lux, 1989, p. 65).

With the schools closed,³⁰ teachers, predominantly female, answered the call and entered the ranks of volunteers across Canada “by the thousands” (Pettigrew, 1983, pp. 94-95). The ability to muster large numbers of volunteers in Canada may be related, in part, to Victory Bond marketing campaigns. For almost four years Canadian Victory Bond drives utilized guilt tactics to encourage purchases. Vivid newsprint images combined with

30. Initially, school closures were not required in Regina (or Saskatchewan) but on October 22, 1918, the *RML* (p. 9) reported that the situation had changed and Dr. Bow requested all public schools (in Regina) to close. The separate school boards had decided on their own to close six days earlier.

messages such as “They will go over the top—will you?”³¹ added to the need for those on the home front to believe they were making a sufficient sacrifice.

By October 1918, Canada had been at war for four years; the United States officially entered on April 6, 1917, with American troops arriving in mass numbers in Europe in the spring and summer of 1918. Communities in the United States were subject to Liberty Bond drives as of April 24, 1917. Canada’s Victory Bond drives began in 1915. It was not until the summer and fall of 1918 that the American public started to become acquainted with war fatality death rolls as a daily news occurrence.

In Philadelphia, the US city most devastated by the Spanish Influenza, leadership from local government and medical officials was highly suspect well before the Spanish Influenza arrived. Barry (2004, pp. 321-350) describes how attempts to rally adequate numbers of volunteers were unsuccessful.³² Lack of trust in government officials and an apparent lack of socio-psychological incentives may have resulted in a lower volunteer turnout in some US regions, which in turn likely affected recovery rates.

In Winnipeg, Alison Craig, a suffragette and regular contributor to an “Over the tea cups”³³ column in the *Manitoba Free Press*, submitted an article that uses military imagery to stir readers into volunteering. The message is specifically directed at women:

Now is the time for everyone to show the kind of stuff they are made of...After all this walking with danger is only what our men ‘over there’ have been up against for four years and right well have they played the game...Let us whitewash our yellow streak if we have one and resolve on neither over-estimation or under-estimation of the situation, prepare to take our place in the line

31. For example, a Victory Bond advertisement in the *RML*, 1918, October 14, p. 5, depicts hand-drawings of wounded soldiers in battle accompanied by phrases such as “as we watch from afar” and “may we be able to say, that the little we at home could do, we have done?”

32. Crosby (2003, pp. 79-87) also speaks to a lack of faith in Philadelphia’s local government but presents a different interpretation suggesting that volunteers did in fact make a difference in that city.

33. Ms. Craig’s columns were entitled “Over the tea cups,” a phrase similar to “Pink Teas” generated by Canada’s most famous suffragettes (see http://www.famous5.org/frames/frame_education_about.htm) and covered contemporary issues from a feminist perspective.

that fights the germ as well as our men have faced and are facing the peril of the German. (Craig, 1918, November 2, p. 10)

The mayor of Ottawa appealed to the women of that city noting that there were families suffering in isolation: “We know where they are but we have nobody to send. Knitting socks for soldiers is very useful work but we are now asking the women of Ottawa to get in the trenches themselves” (Asking Women to enter the Trenches, *Globe*, 1918, October 15, p. 2). The Victory Bond messages and the direct requests from political leaders equated the risks of volunteering to a task as dangerous as that faced by soldiers, as in fact it was. High morbidity rates combined with a significant shortage of doctors and nurses due to service overseas created the need for a volunteer “army” capable of providing basic nursing care. Volunteers in Canada have generally been credited with keeping the mortality rate from being higher than it was; the disease and secondary infections left unknown numbers unable to fend for themselves and therefore they were more likely to succumb without attendance to basic needs.

Volunteers: Age, Sex and Mortality

The Spanish Influenza mortality rate for those in the 20–39 age group compared to all other age groups was substantially greater than during other pandemics.³⁴ As a percentage of all deaths males appeared to suffer higher mortality than females but, particularly in western Canada, males significantly outnumbered females largely due to pre-war immigration. Within specific age groups it is suspected that female death *rates* should have been higher than males as females were more exposed to confirmed cases due to the care-giving role of women in 1918. Plus, volunteers were primarily female and most probably in the 20-39 high risk age group.

In the *Globe*, a full page of fine print Spanish Influenza home-care instructions made it clear that females were being sought as volunteers (To Young Lady Volunteers, 1918, October 16, p. 9). Further support for the contention that volunteering may have increased female fatalities is the high

34. See for example Crosby (2003, p. 21) and Barry (2004, pp. 238-39). The second highest was the next age group, 30-39. Saskatchewan statistics mirrored this pattern.

percentage of female deaths in the “Housewife” category and a notation by the SBPH that approximately 80% of all deaths from Spanish Influenza in Saskatchewan occurred in private residences (1921, p. 128). For every death at home hundreds recovered and in all cases the occupational group “Housewife,” and/or volunteers were likely at the forefront. Although it was not possible to develop an empirical link³⁵ between volunteering and female death rates, a review of 1916 and 1921 Census data combined with SBPH Spanish Influenza mortality statistics confirms that young adults between the ages of 20-39 in Saskatchewan died in greater numbers than the young or the elderly.

Of the 5018 recorded Spanish Influenza deaths in Saskatchewan 59.1% (2970) were male, while 40.7% (2047) were female.³⁶ Barry (2004, p. 239) indicates that, as a subgroup of the entire (US) population, fatalities were highest amongst pregnant females. Echeverri (2003, p. 186) produces evidence that in the US Spanish Influenza death rates for females under 15 and over 60 were greater than for males in those age groups; males between 15 and 60 apparently suffered significantly higher death rates than females. The relationship, if any, between gender and mortality during the Spanish Influenza, however, is considered by others to be an enigma (Phillips & Killingray, 2003, p. 8).

The 1921 *Census of Canada* contains estimates of Saskatchewan’s population between official census years. A nationwide census occurred every ten years, but a special census of the Prairie Provinces occurred in the intervening five-year periods. On June 1, 1916, the population of Saskatchewan was 647,835. Total population estimates for 1918 and 1919 noted in the 1921 census were 691,027 and 712,926 respectively (age and other variables were not estimated). In 1921, Saskatchewan’s official population was 757,510. Immigration slowed considerably after the outbreak of World War I (Department of Trade and Commerce, 1916, p. 2) therefore the 1916 statistics are considered to be a closer approximation of

35. This hypothesis could not be confirmed or refuted as mortality statistics by age and by sex (in any Canadian province) do not appear to be readily available. This comment is based on a review of the 1918 to 1920 Annual Reports of the health departments for all provinces; reviewed at the Manitoba Legislative Library in August 2006.

36. Saskatchewan Bureau of Public Health (1921), Table LII “Deaths from Epidemic Influenza by Sex.” The table contains a typographical error showing 5970 male deaths rather than 2970.

Saskatchewan's population in the fall of 1918 than the Census Canada estimate or the actual 1921 figure collected during the Canadian Census of that year.

In 1916, 56.16% of Saskatchewan's total population was male and 43.84% female. In the 20-39 age group,³⁷ the percentages were approximately 59.18% male and 39.82% female (Department of Trade and Commerce, 1916, Table V), which was extremely close to the Spanish Influenza gender mortality ratio for the province. At first glance this suggests the disease was age and gender neutral. If this was the largest subgroup, one would expect more fatalities.

But this was not Saskatchewan's largest age group. As illustrated in Column H of Table 1, the "19 and under" group was the largest subgroup comprising 45.42% of the provincial population compared to 37% in the 20-39 group.

Table 1 Spanish Influenza (SI) Deaths (1918/1920) with Sex and Age Population Figures (1916)

(A) Age Group	(B) Number of Reported SI Deaths 1918/20	(C) Percent of All SI Deaths	(D) Popn. 1916 Male	(E) Popn. 1916 Female	(F) Percent Female (E/G)	(G) Total Popn. 1916	(H) Age Group As % of Total Popn.
0-19	1516	30.30%	150,235	143,992	48.94%	294,227	45.42%
20-39	2894	57.80%	142,554	94,315	39.82%	236,869	37.00%
40-59	455	9.1%	57,123	36,410	38.93%	93,533	14.44%
60-79	108	2.1%	12,791	8,618	40.25%	21,409	3.30%
80 +	19	.3%	584	481	45.16%	1065	.16%
Unknown	26		500	232		732	
Total	5018		363,787	284,048	43.84%	647,835	
			56.15%	43.85%			

Source: Column B & C from, Saskatchewan Bureau of Public Health, (1921); Columns D to G from Department of Trade and Commerce, 1916. Census of Prairie Provinces, Table 6.

Table 1 shows that 37% of the population, those in the 20-39 age group,

37. The group 20-39 is being used in this report rather than the 20-40 category often cited in the literature as Canadian and Saskatchewan data are usually in five or ten year blocks ending at "39" or beginning with "40," including the SBPH 1921 death statistics.

accounted for almost 58% of the fatalities; Saskatchewan followed a common worldwide “age attack” pattern. Without a breakdown of age by sex, however, it is impossible to determine if males or females were more, or less, at risk in different age groups. The hypothesis that a large number of women died because they were the principle caregivers and/or volunteers remains speculative, but unless we believe males will play a more active role as volunteers in a future pandemic (going into the homes of incapacitated friends, families and neighbours, or strangers), it is not a contention to be ignored—women will likely be more at risk.

Current publicly accessible³⁸ municipal, provincial and federal plans each refer to the importance of “volunteers,” but with varying degrees of emphasis and detail. The Toronto plan (TPIP, 2006) and the Canadian plans (CPIP, 2004, 2006) each contain substantial information and guidance related to the anticipated need for volunteers. Authors of the Toronto plan advise they will post additional material on the topic on the Toronto Public Health website “at a later date” (although the Volunteer Management Plan noted at pages 70-74 already provides an excellent outline). The Canadian plan also contains guidelines and advice (CPIP, 2004, Annex J) that could save other jurisdictions from allocating excess resources to “re-inventing the wheel.”

Toronto has placed significant emphasis on volunteer planning due in part to their experience with SARS (TPIP, 2006, p. 70).³⁹ Although all current plans discuss the need for volunteers in health care facilities, or other sectors, the impact of creating a volunteer “army,” requires more attention. Toronto has identified, for example, the need to provide screening and security for volunteers, which could have a significant impact on police agencies.

38. Hereafter all references to pandemic plans mean those general plans developed by each jurisdiction and made available to the public through websites. Each plan usually refers to various tasks that need to be, or are being, developed or finalized. Each of the plans note they are “works in progress,” therefore, issues and concerns raised in this report may already have been considered and/or may have been acted upon.

39. A major revision to the Toronto Pandemic Influenza Plan was released in October 2007. Although released too recently to be reviewed for this report a brief scan indicates that it contains the most practical information of any Canadian plans to date (as did the earlier versions).

Alberta's plan (APIP, 2003) acknowledges volunteers may be needed for tasks not directly related to the provision of health services and indicates that "added staff in key service areas" will be called upon from a pre-determined list "of former and retired personnel and suitable volunteers" (p. 6). Saskatchewan's plan (SPIP, 2006) notes, "It may be necessary to call up former health care workers and volunteers during peak periods of illness" (p. 13). The Manitoba pandemic plan (MPIP, 2006 A, p. 17) refers to expected shortages of key personnel and advises readers to plan with their neighbours and community to ensure there is someone to call. The business component of the MPIP also recognizes a potential need for volunteers in other sectors besides health, noting, "Some businesses may be asked to take part in local pandemic response by providing volunteers, facilities or other goods or services" (MPIP, 2006 B, p. 11).

The Canadian plan (CPIP, 2006, p. Annex J-27) notes that, "depending on the type of work they will be doing during the pandemic, it may be appropriate to recommend that volunteers receive the same immunizations that are recommended for health care workers (e.g., hepatitis B vaccine)." This refers to immunizations in the inter-pandemic phase but does suggest that, "depending on the type of work," it would include vaccines and antivirals once they have been developed after the pandemic occurs. This could optimize volunteer turnout and is a logical and necessary step. However, if "type of work" is restricted to volunteers working in a health care setting, it will open the door for debate over the immunization of volunteers not directly involved with health care.

As all government pandemic plans have been prepared from a health care perspective it is understandable that when volunteers are discussed, recruitment often focuses on those with some form of medical or health background. Training of volunteers in most plans is equally health care focused and guidelines for patient home care tend to assume a health or basic medical background. If the next pandemic does develop into a worst-case scenario on par with 1918, there is currently very little in place, training or guidelines, for non-medical volunteers.⁴⁰ These are the people who will be

40. Annex J, pages 24-26 of the 2006 Canadian plan provides a list of basic skills that should be considered for volunteers working in direct patient care. The Canadian plan also recommends that health "authorities and existing volunteer agencies, may establish programs to 'train the trainer.'"

entering the homes of neighbours, friends, family (or strangers) to provide assistance, and it would not be surprising to find that women, once again, play a dominant role.

More often than not volunteers in 1918 would have entered the homes of those who were unofficially isolated, residents who were immobilized by the debilitating affects of the infection. In other cases, the isolation may have been official (signs placed on doors by medical doctors, for example). In 1918, the word “isolation” occasionally appears to have been used interchangeably with the word “quarantine.” The apparent lack of clear definitions may have created confusion and, as noted in the next section, to some extent this confusion exists today.

III. QUARANTINE AND ISOLATION

The personal papers of the Honourable W. Martin, Premier of Saskatchewan in 1918, contain multiple references to the Spanish Influenza, including letters of complaint ranging from challenges to the legal authority to close schools to attacks on the competency of the province's MHO (SAB, Martin Papers). For example, in a letter to Weyburn's City Barrister, Premier Martin defended the province's MHO who had refused to support the quarantine of communities and opted for "isolation" of infected individuals. The letter makes specific reference to the distinction between the words "isolation" and "quarantine" apparently defined in *The Public Health Act*⁴¹ and also notes that medical experts from the US eastern seaboard (and Toronto) supported "isolation" as the best "medical science" approach (SAB, Martin Papers, pp. 36428-29). Of the cities, towns and villages that imposed "quarantine," through innocent misinterpretation, or defiance, the issue was particularly intense in Weyburn where the response to Premier Martin's letter was a demand for Dr. Seymour's resignation (Ibid., p. 36441).

The words "isolation" and "quarantine" appear in the October 10, 1918, Saskatchewan Orders in Council (OC) (printed in *The Saskatchewan Gazette*, Vol. XIV, No. 20, October 31, 1918) as well as in the October 16 Executive Council approved regulations. The regulations specifically required the board of health in all cities, towns and villages to ensure the disease was reported to the MHO and empowered local boards of health to close places of amusement and/or entertainment. The sub-headline in an October 17, 1918 *RML* article reads, "Dr. Bow, M.H.O. Issues Request to Cease Public Assemblies." In the accompanying article, the journalist writes, "Regina is to be a closed city from midnight last night" (p. 7). In addition to places of amusement and entertainment, Dr. Bow requested that, "all public assemblies and public meetings, including churches and Sunday schools be closed" (Ibid). There was nothing that specifically indicated cities,

41. Neither Saskatchewan's original *Public Health Act* (Statutes of Saskatchewan, 1909, c.8, s.1), nor any amendments passed up to the end of 1918 contain definitions for "isolation" or "quarantine." Definitions similar to those in Premier Martin's November 8, 1918, letter do appear, however, as additions in *An Act to amend and consolidate the Law relating to Public Health*, (Assented to February 5, 1919).

towns or villages may, or should, be “quarantined” but the inclusion of the word in the OC and media interpretation may have led rural and urban administrators to view the OC as authority to do so.

In 1918, in Saskatchewan, the definition of the word “isolation,” according to the Premier’s office, was “the keeping of the patient or patients in a room set apart for his, her, or their treatment during the period of the disease” (SAB, Martin Papers, p. 36435). “Quarantine” was defined as “the isolation of a house or district.” Premier Martin indicated that the provincial Bureau of Health had the authority to quarantine a portion of the province but at that time it was not considered “a proper course to pursue.”

A definition of “quarantine” or “isolation” does not appear in current Saskatchewan health legislation or regulations, although *The Public Health Act, 1994* does refer to the authority to require a person to “remain in isolation from other persons” (*The Public Health Act, 1994*, c. P-37.1, s.38 (2) [d]). At present, the words “quarantine” and “isolation” appear in most pandemic plans but are often used as a phrase separated by “or,” which suggests a distinction. The distinction may be understood by members of the medical community but not necessarily by other groups. Implementing either concept may have significant impact on individuals and communities. Toronto’s plan, for example, notes that,

If interventions such as quarantine or isolation are used during a pandemic emergency, they can pose an unusual burden on members of society and social distancing for disease containment such as school closures or limiting large public gatherings. Consideration must also be given to how best to address individuals unwilling or unable to be effectively quarantined or isolated. This would include those in homeless shelters, rooming houses, school residences and correctional facilities (TPIP, 2006, p. 14).

The British Columbia and Calgary pandemic plans define both terms using dictionary definitions as a baseline.⁴² Quarantine is defined in the BC

42. The Concise Oxford Dictionary of Current English [(1995). In Della Thompson (Ed.), 9th ed. Oxford: Clarendon Press] defines “quarantine” in reference to the isolation of those who may have “been exposed and might spread an infectious or contagious disease” (p. 1150). “Isolation” is “1. the state of being isolated or separated; 2. (attrib.) designating a hospital, ward, etc. for patients with contagious or infectious diseases” (p. 722).

plan as, “the limitation of freedom of movement of a susceptible person or domestic animal, suspected of being, or known to have been exposed to a communicable disease, for a period of time equal to the longest usual incubation period of that disease from the last date of exposure” (BCPIP, 2005, p. 43). Isolation is defined as, “the separation, for the period of communicability of the disease, of an infected person or animal from others in a place and under conditions to prevent the conveyance of the infectious agent to those others” (BCPIP, 2005, p. 38).

Although not specifically defined in Toronto’s plan, narratives in the report clarify the meaning: “Quarantine of well individuals who have been exposed to a confirmed case of influenza is a community-based disease control measure that may be considered in order to slow transmission in the community” (TPIP, 2006, p. 105). Quarantine is not defined in the Canadian plan but narratives generally fit the definition adopted by British Columbia, Calgary and Toronto: the limitation of freedom of those who appear healthy but may have been, or are known to have been, exposed. Practitioners in non-health care settings will need to define the actual process of isolating or quarantining individuals well in advance of a pandemic (or other contagious outbreak) and will need to use consistent definitions.

A report authored by the Pandemic Influenza Working Group at the University of Toronto Joint Centre for Bioethics specifically wrestles with the ethical dilemmas decision makers may face when a serious pandemic emerges. One of four identified key issues is “Restricting liberty in the interests of public health measures such as quarantine” (p. 12). The Pandemic Influenza Working Group (2005) recommends a basis for ethical decision making and provides specific examples stating that when quarantine (or isolation) is imposed, governments

should ensure that people have adequate food supplies and are able to carry out essential functions. Their jobs should be protected, and they should not suffer an undue financial burden. Volunteer organizations will have a vital role to play, but since they are voluntary, they do not have the same ethical obligations as governments. (p. 13)

Basically, who will shop, pay bills, and provide financial support in lieu of lost income?

Current texts and journals⁴³ as well as commentaries during and after the 1918-19 pandemic note the problems in attempting to ascribe an accurate diagnosis that would result in the legitimate isolation of *infected* cases. Although it was written more than 88 years ago, an article by Whitelaw (1919), MHO for Edmonton at the time of the Spanish Influenza, provides a reasonable summary of the dilemma:

Hundreds of cases, whether a physician was in attendance or not, were of so doubtful or mild a nature as to be regarded as common colds, and as a result, no quarantine or placard could be affixed. The difficulty in establishing an accurate diagnosis in many of the milder cases was the stumbling-block in the way of carrying out quarantine measures efficiently. (p. 1071)

Wetmore (1919) also refers to the seemingly unsolvable problem of “too many light, unrecognized cases—carriers of the disease (the so-called contact cases) to say nothing of the probability of healthy carriers—whose actions of course could not possibly be controlled”(p. 1075). Noting that vaccination would be the best option for combating a future influenza outbreak, Heagerty (1919) describes the failure of standard preventative measure and cites “[i]solation of the sick, segregation and quarantine of contacts” as examples of ineffective strategies (p. 227). While Heagerty’s description of quarantine and isolation is similar to definitions in current plans, Whitelaw (1919) makes repeated reference to the quarantine of those who are showing symptoms or are actually ill. He suggests that attempting to control healthy (potential) carriers is impracticable and, in 1918, it probably was.

Therefore, it appears that in 1918-19, common usage did not clearly distinguish between “quarantine” and “isolation,” and definitions that may have existed were often spatial (a home or region) not symptom based (asymptomatic—but known to have been exposed to the infection, or symptomatic—likely infected). “Quarantine” invoked in Alberta in 1918

43. In *Is the Quarantine Act Relevant?* Schabas (2007) refers to a medical dictionary definition of quarantine as “restrictions placed on the entrance to and the exit from the place or premises where a case of communicable disease exists” but then notes that in practice quarantine describes actions involving healthy people suspected of having contact with infected cases. He then explains why, in his opinion, certain quarantine efforts, for example, at airports or to close borders, are unlikely to succeed.

was “isolation” as defined in current pandemic plans since it referred to those already showing symptoms. Whitelaw (1919) noted that the quarantine in Alberta was “modified,” not rigid, allowing asymptomatic occupants to leave the residence or area. He suggested a rigid quarantine would not be effective as physicians may hesitate to report and placard a household, and potentially affect a family’s income. Whitelaw also speculated that under rigid quarantine a few unscrupulous medical doctors may choose to profit by hesitating in reporting and placarding suspicious cases (1919, p. 1073). As an alternative to potentially penalizing conscientious citizens who called physicians knowing their family income could be affected, Whitelaw points to a strategy that appeared to work in Chicago. Notification and “isolation” was required but placarding only occurred if occupants were found to be delinquent. The act of placarding was particularly repugnant to many who had been raised on the belief that quarantine houses were those where hygiene was a routine problem.

Wetmore (1919), Haegherly (1919) and Whitelaw (1919) argue against quarantine and isolation (using their respective definitions) based on their belief that such strategies were ineffective. Whitelaw, however, opens his discussion by noting that the first cases in Edmonton began to appear “about October 11, 1918” (pp. 1070-71). Four days later the disease was made “reportable” by special regulations of the Provincial Health Board. Seven days later the City of Edmonton ordered school closures and cessation of public gatherings and 14 days later legislated mandatory wearing of masks outside of a private residence. None of the measures were implemented with any chance of significant success. Further, in 1918, quarantine (using the current-day definition: asymptomatic) of large numbers of civilians without the advantage of computerized databases and current communication systems probably was next to impossible.

The Ontario plan notes that, “Tracing and quarantining contacts is labour and resource intensive. Quarantine would primarily be used during alert phases of a pandemic when there are few cases and adequate health unit resources to follow cases and their contacts” (OPIP, 2006, p. 4). Although an anticipated lack of resources is often the reason for non-support of a quarantine program, it is possible current public health officials lack confidence in the effectiveness of such public health measures due to apparent past failures. Scepticism may relate to the apparent futility of “blocking” towns and cities, or literature that refers to remote communities

and islands becoming infected. Svoda (2004, p. 7), however, describes a process utilized in Toronto during the SARS outbreak that appears to have been relatively successful. Mirroring the Chicago 1918 “model,” quarantine (of suspected or known exposure cases) in the community was considered voluntary. Of the 23,103 contacts identified as requiring quarantine in Toronto during the 2003 SARS outbreak 27 (0.1%) were issued a legally enforceable quarantine order owing to initial non-compliance.

The logistics of creating and tracking a 20,000 plus database no doubt appears daunting. Barry (2004, p.314) suggests that “ruthless intervention and quarantines might have interrupted its (Spanish Influenza) progress and created occasional firebreaks” also suggesting that actions to curtail travel in and out of Toronto during the 2003 SARS outbreak significantly helped to contain the disease. Whether or not it was truly considered worthwhile could best be answered by the appropriate health officials from Toronto.

Barry (2004, pp. 374-375) points out that reduced morbidity during the second Spanish Influenza wave in San Francisco (with quarantine) may have correlated with higher mortality rates in that city during the third wave⁴⁴ (without quarantine). In other words, those who survived *with* quarantine did so without building immunity and may have been more likely to succumb during a subsequent wave experienced *without* quarantine. Recognizing that other factors may have been just as causal Barry downplays San Francisco’s relative success during the second (with quarantine) wave, concluding that “success” was likely due to serendipity (p. 375). He notes, however, that since the virus appeared to lose virulence⁴⁵ over time, delaying its arrival or slowing its spread, theoretically, could have reduced overall mortality rates in 1918.

A discussion on the semantics of quarantine and isolation may at first glance appear somewhat trivial, but planning and communication efforts, in any process, demands shared understanding and common usage of basic terms. Attempts to attribute success or failure to past quarantine or isolation

44. To clarify, deaths in San Francisco during the third wave were considerably lower than in the second wave but were high compared to other regions that also experienced a third wave AND did not have any form of quarantine in effect during the previous wave.

45. Diamond (1997) in Chapter 11 of *Guns, Germs and Steel* suggests germs evolve intelligently by learning from “mistakes” such as killing too quickly, which reduces their longevity.

efforts may be misleading if the authors of the past are referring to a different definition or process than that commonly understood today. Today, if messages from health officials to police, court and correctional administrators suggest consideration of quarantine plans for employees, or offenders, prior clarification may be needed.

It is not just the potential workload increase caused by quarantine or isolation requirements that will be a concern for CJS agencies (for example, the police may need to assist with enforcement or surveillance); invoking such measures within their own work units could be problematic. In Corrections (or policing), clarification of the two approaches may assist in gaining acceptance by employees (and inmates) when attempting to operationalize different procedures for those who have, or may have, had “contact” compared to those who are actually showing symptoms.

IV. VACCINES AND ANTI-VIRALS

To address the incidence and severity of the Spanish Influenza, a conference held at the British War Office on October 14, 1918, recommended use of a “bacterial” vaccine, specifically one containing *Bacillus influenzae*, pneumococcus and streptococcus (Collier, 1918, pp. 565-66). Conference participants acknowledged, however, there was considerable doubt that Pfeiffer’s *Bacillus*⁴⁶ was responsible for the current pandemic and that “the existence of some as yet undiscovered virus must be regarded as possible” (Ibid., p. 565). In subsequent letters to the editor, it is evident that the decision to recommend a bacterial vaccine received support from a segment of the medical community but puzzled others. Correspondence in the November 9, 1918, issue of *The Lancet* noted,

Bricks cannot be made without straw, and dogmatic advice on the prevention and cure of a disease cannot be given in the absence of accurate data as to its causation. In these circumstances would it not have been wiser if the committee had made a more frank confession of our present state of ignorance on the subject under discussion, had indicated the lines along which observation and research could most profitably go ... and lay less claim to the specificity for the remedy offered? (Horder, 1918, p. 642)

Subsequent articles and editorials debate the dosage and timing of the proposed vaccine and question the ability to produce sufficient quantities prior to the natural end of the current wave. Many of the 1918 articles discuss concerns still shared by current public health officials.

Current Canadian pandemic plans do not include specific reference to a pandemic “scare” that occurred in the mid-1970s. Pyle (1986), in reviewing the Swine Flu outbreak of 1976-77 describes how diffusion patterns in the United States in the spring of 1976 led a segment of the scientific community to predict a serious pandemic (pp. 143-167). This prompted President Ford to sign an appropriations bill providing for a national

46. Dr. Jeffrey Pfeiffer isolated a bacteria believed to be responsible for the 1890 influenza outbreak, hence the name *Pfeiffer’s bacillus*.

inoculation program (as originally recommended by the US Centres for Disease Control (CDC) in March 1976). Due to a lack of consensus on the safety of the product, “manufacturers of swine flu vaccine received notice from casualty insurers that their liability coverage had been cancelled, and the production of swine flu vaccine was brought to a halt” (Pyle, 1986, p. 145). After numerous public opinion studies were conducted, the vaccination program commenced in October 1976, which was followed immediately by further controversy after 33 people died from the inoculation.⁴⁷ In February 1977, the program was discontinued. Pyle summarizes, below, the dilemma faced by scientists and government officials in 1976. These issues are still valid 30 years later:

Shortcomings included the contagious spread of negative attitudes in already vulnerable locations, lack of support by some state health authorities, insufficient program promotion in many central city areas, the unexpected appearance of rare but serious side effects and the understandable lack of ability to predict which viral type would actually appear. (Ibid, p. 166)

In 2007, in response to the Avian flu, governments in developed nations are attempting to stockpile anti-viral medication while at the same time acknowledging that an effective vaccine is dependent on identification of the as yet unknown mutated virus that will eventually result in sustainable human to human transmission. At present, oseltamivir (Tamiflu®) and zanamivir (Relenza®) are the favoured drugs for treatment of avian influenza A and B. The literature notes that these drugs should be used only when symptoms have occurred within the previous 48 hours and ideally should be initiated within 12 hours of the start of illness. Oseltamivir, but not zanamivir, is also licensed for prophylaxis (in most countries) when used within 48 hours of exposure and when influenza is circulating in the community. Two other drugs, rimantadine and amantadine, are usually mentioned along with oseltamivir and zanamivir but apparently are only

47. The 2006 Canadian plan notes that a system needs to be in place “to cut back the response if a novel virus fails to spread as occurred in 1976 and 1977” (CPIP, 2006, p. Annex F-6) and indicates that a Vaccine Working Group will develop a plan for monitoring adverse effects of any new pandemic vaccine. Tracking and liability are two of the major concerns (CPIP, 2006, p. Preparedness-7).

effective against Influenza A (Kamps et al., 2006, pp. 30-32). Whether or not these, or other anti-virals, will be effective in the future are issues for medical scientists; the subsequent issues related to stockpiling and distribution, however, will need to engage a broad range of academics and practitioners.⁴⁸

Guidelines that state “within 48 hours” and ideally “within 12 hours” are intended to optimize the benefit of the drug but also should assist in reducing unnecessary depletion of supplies. These guidelines will likely precipitate a surge in the number of individuals claiming, or believing, they started showing signs within those time periods. Depending on distribution sites and associated procedures, this may impact security requirements, and will affect staffing levels in all public and private sectors as any sign of an Influenza Like Illness (ILI) may generate intense emotional requests for available products.⁴⁹

In 1918, most government responses were “after the fact.” Efforts initially focused on attempting to contain the spread through rudimentary precautions and increased personal hygiene. When it appeared nothing seemed to be working, attention switched to searching for a cure (e.g. the October 14, 1918, Conference). But, lacking the technological means to isolate the cause health officials and community leaders, within a short time period, had little choice but to return to prevention as the focus: limit public gatherings, attempt quarantine, pay attention to social distancing, and consider the use of masks and gowns. In 2007, governments are attempting to be proactive by developing plans and predicting what vaccines and anti-virals will likely be of use to “buy time” until an actual cure can be produced. Public health officials have attempted to maintain a balanced approach between prevention and finding a cure, while at the same time working within a BCP framework in preparation for a worst-case scenario. With a segment of the medical and scientific community attempting to address

48. Priority list guidelines have been proposed and appear in most plans. The word “proposed” is used as all plans note priorities may change if “at risk” groups change when a new disease starts to emerge. (See for example SPIR, 2006, p. 10; BCPIP, 2005, p. 74; CPIP, 2004, p. 106.)

49. In December 2005, it was reported that treatment may be effective well after the “within 48 hours” timeframe. Treatment as late as eight days after onset of symptoms, if there is evidence of ongoing viral replication, may be appropriate (WHO, 2005; de Jong, 2005).

anti-virals, and believing that current pandemic plans have progressed sufficiently to provide the necessary structure to cope with a “worst-case” (but in fact, a moderate-case) scenario, officials are now returning to basic questions about preventative measures.

Reports of resistance to specific drugs (de Jong et al., 2005; McKimm-Breschkin et al., 2007; Woznicki, 2005; PHAC, 2006 A) may have been causal in re-opening research on preventative measures. Although currently in the Inter-Pandemic Phase, the prevention-cure-prevention cycle, which was evident during the Pandemic Phase in 1918, appears to be repeating. Canada, the United States and other western countries have spent millions of dollars stockpiling anti-viral drugs that may provide a grace period pending production of an actual vaccine, but both countries are now at least considering a return to “preventative” research. On October 13, 2006, the US CDC announced \$5.2 million for studies on topics including hand hygiene, face masks and “social distancing” (CIDRAP, 2006). In Canada, at least one jurisdiction (Ontario) is studying the efficacy of personal protective devices. These studies will assist public health officials in making evidence-based decisions on the purchase of preventative items (such as masks, gloves, and gowns, and products for disinfection) and with the subsequent development of communication strategies (such as public service announcements).

V. PERSONAL PROTECTIVE EQUIPMENT

In Great Britain, advances in preventative and curative medicine in the last two decades of the 19th century have lowered the collective death rate attributed to diseases such as cholera, typhus, smallpox, measles, and others by one-third (Eyler, 1997, p. xi). Initiatives that made success possible placed less responsibility on the individual and more emphasis on community sanitation (sewers, drinking water, etc.). Previously, a common belief was that if you were afflicted, you must be to blame due to poor hygiene. Concomitantly, the emergence of a new specialist vocabulary and advances in equipment and methodology elevated the status of the medical profession but further distanced medicine from the general public. Tomkins (1992) argues that the resulting desire by the medical community to protect the new image of medicine and science partially contributed to Great Britain's ineffective response to the Spanish Influenza.

Environmental and sanitation approaches, generally the accepted realm of Britain's MHOs,⁵⁰ would, it was believed, conquer the disease. Related in part to vanity, Britain's public health officials deprecated the virulence of the disease. Unable to grasp the immediacy of the crisis it quickly became too late for preventative efforts and they refocused on the curative approach, long considered the domain of Britain's private, panel, and Poor Law physicians (Tomkins, 1992; Eyler, 1997).

Without the ability to isolate the cause of disease⁵¹ effective vaccines were impossible to create, but this did not stop the creation of "remedies." Established medical journals published authoritative articles recommending various preventatives, and newspapers in England and across North America ran multiple advertisements claiming preventative and curative properties in a range of "new" and already available products (Pettigrew, 1983; Lux, 1997). Remedies were not limited to items to ingest (aspirin, quinine,

50. In Great Britain, public health officials were labelled Medical Officers of Health; therefore, MOH is used in British publications. For expediency, the Canadian acronym MHO is used in this report.

51. McGinnes (1977, p. 457) notes that microscopes powerful enough to identify the causative organism were not available until 1933. A British research team (Smith, Laidlaw and Andrews) isolated the influenza virus in 1933 (CDC, 2007, p. 235).

camphor, alcohol, turpentine, etc.) or inhale (Vick's Vapor Rub, Menth-Alba, various nasal sprays), but also included (in newspaper advertisements) products such as pianos, which were claimed to be therapeutic thereby assisting a body's immune system in repelling the disease.

General medical practitioners may have believed that their newly elevated profession would inevitably conquer the disease but this belief had to be reconciled with the high morbidity and mortality rates they were witnessing in their communities. In desperation, medical practitioners began prescribing the products noted above (but probably not many pianos). When these also proved to be ineffective, public health officials again started to switch focus, imploring the public to bolster individual defences and placing responsibility back on the individual (Tomkins, 1993, pp. 438-440).

During the onset of the Spanish Influenza in Saskatchewan and across Canada, civilians as well as medical professionals may have believed "science would find a cure." In 2007, a large percentage of both segments probably hold to this same belief. Unlike 1918, however, public health officials worldwide are in fact preparing for a major contagious disease outbreak, and strategies incorporate both preventative and curative approaches.

Approaches contained in Canadian pandemic plans complement the World Health Organizations (WHO) outline of three prophylaxis strategies (exposure prophylaxis, vaccination, and prophylactic use of antiviral drugs) and one curative defence (antiviral drugs). WHO cautions, however, that due to incubation and contagion periods the exposure prophylaxis is considered "virtually impossible during an ongoing epidemic or pandemic" (Kamps et al., 2006, pp. 29-30). Exposure prophylaxis strategies may involve quarantine and isolation, but also include personal protective equipment, such as masks, gloves and gowns, and basic hygiene (specifically, hand washing and sneezing/coughing etiquette).

Masks

Canadian pandemic plans contain similar information and phrases when referring to masks. For example, each current plan clarifies that "mask" refers to surgical masks not special masks or respirators. In general, the plans suggest that masks are of limited use except in specific environments. The BCPIP notes,

There is a lack of evidence that the use of masks has prevented the transmission of influenza during previous pandemics. Masks may be useful in the early phase in the acute care hospital during face-to-face contact with coughing individuals, especially when immunization and antivirals are not yet available. The use of masks is not practical or helpful when transmission has entered the community. However, masks should be worn by health care workers for other known or suspected respiratory communicable diseases. (2005, p. 164)

The BC plan continues with specific guidelines for the use of certain types of masks by limited groups under specific scenarios:

Masks should be worn by HCWs [Health Care Workers] as outlined in routine practices when splashes or sprays of blood, body fluids, secretions or excretions to the mucous membranes of the mouth are possible or as described under contact droplet precautions. A particulate respirator (N95 mask) is required for organisms spread by the airborne route, e.g. TB, measles, chickenpox, and during aerosolizing procedures with patients suspected or known to have organisms spread by droplet transmission. (Ibid.)

The above guidelines are similar to those issued after the peak Spanish Influenza period had expired. A special committee at the December 9-12, 1918, general meeting of the American Public Health Association reported on multiple facets of the present epidemic noting that, “masks were advised for nurses and other hospital attendants and should be compulsory for those whose work compels them to bring their faces close to the faces of those who have the disease” (Saskatchewan Department of Agriculture, 1918, p. 73).

Although comments on the effectiveness of masks for current usage by non-medical personnel as well as the reported effectiveness of masks during previous twentieth-century pandemics are usually negative, reference to scientific studies of mask efficacy is rare. A common theme in 1918, and in current literature, is that masks were (are) uncomfortable, awkward and may be counter-productive if not changed frequently. Their use requires guidelines and modest training to maximize effectiveness. Since the SARS outbreak the need for eye protection has been added to the debate over

masks; the mucous membranes of the eyes are an area of concern: “Protection of the entire face, including the eyes is especially important, given that it has been suggested that infection occurs through this route” (Lange, 2004, p. 445). Protecting the eyes was discussed almost 90 years ago in 1918 medical journals (Hill, 1918, p. 1765) although this prevention method was not reported during that era as extensively as standard mouth and nose coverage.

If employers, including public health administrators, were to adopt masks as a more readily available piece of Personal Protective Equipment (PPE), the devices may not be worn consistently due to comfort and other issues noted above. To increase the chance that masks are actually worn when suggested or required, one of the first hurdles is to ensure employees are confident that the product they are being provided with is, and is perceived to be, effective, and the products are distributed in time. Perhaps any type of mask will be ineffective once contagion is entrenched in a community, but in 1918 masks were destined to be ineffective given the products used and the timing of distribution.

On October 25, 1918, as the pandemic was reaching its peak, Alberta legislated the mandatory wearing of masks for all citizens. When the death rate subsided an amendment was issued on November 23 making masks optional. Whitelaw (1919) suggests that had the masks been made mandatory before the fact rather than after the epidemic became entrenched, “it would probably have been acclaimed as the chief factor in bringing about the rapid subsidence of the epidemic” (pp. 1070-71). However, as infections and death began to increase, despite alleged rigid enforcement, “public confidence in it as a prevention soon gave place to ridicule” (Ibid, p. 1071).

Although Saskatchewan did not attempt to legislate “mandatory masks,” on November 1, 1918, the Lieutenant Governor approved regulations which provided direction for transportation and burial of bodies and also specified that for those involved in these duties, “Masks are to be four ply cheesecloth or other similar material and to be burned immediately after use” (The Saskatchewan Gazette, Vol. XIV. No. 21, November 15, 1918). These, and most other preventative guidelines, were too late to have any impact on the fall/early winter wave and given the filtering type of material available in 1918, probably would have made little difference.

Studies on the efficacy of gauze face masks appeared in medical journals as early as October 12, 1918 (see Haller, 1918; Doust, 1918). The articles

outlined detailed descriptions of experiments with various types and layers of gauze (butter and cheese cloth) in an effort to establish guidelines for protection from a variety of exposures and distances. However, editorials in subsequent issues supplied contradictory opinions; there did not appear to be conclusive evidence that masks were effective or ineffective in specific institutions (Influenza, Report of a Special Committee, *JAMA*, 1918, pp. 2070-74). The masks described in 1918 appear to be similar to what current pandemic plans refer to as “surgical masks”—minimal protection is implied.

Although current plans refer to a range of “specialty masks” and “respirators” and explain the various types, the terminology is not likely well understood by the public and could easily become a source of dispute. It is suggested that the general public would equate the term “respirator” with a device more complex than a simple concave shaped filtering material held over the mouth and nose with elastic straps. The N95⁵² respirator is recommended by a number of Canadian health organizations for specific circumstances and required when organisms spread by the airborne route are involved (BCPIP, 2005, p. 164). The Canadian plan, in the 2004 edition, refers to the lack of evidence that masks prevent transmission. The 2006 CPIP notes that the section on “mode of transmission” is pending review, but endorses certain masks under certain scenarios:

The contribution of airborne transmission to the spread of influenza virus is controversial. The Infection Control Guidelines Steering Committee of the Public Health Agency of Canada therefore recommends that, in addition to hand hygiene, the appropriate personal protective equipment to be worn while caring for patients with influenza is a mask (good quality surgical type), eye protection, gloves and gown. (Annex F-1)

52. Although the shape of the N95 respirator resembles an ordinary dust face mask, the “95” rated material means it is at least 95% efficient in stopping particles 0.3 microns in size or greater. Three letters signify the material’s susceptibility to degradation from oil based air particles, a concern in various factories and industries. The “N” means no protection from oil, “R” means resistant, while “P” means “oil proof.” Green-McKenzie (2006) describes two “respirator types”: air-purifying and atmosphere-supplying. N95 “masks” are in the air purifying group and subject to testing by NIOSH, the American based National Institute for Occupational Safety and Health.

Not all Canadian pandemic plans endorse the use of N95. Ontario is waiting for a Ministry of Health and Long-Term Care official position on personal protective equipment including masks.⁵³ That Ministry did, however, send 15,000 emergency infection control kits to health care providers not specifically attached to hospitals. Each kit contained a limited quantity of gloves, gowns, etc., as well as 500 ear-loop procedure masks. Depending on the quality of these masks (and the other items), Ontario's distribution of the Emergency Infection Control Kits may address the concerns reported by one medical practitioner quoted in the *Medical Post*: “[D]on't expect health-care workers to man the front lines when they aren't given proper protection”(2006, p. 11). Similarly, commenting on a July 2007 review of face masks by the CDC, the Director of the University of Minnesota's Centre for Infectious Disease Research and Policy agrees with the recommendations in general, but cautions:

Don't be confused by this report and the subsequent news conference regarding the critical role respiratory protection can play in protecting your workforce during a pandemic. If you don't have these devices for your employees at the beginning of an outbreak, good luck. The supply will never come close to meeting the demand once a pandemic begins. Keep in mind that the availability of these devices for your workers may be the only incentive they have to risk commuting to work and spending time there. (CIDRAP, 2007 A).

This sentiment may also be echoed by a wide range of employees and managers in private and public sectors, including those in the CJS who may have to work during a contagious disease crisis.

Hand Hygiene

Central to any discussion on preventative measures are issues related to personal hygiene and contamination. The prison environment, with hard non-porous surfaces throughout inmate living areas, presents an ideal

53. As noted on page xiv of the September 2006 “Ontario Health Plan for an Influenza Pandemic.”

environment for transmission, but so too does the shared employee office environment necessary in a 24-hour operation. Transmission “through fomites and contaminated objects such as computer keyboards, telephones, door handles and light switches” may be particularly problematic for Correctional workers, especially in Canada where in “conditions of low humidity and cold temperature, such as the Canadian winter, influenza may persist outside the body for hours” (Smith, 2005, p. 1).

All Canadian plans emphasize support for basic personal hygiene measures developed more than a century ago, which, according to WHO,

are still the cornerstones of prophylaxis. Physicians should encourage regular hand washing among family members of patients. In general, people should be discouraged to touch their eyes, nose or mouth (and) minimise the impact of sneezes and coughs by all possible means. (Kamps et al., 2006, pp. 29-30)

Similar advice appeared in the 1918 medical journals and, occasionally, with evidence of obvious frustration:

How much better it would be for all of us, and how fatal to the spread of influenza ... if we could all go back to our childhood, and learn once more with the thoroughness engendered by the fear, of say, an instant smacking never to cough or sneeze without first covering both mouth and nose with a handkerchief! But this is to ask too much! (The Influenza Pandemic, *BMJ*, 1918 July 13, p. 39)

Although published after the pandemic period, a *CMAJ* editorial (October 1920, p. 964) entitled “Soaps and External Antisepsis” concluded that soaps claiming to have “healing or “antiseptic” qualities (advertised during the period of the Spanish Flu) were no more effective than ordinary toilet soaps. This message has been resurrected and is being repeated today.

Sanitation improvements in the decades prior to the Spanish Influenza were credited with playing a significant role in disease reduction, but until 1918 a few basic flawed practices remained. Common drinking cups, for example, were still present at public drinking fountains and vertical fountains (water flowing straight up and then back down onto the flow pipe) were in use at various locations in Canada. The former was already

prohibited in Saskatchewan legislation⁵⁴ (but apparently ignored), and the latter (vertical flow) appears to have been overlooked as a possible contributor to disease transmission in other jurisdictions. For example, Andrews (1977) describes alterations ordered by Vancouver's MHO to public drinking fountains in 1918; the water flow was made to arc rather than shoot vertically (p. 29). In Toronto in the fall of 1918 that city's MHO ordered removal of all common drinking cups from the fountains in city hall (Sunshine Aid to Combat Flu, *Globe*, 1918, October 10, p. 6). Vertical flow water fountains were still a standard feature in many public buildings across Canada in 1918, including in health facilities that also housed criminal offenders, such as the Battlefords Provincial Hospital.⁵⁵

The use of common drinking cups and water (plus saliva) flowing back onto the spout are hygienic weaknesses that would not likely be tolerated in 2007. In a number of private and public sector buildings⁵⁶ this hygiene issue is being addressed and has been expanded to include various hands-free devices installed in public washroom facilities, such as touch-free faucets, hand soap and paper towel dispensers, and properly placed waste receptacles. It is possible that the revulsion experienced by the thought of sharing a drinking cup at a public fountain may be the same emotion experienced by future generations as they look back at our current use of public and shared washroom taps and dispensers that are still wet from previous users.

"Touch-free" light switches (sensors) appear to be in more public washrooms than touch-free plumbing, but, in addition to the significant cost differences (touch-free plumbing can be expensive), lights that automatically shut off can be sold as an energy and cost saving measure. Installation of hands-free plumbing is not discussed in any Canadian

54. Section 10 of *An Act to Amend the Public Health Act*, R.S.S. (1913) c. 7, banned common drinking cups in public places, required railways to provide individual paper cups, and prohibited towels for common use.

55. An SAB North Battlefords Photo circa 1918 shows a vertical flow fountain in a patient common area.

56. Current examples of locations with a full array of hygienic devices include: the second floor public washroom in Regina's Cornwall centre, which includes hands-free door access; facilities at the Regina Airport; public washroom facilities in the new wing of Saskatchewan's Government House (except that door plates must be used); and the new RCMP Museum is to incorporate "hands-free" concepts as much as possible (not just in public washrooms).

pandemic plans. However, in a report on infection control in doctors' offices, the College of Physicians and Surgeons of Ontario (2004, p. 13), suggests that if an area is being renovated, touch-free plumbing should be considered.

Decisions on personal protective equipment, selection and distribution of anti-virals and vaccines, and efforts to increase specific personal hygiene behaviours made prior to an outbreak will not only affect the safety of key health care workers, and employees in general, but may impact the scope and depth of litigation once the outbreak subsides.

VI. LIABILITY

In 1918, decisions that were made as the death rate was *climbing* generally received full community support. As the death rate began to drop, groups affected by government decisions became critical and attempted to recoup a portion of financial losses through legal channels. Lawyers representing litigants of the amusement and entertainment sectors wrote to the City of Regina,

The order closing these places was made not in the interest of these proprietors, but in the interests of the general public, and any loss occasioned thereby should, as a matter of justice and fair play, be born by the City whose citizens have benefited by reason of that order...It is therefore asked that the actual out-of-pocket expenses of these proprietors for such matters as rental for the period in which their places have been closed, lights, water, salaries actually paid, license fees, and any other outlay coming under the head of actual disbursements, should be paid by the City. (CRA, 1918 A)

In response, the City of Regina stated there is “no authority in The City Act which would give the City Council power ... to either grant a sum of money ... or refund ... a portion of the licensing fees” (Letter from Allen, Gordon and Gordon, CRA, 1918). The City of Winnipeg initially interpreted an order by the Winnipeg Health Officer to close “all the Schools, Theatres, Picture Shows...and all other places where the public gather or congregate” (*MFP*, 1918, October 14, p. 2) as applicable to city council. “On account of orders issued by the Health Authorities prohibiting the holding of public meetings during the Spanish Influenza epidemic, no meeting of council was held” (City of Winnipeg, 1918). Three days later Winnipeg City Council convened (October 18) and began addressing issues similar to those that arose in Regina and probably most other municipalities across Canada. When the infection began to subside they faced similar requests for re-imburement or compensation.⁵⁷

57. City of Winnipeg, 1918, pages 650-651 describe an application “relating to compen-

In 1918, these attempts by businesses (forced to close by Orders in Council or Proclamation) to recoup certain losses, such as rent, employee wages and licensing or taxes, were initially dismissed by municipal and provincial authorities. There is evidence, however, that compensation did occur either through cash settlement (in Winnipeg) or by waiving fees to hold a form of benefit concert (in Regina). There is little evidence that rigorous civil suits resulted. The tendency to litigate at the turn of the century, however, was not likely as entrenched as it is in the year 2007 nor is the insurance industry concept of “litigosis” likely to subside in the immediate future (*Wall Street Journal*, 2006, p. A16).⁵⁸

Governments at all levels may consider the legal concept of *force majeure*⁵⁹ to be a viable first line of defence to obviate civil suits attempted in the aftermath of a large-scale contagious disease outbreak. It could be argued that a pandemic is an extraordinary event beyond control (war, riot, or act of God, for example), thereby reducing the ability of parties to honour contractual obligations. A cursory review of literature on *force majeure* as a defence, however, suggests that applicability of this legal concept needs further review. Nigro and Smith (2003), for example, discuss the time frame involved from the first reported SARS death in Toronto to the lifting of the SARS Travel Advisory (approximately 47 days). Citing Canadian case law interpretations of *force majeure*, the authors discuss the difficulties in

sation for motion picture loss sustained through the ban due to the Influenza epidemic.” The response from the City Solicitor (December 13, 1918) was “the City has no authority to grant any such compensation.”

58. An American term originally used to describe a number of asbestos (scilicosis) lawsuits that allegedly do not have a medical basis but have been initiated to force settlements through large numbers. Production of the N95 mask ordered by the US Government specifically for contagious disease preparation may be delayed as the scilicosis lawsuits specifically involve the N95 respirators.

59. Yale University Library (2000) [electronic source] offers the following definition: “*Force Majeure* literally means ‘greater force’. These clauses excuse a party from liability if some unforeseen event beyond the control of that party prevents it from performing its obligations under the contract. Typically, *force majeure* clauses cover natural disasters or other ‘Acts of God’, war, or the failure of third parties—such as suppliers and subcontractors—to perform their obligations to the contracting party. It is important to remember that *force majeure* clauses are intended to excuse a party only if the failure to perform could not be avoided by the exercise of due care by that party.” Retrieved July 20, 2007, from Yale University website: <http://www.library.yale.edu/-license/forcegen.shtml>.

identifying *triggering events* and the definition of *unexpected*, which are a few of the legal considerations in determining the applicability of *force majeure*. The timing of events and gaps between acquired knowledge and formal action, among other factors, may significantly weaken a general *force majeure* absolution.

The Canadian pandemic plan notes:

The legal considerations linked to pandemic preparedness and response are complex, and need to take into account the existing federal legislation as well as legislation in the 13 provinces and territories.

In order to provide an informed and objective examination of these issues, Health Canada commissioned the services of several independent third parties to explore the key issues. One of the deliverables provides an overall legal framework within which the Canadian Pandemic Influenza Plan applies, others looked specifically at 1) patent, contract, tort and insurance issues and 2) labour and employment law issues. The legal considerations identified by the consultants will be considered in the next draft of the Plan. (CPIP, 2004, p. 22)

Other pandemic plans refer to potential liability issues. For example, the Toronto plan indicates it will be necessary to review the “duty” to provide health care (TPIP 2006, p. 13) and possible problems that may emerge when using public schools as health care sites (p. 125). The Toronto plan also includes a summary of general legislated requirements (pp. 14-16). The revised Canadian plan includes a new short section on international law (CPIP, 2006, p. Background-13) but most legal references in the 2006 plan simply mirror those contained in the 2004 plan. The British Columbia plan contains material on liability issues similar to the Toronto plan and in addition cautions against potential liability from those not on the vaccine priority target list (BCPIP, 2005, p. 134).

Potential liability issues could arise in each of the components of the Criminal Justice System. Police administrators may be challenged if the ability to respond to calls for assistance is significantly impaired. Excessive delays between court appearances (in particular those requiring judicial interim release review) could be a potential problem and allegations of

inhumane treatment in correctional facilities may arise if lengthy lockdowns are a primary response of prison officials. In addition, a lack of planning could result in a plethora of quasi-legal issues related to staff-management industrial relations and Occupational Health and Safety concerns.

Attempting to reduce liability from a pending public health emergency may appear to be callous if the purpose is perceived to be little more than an effort to defend against lawsuits. But, any organization that is able to create an environment where zero liability is likely will also have assisted in ensuring that the morbidity and mortality rates that do occur were truly the result of a *force majeure*.

VII. SUMMARY AND CONCLUDING COMMENTS

An editorial in the *Journal of the American Medical Association*, printed during the 1918 time period when shipping methods resulted in outdated articles arriving at distribution points, illustrates sensitivity to this communication problem:

The present epidemic of influenza spreads so rapidly – attacks in a new spot so suddenly – that it is difficult to discuss its incidence at the time the Journal goes to press without great fear that it will have completely changed by the date of publication. (The Present Epidemic of Influenza, *JAMA*, 1918, p. 1223)

Communication was a challenge in the fall of 1918, in part, due to the state of existing “print” technology and the delivery capabilities of that era. In the next pandemic, communication will be an equally difficult challenge but for quite different reasons; too much information will be too readily available from a wide-range of sources. Adherence to official government messages and public (health) service announcements will be weakened unless considerable effort is directed towards addressing inconsistent and conflicting information or, as labelled in a few Canadian plans, rumours.

Information Technology does, however, present opportunities that did not exist in previous pandemics. Among these benefits is the ability to provide on-line training, particularly for those who may be called upon to volunteer their services in the event of a worst-case scenario. Similar to 1918, Saskatchewan does not have an excess of trained medical professionals. And, although the people of Saskatchewan will want to help their neighbours can we expect volunteers, in the numbers that signed up in 1918, to materialize? Those who are available may require basic training in medical care. While on-line training may assist in this regard, there are also agencies that can conduct basic nursing care, “train the trainer,” sessions. Organizations such as the Victorian Order of Nurses, for example, would be prepared to teach rural and small town Saskatchewan how to care for infected neighbours while at the same time reducing personal risk.⁶⁰

60. During a meeting with residents of Stoughton, Saskatchewan, on June 15, 2007,

Quarantine and isolation areas may need to be considered for facilities other than hospitals or those areas labelled by most Canadian plans as “non-traditional sites.”⁶¹ As such, it is important that the terminology is well understood; being told that one is going into “isolation” versus “quarantine” can have a significant impact on levels of anxiety and each area will need to be equipped differently. Although these preventative actions may be extremely difficult to implement with respect to airports or borders (as noted in Schabas, 2007) they may be workable options for components of the Criminal Justice System.

Until recently, interest in Personal Protective Equipment (PPE) and non-medical interventions appeared to take a backseat to research into vaccines and anti-virals. Most Canadian pandemic plans tend to dismiss non-medical interventions outside of health care facilities noting, for example, that “[t]he effectiveness of these types of measures for the control of disease within a population have not, for the most part, been systematically evaluated” (CPIP, 2004, p. Preparedness-41). However, at least one Canadian region, Ontario, is conducting research into the efficacy of gloves, masks, etc. It is believed this is the start of a shift in focus that will lead to a more appropriate balance in the prevention-cure-prevention cycle, the same cycle experienced during the Spanish influenza. In addition to Ontario’s efforts, prevention is now receiving increased attention elsewhere (see for example, Bootsma & Ferguson, 2007; Hatchett et al., 2007; Markel et al., 2007). Carrying the concept of non-medical public health interventions one step further, it is suggested that “touch-free” public or shared (office) washroom facilities is an area that needs further review.

Each of the issues noted above can impact liability. Given the existence of multiple easily accessible pandemic plans, all levels of government and local work units should be able to minimize the risk of liability by adapting

attendees asked the author what they, as civilians with no medical training, would need to know to reduce the risk of infection to themselves and their families when looking after a neighbour who was ill. Current Canadian plans unfortunately include guidelines in two extremes—overly simplistic or too technical. A phone conversation with the Victorian Order of Nurses (VON) Southern Saskatchewan office in Moose Jaw, Saskatchewan, on August 10, 2007, suggests they would be prepared to facilitate such training and are well equipped to do so.

61. “Non-traditional sites” generally refer to structures set up as temporary hospitals and may include facilities already designed with health care in mind—such as nursing homes—or structures such as schools, but does not include custodial facilities.

the guidelines in these plans to form a base for their own work unit. It is suspected, however, that regardless of how successful a plan's implementation may be, after-the-fact liability issues will likely emerge and Criminal Justice System agencies will not be immune.

Against the background provided in Volume I, Volume II explores what happened in the court, police and correctional components of the Criminal Justice System in Saskatchewan and Canada in the fall of 1918. From zero infections in one correctional facility to 21 deaths (in 26 days) in another, current Criminal Justice System public policy decision makers may find a few "lessons learned" from the past.

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