

# Toronto's Health Department in Action: Influenza in 1918 and SARS in 2003

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**ABSTRACT.** This article compares the Toronto Health Department's role in controlling the 1918 influenza epidemic with its activities during the SARS outbreak in 2003 and concludes that local health departments are the foundation for successful disease containment, provided that there is effective coordination, communication, and capacity. In 1918, Toronto's MOH Charles Hastings was the acknowledged leader of efforts to contain the disease, care for the sick, and develop an effective vaccine, because neither a federal health department nor an international body like WHO existed. During the SARS outbreak, Hastings's successor, Sheela Basrur, discovered that nearly a decade of underfunding and new policy foci such as health promotion had left the department vulnerable when faced with a potential epidemic. Lack of cooperation by provincial and federal authorities added further difficulties to the challenge of organizing contact tracing, quarantine, and isolation for suspected and probable cases and providing information and reassurance to the multi-ethnic population. With growing concern about a flu pandemic, the lessons of the past provide a foundation for future communicable disease control activities. **KEYWORDS:** Influenza, SARS, Toronto, epidemic, public health, disease control, pandemic.

“**M**OMMY, are you going to die?” This plaintive question from the young daughter of a Toronto nurse fighting infection with Severe Acute Respiratory Syndrome

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(SARS) in Mount Sinai Hospital in April 2003 exemplifies the fear and concern that outbreaks of infectious disease provoke in the families of frontline workers.<sup>1</sup> For historians, both the role of the media in highlighting the dangers of an epidemic outbreak and the response of health authorities recalled nineteenth- and twentieth-century reactions to cholera, typhus, yellow fever, smallpox, bubonic plague, and poliomyelitis rather than HIV/AIDS.<sup>2</sup> But what part was Toronto's Health Department to play in an international health crisis? As the SARS outbreak once again demonstrated, local public health organizations are the foundation for concerted community efforts to manage disease and control public panic.<sup>3</sup> By comparing and contrasting the way in which public health authorities in Toronto managed the 1918 influenza pandemic and SARS in 2003, we can see how a century of medical advances had conditioned the public and health care professionals to expect prompt control of communicable diseases, speedy development of a prophylactic vaccine, and effective exchange of information at the provincial, national, and international levels. But both outbreaks also demonstrated the power

1. André Picard, "Mommy, Are You Going to Die?," *Globe and Mail*, 5 April 2003, F5. This news story revealed the name of the index case and noted that it was an alert Chinese-speaking nurse at Scarborough Grace Hospital who informed the emergency room physician (who had already called Toronto Health because he was concerned about infectious TB) that there was an atypical pneumonia outbreak in China, according to the Chinese-language press. The combination of an alert medical and nursing care team meant that although the index patient had infected nursing staff and other patients while initially waiting for attention in the ER, local health authorities in the hospital and in the community moved to quarantine and isolation procedures in both areas promptly. This story also exemplifies the way that reporters use individual cases to alert their readers to the dangers inherent in outbreaks. See also Chris Daniels, "The SARS Fighters: Agnes Wong, Ontario/Dr. Sheela Basur, Ontario/Dr. Mona Loutfy, Ontario," *Time Canada*, 5 July 2004, 164, 32.

2. Charles E. Rosenberg, *The Cholera Years: The United States in 1832, 1849 and 1866* (Chicago and London: University of Chicago Press, 1962); Geoffrey Bilson, *A Darkened House: Cholera in Nineteenth-Century Canada* (Toronto: University of Toronto Press, 1980); Judith W. Leavitt, "Politics and Public Health: Smallpox in Milwaukee, 1894-1895," in *Sickness and Health in America: Readings in the History of Medicine and Public Health*, ed. Judith Walzer Leavitt and Ronald L. Numbers (Madison: University of Wisconsin Press, 1985), 372-82; John Joseph Heagerty, *Four Centuries of Medical History in Canada* (Toronto: The Macmillan Company of Canada, 1928), I, 17-211; Margaret Humphreys, "No Safe Place: Disease and Panic in American History," *Am. Lit. Hist.*, 2002, 14, 845-57; Martin S. Pernick, "Contagion and Culture," *Am. Lit. Hist.*, 2002, 14, 858-65; Nayan Shah, *Contagious Divides: Epidemic and Race in San Francisco's Chinatown* (Berkeley: University of California Press, 2001).

3. The historical literature on epidemics both past and present is best understood through reading Charles E. Rosenberg, *Explaining Epidemics and Other Studies in the History of Medicine* (New York: Cambridge University Press, 1992); Caroline Hannaway, Victoria A. Harden, and John Parascandola, eds., *AIDS and the Public Debate: Historical and Contemporary Perspectives* (Amsterdam: IOS Press, 1995); and Shah, *Contagious Divides*.

of negative ethnic and class stereotyping, the impact of the media in both educating and frightening the public, and the high cost in terms of human lives and devastation of the local and national economies.<sup>4</sup>

In 1918 and 1919, the worldwide influenza pandemic is estimated to have killed between 20 and 40 million people. For European and North American nations who were just coming to the end of World War I, with its toll of 6 to 9 million dead and wounded, the flu seemed to be the fourth horseman of the apocalypse.<sup>5</sup> War, famine, pestilence, and death challenged Canadians, Americans, and their allies and foes both to respond to the immediate threat and to institute more formal national and international organizations to ensure that future pandemics were controlled before they could spread beyond their countries of origin. The great pandemic also gave further impetus to biomedical research that resulted in the discovery of the causative virus by British researchers in 1933.<sup>6</sup> As research continued, however, the complexity of influenza strains became apparent. But did public perceptions of the disease change? Was it seen as a

4. In her study *The Gospel of Germs: Men, Women, and the Microbe in American Life* (Cambridge, MA: Harvard University Press, 1998), Nancy Tomes presents a convincing argument about the impact of the “germ” theory on American attitudes to infectious disease and demonstrates how various groups adapted new behavior patterns and beliefs as a result. More recently, in “Epidemic Entertainments: Disease and Popular Culture in Early-Twentieth-Century America,” *Am. Lit. Hist.*, 2002, 14, 625–52, she examines how contemporary problems such as the AIDS, Ebola, and West Nile viruses have been used by the media to create a climate of fear that prompts citizens to ignore significant public health threats by focusing on exotic and unlikely “risks.” But her focus is on the way that advertising agencies used scientific discoveries in the mid-twentieth century to sell products by claiming to educate consumers in basic health principles. The use of radio and film for similar purposes is also analyzed to demonstrate the way that science becomes part of popular discourse and is, in turn, modified by popular perceptions.

5. The major North American studies of the 1918 flu epidemic include Alfred W. Crosby, Jr., *Epidemic and Peace, 1918* (Westport, CT: Greenwood Press, 1976); Crosby, *America's Forgotten Pandemic: The Influenza of 1918*, 2<sup>nd</sup> ed. (New York: Cambridge University Press, 2003); Gina Kolata, *Flu: The Story of the Great Influenza Pandemic of 1918 and the Search for the Virus that Caused It* (New York: Farrar, Straus, and Giroux, 1999); Eileen Pettigrew, *The Silent Enemy: Canada and the Deadly Flu of 1918* (Saskatoon: Western Producer Prairie Books, 1983); Kirsty Duncan, *Hunting the 1918 Flu: One Scientist's Search for a Killer Virus* (Toronto: University of Toronto Press, 2003); and Carol R. Byerley, *Fever of War: The Influenza Epidemic in the U.S. Army during World War I* (New York and London: New York University Press, 2005). An excellent historiographical overview is found in Howard Phillips, “The Re-appearing Shadow: Trends in the Historiography of the 1918–19 Influenza Pandemic,” *Can. Bull. Med. Hist./Bull. Can. Hist. Med.*, 2004, 21, 121–34.

6. For a popular history of virology, see Peter Radetsky, *Invisible Invaders: The Story of the Emerging Age of Viruses* (Boston: Little, Brown and Company, 1991), especially chapter 12, “The Quick Change Artist,” which discusses the 1918 flu epidemic. See also Eugenia Tognotti, “Scientific Triumphalism and Learning from Facts: Bacteriology and the ‘Spanish Flu’ Challenge of 1918,” *Soc. Hist. Med.*, 2003, 16, 97–110.

killer or simply as an annual nuisance that appeared in North America every fall and winter, after it had completed its attacks on the Southern Hemisphere and Australasia? In 2003, the question for many epidemiologists and health authorities was whether SARS was the feared new version of the 1918 strain or another type of disease.<sup>7</sup> Lack of a readily available diagnostic test or specific symptomatology significantly hampered health authorities' response to the 2003 outbreak and prompted some officials to seek historical precedents for their containment efforts.

By their very nature, epidemics reveal the strengths and weaknesses of the societies in which they occur. Using Toronto as a case study to examine the reaction of citizens and their health departments to influenza in 1918 and SARS in 2003 provides an opportunity to probe into the changing role of local health departments and their staffs in two key crises. In 1918, Toronto was a bastion of white Anglo-Saxon Protestantism, with less than 10% of its population of neither Canadian nor British origin. The city had undergone a wave of physical expansion through the amalgamation of newly developed suburbs prior to 1914 and was the focal point for industry and commerce in Ontario. As the provincial capital, it not only housed the legislature, the Provincial Board of Health, the principal university, and the leading medical facilities, but also administered a budget equivalent to that of the provincial government. Overshadowing these characteristics was Toronto's fervent support of the war effort; it was the most imperialistic of Canadian cities in 1914, and for four long years, its 490,000 citizens provided volunteers for the Canadian Expeditionary Force (CEF), the Canadian Army Medical Corps (CAMC), and field hospitals in France, Britain, and Canada. Civilians played their part and turned out munitions, food supplies, and clothing; bought war bonds; and planted victory gardens.<sup>8</sup> The arrival of a virulent strain of influenza with the returning soldiers added further stress to the final days of the conflict and challenged existing public health staff to organize to combat disease with limited numbers, limited medico-scientific knowledge, and limited resources.

7. Anne McLroy, "1918 Redux?," *Globe and Mail*, 5 April 2003, F9. In this article, the *Globe's* science reporter provided readers with specific parallels between 1918 and 2003 but argued that virologists would be able to sequence the genetic makeup of the coronavirus thought to cause SARS.

8. J. M. S. Careless, *Toronto to 1918: An Illustrated History* (Toronto: James Lorimer & Company and National Museums of Canada, 1984), 157-72, 183-202.

By 2003, the former city of Toronto had been forcibly amalgamated with five surrounding municipalities to create a combined population totaling 2.5 million, nearly 50% of whom had not been born in Canada. From 1945 on, the city had been a magnet for successive waves of refugees and immigrants seeking a better life for their children. By the 1980s, Toronto was the dominant economic engine for the nation.<sup>9</sup> But as the federal and provincial governments adopted Thatcherite and Reaganite economic policies, the city lost much needed funding for its aging infrastructure and services. This did not bode well for Toronto's Health Department, which relied on municipal taxes as well as provincial grants. Furthermore, in 1997 the province updated the mandatory programs that local health units were expected to provide, and then changed the tax base to limit business taxes that Toronto had used to fund innovative health and education programs.<sup>10</sup> Was Toronto ready for a possible pandemic?

The arrival of SARS demonstrated the devastation that disease outbreaks impose as businesses and public facilities close in response to local, national, and international fears of disease transmission. Indeed, one of the most striking differences between the two outbreaks was the administrative complexity created by the presence of competing provincial and federal authorities in 2003.<sup>11</sup> In 1918, Canada did not have a federal health department, provincial health departments were very small, and no international health agency

9. James Lemon, *Toronto since 1918: An Illustrated History* (Toronto: James Lorimer & Company and National Museums of Canada, 1985), 11–23, 92–94, 113–87. See also Lila Sarick, "Visible Minorities Flock to City," *Globe and Mail*, 18 February 1998, A8. Sarick stated that 1996 census data indicated that 32% of the greater Toronto area's population was visible minorities. The story noted that Toronto's services and language classes were provided in many different languages and that these were under threat because of provincial plans to reorganize the education funding system.

10. Gay Abbate, "Toronto Board of Health Defies Order to Cut Budget," *Globe and Mail*, 30 July 1997, A5; John Spears, "Budget Blueprint Holds Line on Taxes," *Toronto Star*, 10 March 1998, B1. According to a TPH *Budget Fact Sheet* dated 10 March 1998, the department received 1.6% of the \$5.9 billion-dollar gross budget for the city. The \$44.2 million allocated for TPH services in 1998 was 4.6% less than in 1997 and 9.4% less than in 1996.

11. In 1867 the British North America Act, now known as the Constitution Act, 1982, divided legislative powers between the federal and provincial governments. Health, education, and social services were allocated to the provinces, while the federal government was responsible for national economic policy, the military, criminal law, agriculture, immigration, and only minor health duties such as immigrant inspection, quarantine, and the care of sick mariners and aboriginals.

equivalent to the World Health Organization (WHO) existed.<sup>12</sup> By comparing and contrasting the abilities of the two local medical health officers—Drs. Charles Hastings and Sheela Basrur—to coordinate disease control efforts, develop and maintain sufficient capacity to respond to outbreaks, and communicate effectively with fellow citizens, the media, and external authorities, we will be able to gauge the impact of their activities during these crises. The parallels and differences in the two outbreaks demonstrate how the lessons of the past need to be deeply ingrained in both collective memory and public policy if present and future challenges are to be met with courage and effectiveness.

#### INFLUENZA 1918–19: TORONTO'S EXPERIENCE

By October 1918, the nearly half a million Torontonians had endured four years of war in which 70,000 of their sons, husbands, fathers, and coworkers had enlisted in the CEF and served overseas in the trenches on the Western Front.<sup>13</sup> Concern for the troops was matched by the growing recognition that social conditions at home demanded improvement if the sacrifices being made in Europe were to be meaningful. Under the dynamic direction of Dr. Charles J. Hastings, Toronto's Medical Officer of Health from 1910 to 1929, Ontario's capital became a showplace for modern methods of public health administration and preventive activity.<sup>14</sup> Between 1910 and 1917, Hastings spearheaded the introduction of pasteurized milk, well-baby clinics, municipal housekeepers, and health education by public health nurses based on successful examples found in leading British and American cities.<sup>15</sup> He quickly became a spokesman for progressive public health activists, arguing that "one reason why advances in preventive medicine have been so slow is that prevention lacks dramatic interest" and that, as a result, appeals to humanitarianism

12. R. D. Defries, ed., *The Development of Public Health in Canada*, 1st ed. (Toronto: Canadian Public Health Association, 1940), and Defries, ed., *The Federal and Provincial Health Services in Canada* (Toronto: Canadian Public Health Association, 1959, 1962).

13. Ian Hugh Maclean Miller, *Our Glory and Our Grief: Torontonians and the Great War* (Toronto: University of Toronto Press, 2002), 185. Miller notes that from August to mid-September 1918, Torontonians received news that 2,127 men were killed, wounded, or missing.

14. Heather MacDougall, *Activists and Advocates: Toronto's Health Department, 1883–1983* (Toronto: Dundurn Press, 1990), 26–32.

15. K. M. Yorke, "Saving Lives on the Wholesale Plan: How Toronto Has Been Made the Healthiest of Large Cities," *Maclean's Mag.*, July 1915, 28, 20–22, 93–96.

had to be supported with economic arguments that demonstrated that spending on public health administration was an investment, not an expense.<sup>16</sup> Starting with a staff of three public health nurses in 1910, Hastings moved quickly to expand the health education component of his staff's work and in 1914 created a Division of Public Health Nurses. Based in district offices shared with either the police force or social agencies, the public health nurses quickly became "guides, philosophers and friends" for the women and children in their areas. Using a generalized system that stressed health education rather than curative services, Toronto's Department of Public Health (DPH) devoted great attention to forging links with more than 200 local voluntary groups through the Neighbourhood Workers' Association (NWA).<sup>17</sup> This reciprocal relationship intensified during World War I as many families received coordinated assistance from the DPH and NWA as a greater emphasis on "scientific" social service developed.<sup>18</sup> Thus the concept of teamwork was well understood and widely shared when warnings about a flu epidemic began to arise in the spring and summer of 1918.

The influenza outbreak is thought to have begun at Camp Funston in Kansas in March 1918, and to have accompanied American troops to France, where it spread to the combatant armies.<sup>19</sup> Canadian soldiers began to fall ill during the spring, and the return of some troops during the summer of 1918 triggered the epidemic in Canada. The federal government was responsible for military cases, but provincial medical officers and their municipal counterparts knew that they would be fighting the outbreak with limited resources since so many doctors, nurses, and inspectors were serving in the armed forces. On 19 September, the Toronto *World* reported cases in a military camp in Ontario. For Toronto's medical officer and its Local Board of Health (LBH), this presented a challenge, because

16. Charles J. Hastings, "The Modern Conception of Public Health Administration," *Conservation of Life*, July 1917, 3, 49-54, continued in *Conservation of Life*, October 1917, 4, 86-90, reprinted in *Saving the Canadian City: The First Phase, 1880-1920*, ed. Paul Rutherford (Toronto: University of Toronto Press, 1974), 123-36.

17. "A Pull all together," *Pub. Health J.*, 1918, 9, 32-34; F. N. Stapleford, "Causes of Poverty," *Pub. Health J.*, 1919, 10, 157-61; F. N. Stapleford, "The Policy, Spirit and Programme of the Neighborhood Workers Association," *Pub. Health J.*, 1919, 10, 382-86.

18. MacDougall, *Activists and Advocates*, 60-64.

19. Crosby, *America's Forgotten Pandemic*, 17-41.

influenza was not a reportable disease under the 1912 Ontario Public Health Act, and most doctors were hoping that the outbreak would be similar to the one in 1889–90 that had attacked primarily the elderly and apparently provided some immunity to those who survived.<sup>20</sup>

These hopes were soon dashed. Military doctors were well aware that the flu was killing soldiers between the ages of twenty and thirty-nine with great rapidity.<sup>21</sup> When the disease spread into the community, it devastated the workforce, made entire families ill, and left orphans and the elderly in its wake. But what could be done to stop it? Communicable disease control was one of the main functions of municipal and provincial health departments in Canada during the late nineteenth and early twentieth centuries, but in the past it had created opposition and imposed economic hardship on those who were quarantined in their homes or sent to municipal isolation hospitals.<sup>22</sup> Should these conventional tactics be used against the flu?

As English Canada's leading health department, Toronto had a well-established Division of Communicable Disease, a municipal laboratory for testing TB and diphtheria samples, an isolation hospital, and a division of vital statistics to provide the data needed for decision-making.<sup>23</sup> But as Hastings was well aware, the usual approach to controlling the spread of infectious disease was proving ineffective against influenza. Articles in the October issue of the *American Journal of Public Health (AJPH)* and personal contact with health authorities in the United States made it clear to Hastings, who was president of the American Public Health Association (APHA) in 1918, and his provincial counterpart, Dr. John W. S. McCullough, Ontario's Chief Medical Officer, that there was much

20. H. O. Howitt, "Some Observations on the Recent Epidemic," *Pub. Health J.*, 1919, 10, 508.

21. "The Present Epidemic," *Can. Med. Assoc. J.*, 1918, 8, 1028–29.

22. See Heather MacDougall, "'Enlightening the Public': The Views and Values of the Association of Executive Health Officers of Ontario, 1886–1903," in *Health, Disease and Medicine: Essays in Canadian History*, ed. Charles G. Roland (Toronto: Clarke Irwin Inc., 1984), 436–64; Michael Bliss, *Plague: A Story of Smallpox in Montreal* (Scarborough, ON: Harper Collins Canada, 1991); Barbara Craig, "State Medicine in Transition: Battling Smallpox in Ontario, 1882–1885," *Ontario Hist.*, 1983, 75, 319–47.

23. Charles Hastings, "The Value of a Credit Balance in Public Health Administration," *Am. J. Pub. Health*, 1916, 6, 115. See also MacDougall, *Activists and Advocates*, 140–41.



disagreement about the benefits of these approaches.<sup>24</sup> Indeed, McCullough conducted a survey of provincial and state health officers on the merits of quarantine and isolation and found that the majority had concluded that “these measures are impracticable.”<sup>25</sup> But Mayor Thomas L. Church, the press, and most of the public expected such actions, and in cities such as Milwaukee, they were apparently effective.<sup>26</sup> In Toronto, however, quarantine and isolation were not implemented because the disease toll escalated so quickly as to render it ineffective on a case-by-case basis.

In his capacity as president of the APHA, Hastings left Toronto from 5 to 8 October to travel to Boston, New York, and Washington to see the ravages of the epidemic firsthand.<sup>27</sup> Since flu was not a reportable disease, the statistics for its spread and virulence are suspect, but each of the communities that experienced an outbreak quickly recognized its propensity to overwhelm standard disease control measures and facilities. When the disease first appeared in Toronto, the MOH and military authorities appealed for calm, provided a detailed description of the symptoms, strongly recommended resting in bed, and exhorted the sick to call for medical assistance.<sup>28</sup> The first civilian casualty was a schoolgirl who died in Toronto General Hospital on 29 September 1918. In spite of growing public pressure for isolation and quarantine, Hastings did not issue the order, because the bulk of cases were military men in the

24. The Provincial Board of Health of Ontario, “Spanish Influenza,” *Pub. Health J.*, 1918, 9, 478. This item is followed on pages 482–85 by an article reprinted from Chicago papers of 3 October 1918. Chicago’s Health Commissioner, John Dill Robertson, provided citizens with information from Surgeon-General Blue of the U.S. Public Health Service that focused on the origin of the disease, its symptoms, and treatment. An editorial on page 495, entitled “Influenza,” reminded *Pub. Health J.* readers that there was ongoing controversy over Pfeiffer’s bacillus as the cause of influenza and noted that the Connaught Laboratories of the University of Toronto were undertaking to study whether the causative agent was a filterable virus or *B. influenzae* and if a prophylactic vaccine were possible.

25. “The Provincial Board of Health of Ontario,” *Pub. Health J.*, 1919, 19, 27–30.

26. “Mayor Clashes with Two MOH,” *The Globe*, 9 October 1918, 8; “Can Keep Down the Mortality,” *The Globe*, 11 October 1918, 6. In the latter article, Mayor Church apologized for criticizing Hastings for failing to improve conditions in the military hospitals because the mayor now understood that the city’s MOH did not have jurisdiction over such facilities. Judith Walzer Leavitt, *The Healthiest City: Milwaukee and the Politics of Health Reform* (Princeton, NJ: Princeton University Press, 1982), 227–39.

27. Hastings was also attending an emergency APHA Executive Committee meeting in New York City because it was clear that the annual meeting would have to be postponed due to the ravages of the epidemic in eastern and central North America. See “The Annual Meeting Postponed” in *Am. J. Pub. Health*, 1918, 8, 786–87.

28. Miller, *Our Glory*, 185–86.

base camp located in the city. But the child's death was a prelude to a typically rapid increase in cases and deaths; within a week, more than 10,000 students and staff out of the 66,000 students and 1,630 teachers were sick.<sup>29</sup> The impact on the city's hospitals was immediate and overwhelming. By 8 October, the Toronto Western Hospital was full, and half the nurses at the Grace Hospital were ill.<sup>30</sup> Toronto General, the city's newest and largest facility, had almost 50% of its 676 patients ill with flu by mid-October; eighty nurses fell ill, and three died.<sup>31</sup> As a result, surgery was canceled except for emergency operations. Similar problems beset the 350-bed St. Michael's Hospital, but the situation was further compounded by the absence of medical staff on duty overseas. The sisters of St. Joseph used student nurses, their own teaching staff, and teaching sisters from Loretto Abbey to keep the hospital functioning during the epidemic.<sup>32</sup>

With a population of roughly 490,000 and the fear that 40% or more of the population would become ill if the European and American experience was repeated in Toronto, the MOH and his provincial counterpart moved swiftly to create additional hospital accommodation and train volunteers to care for the sick. Two hotels were commandeered and turned into emergency hospitals. To staff them, the province issued a call for an Ontario Emergency Volunteer Health Auxiliary that provided training to create a volunteer group known as the Sisters of Service.<sup>33</sup> Women's groups, teachers, and other women whose jobs were eliminated when their workplaces were closed attended the three-lecture course on the care of the sick and the sickroom.<sup>34</sup> Willing volunteers were then assigned to one of the six health department district offices or to the temporary hospitals. But as the staff at Central Neighborhood House, a settlement in one of Toronto's slum areas, noted, few of the Sisters

29. Miller, *Our Glory*, 186.

30. Pettigrew, *Silent Enemy*, 48.

31. J. T. H. Connor, *Doing Good: The Life of Toronto's General Hospital* (Toronto: University of Toronto Press, 2000), 203-4.

32. Irene McDonald, C.S.J., *For the Least of My Brethren: A Centenary History of St. Michael's Hospital* (Toronto and Oxford: Dundurn Press, 1992), 79.

33. John W. S. McCullough, "The Control of Influenza in Ontario," *Can. Med. Assoc. J.*, 1918, 8, 1084-85.

34. "Hearty Response Made By Nurses," *The Toronto World*, 17 October 1918, 5.

of Service were willing to serve in their part of the city.<sup>35</sup> This was especially problematic for the poor and non-English-speaking immigrants because “the assistance of neighbours, usually freely rendered during illness, was negligible owing to the contagious nature of malady . . .,” and this required settlement house workers to provide nursing, housekeeping, and child care during the epidemic.<sup>36</sup>

Nevertheless, volunteer work was vital, as the public health nurses (PHNs) were working “to the point of exhaustion” dealing with the rapid increase in sick families. Early in the outbreak, the MOH informed the *Globe* that the nurses were focusing their entire attention on assisting the sick, and that various inspectors had been put on twenty-four-hour duty to provide food, fuel, and other necessities to stricken families.<sup>37</sup> According to the anonymous author of an in-house history of the Public Health Nursing Division: “As much hourly nursing care as could possibly be arranged was given, but it did not begin to cover the need. There were very few days that the nurses did not come into the district offices and relate some unbelievably harrowing stories.”<sup>38</sup> As the epidemic progressed, Health Department staff also caught the disease, and by 23 October, 54 of 319 staff were ill, including twenty-two nurses and four doctors.<sup>39</sup> To deal with the growing demand for nursing care and for food, fuel, and “bedding, night clothing, towels and even pneumonia jackets,” the DPH turned to the Neighbourhood Workers’ Association. Using Toronto’s newspapers to publicize these needs, the NWA appealed to Torontonians’ patriotism and civic spirit by informing readers that any and all donations of soup, money, or volunteer time would be gratefully received and that the former would be delivered to stricken homes by Boy Scouts.<sup>40</sup> Twenty-seven

35. *Activities of Central Neighbourhood House*, formerly Sc 5, Series D, Box 1, Central Neighbourhood House fonds, City of Toronto Archives. See finding aid number 1005 for current content records.

36. *Ibid.* The Health Department recognized the additional need in poorer districts and used Salvation Army cadets to assist public health nurses in their home visits. See “S. Army Cadets Fighting ‘Flu,’” *The Globe*, 31 October 1918, 10.

37. “Sunshine Aid to Combat Flu,” *The Globe*, 10 October 1918, 6; “Can Keep Down the Mortality,” *The Globe*, 11 October 1918, 6.

38. File 34081, Series 952, File 7, *History of Public Health Nursing*, November 1963, 10, City of Toronto Archives.

39. Pettigrew, *Silent Enemy*, 53.

40. “Deaths from ‘Flu’ Are on Increase,” *The Toronto World*, 18 October 1918, 4. See also the *Globe*, 18 October 1918, 4 and 29 October 1918, 10.

depots to receive these items were set up throughout the city as Torontonians rallied to care for the sick.

The same issue of the papers reported that approximately fifty people a day were dying of flu or bronchopneumonia. The MOH had already ordered schools to close, and various organizations such as the Canadian and Empire Clubs as well as Masonic Lodges were canceling their meetings. The LBH and Mayor Church were in agreement that other places should also close to help prevent the disease from spreading, so on Saturday, 19 October, all theaters, moving-picture shows, pool and billiard rooms, and bowling alleys were closed for the duration.<sup>41</sup> Further precautions included prohibiting the circulation of public library books while allowing the libraries to remain open, and persuading Toronto's churches to hold only a single service on Sundays—Mass for Catholics in the morning, and evening services for Protestants. The university was closed, and fifth-year medical students were assigned to assist busy general practitioners in making home visits and to work in the newly opened temporary hospitals.<sup>42</sup> The Health Department also relied on the work of the Victorian Order of Nurses and the St. Elizabeth Visiting Nurses for bedside care of the sick.<sup>43</sup>

During the epidemic, the Health Department staff made 17,108 visits to stricken households, and its records indicate that there were approximately 1,750 deaths in 150,000 cases.<sup>44</sup> The latter is probably an underestimate, given the extent to which the press of work prevented accurate reporting of cases and deaths.<sup>45</sup> As well, the military was compiling its own statistics in the base hospital located in the

41. *Ibid.*

42. "University Classes Cancelled," *The Toronto World*, 17 October 1918, 5. The news story stated: "All students in the faculty of medicine are asked to volunteer their services to fight the epidemic."

43. "Victorian Order of Nurses," *Pub. Health J.*, 1919, 10, 290. The VON usually cared for maternity cases, but their small staff of eighteen volunteered to care for the sick during the flu epidemic. The St. Elizabeth Visiting Nurses performed similar duties for Catholic Torontonians.

44. Marion Royce, *Eunice Dyke: Health Care Pioneer* (Toronto: Dundurn Press, 1983), 69–70. *Can. J. Med. Surg.*, 1919, 45, 212 states that Toronto suffered 1,408 deaths from influenza and 1,307 from pneumonia, for a total of 2,715, which was 1,980 in excess of the normal October death rate of 735.

45. "The Provincial Board of Health of Ontario," *Pub. Health J.*, 1918, 9, 542 noted that since influenza was not a reportable disease, "the only means we have of getting anywhere near the deaths caused by the epidemic is from returns made by Undertakers . . ." The result was an ongoing recalculation of the provincial morbidity and mortality rates as new information arrived. By 1919, McCullough had concluded that Ontario had experienced roughly 40,000–50,000 cases, with 10,000 deaths.

eastern part of the city and at the base camp at the Exhibition Grounds. Whether these were included in the city's tally is unclear. But the impact of the epidemic was profound. The newspapers contained short items noting the deaths of many specific individuals, advertisements apologizing for delays in delivering bread and milk, news stories describing board-of-health meetings and the actions that resulted from its deliberations, and hortatory calls for more volunteers. The *World* also printed an impassioned plea arguing the benefits of gauze masks and asking that "[E]verybody Wear A Mask To Work On Saturday Morning."<sup>46</sup> Neither Hastings nor McCullough felt that wearing masks in public was warranted, with the result that Ontarians were not required to use them as were their counterparts in Alberta and several U.S. states.

The economic consequences of the epidemic were significant. Munitions plants and other war industries slowed as workers became ill. The municipal firefighters and policemen took sick, as did trainmen and Bell Canada employees. The cold rainy weather added further stress to the epidemic when coal became difficult to obtain and fuel supplies for the sick and for industry diminished.<sup>47</sup> In a society that lacked unemployment insurance, the task of responding to the needs of the sick and their families fell on a populace that had already donated its time, effort, and money to winning the war and buying victory bonds. Nevertheless, the Toronto Board of Trade created an Influenza Fund and worked with the NWA and other community groups to distribute the proceeds.<sup>48</sup>

By the beginning of November, the situation began to ease. The schools were supposed to open on 5 November, but the fuel shortage postponed the reopening for a week. Sporting events resumed, hospitals began to report empty beds, and on 11 November the Armistice was signed.<sup>49</sup> The celebrations that this unleashed may have contributed to another wave of the flu, but for Charles Hastings, the 1918 epidemic revealed a crucial lesson:

46. "Get Busy With Masks," *The Toronto World*, 18 October 1918, 4.

47. "Conditions in Industry," *The Globe*, 29 October 1918, 13 estimated that production had declined 35–39% as a result of the epidemic. See also Miller, *Our Glory*, 188–89. Miller notes on page 188 that "Officials estimated the loss in [coal] production from the flu to be about 50,000 tons daily."

48. "Want Follows 'Flu' Ravages," *The Globe*, 31 October 1918, 10; *History of Public Health Nursing*, 1963, 10, City of Toronto Archives.

49. Miller, *Our Glory*, 187–92.

We require the centralization of authority. Whether that be a public health service, a local government board, a department of health, a ministry of health or a secretary of health, it matters little, but all authority should be centralized under one department, if we are going to have efficient results. Every human body may be a battlefield against these invisible foes. Consequently, every individual must be trained a fighter, and though we march apart, we must fight together under one command.<sup>50</sup>

To his Canadian counterparts, Hastings was clearly calling for the creation of a federal health department, and in March 1919, legislation to this effect was introduced. The ravages of the flu epidemic were cited as one of the factors justifying the extension of federal involvement in an area of exclusive provincial jurisdiction.<sup>51</sup>

But the real impact was at the provincial and municipal levels. In Toronto, Hastings and his staff had demonstrated the benefits of a well-organized department that had made links to other municipal services, local hospitals, and non-governmental organizations. Their experience enabled them to move quickly to take command in a crisis situation. The role of provincial authorities was somewhat more complex. As Chief Medical Officer (MO), Lieutenant-Colonel John W. S. McCullough had responsibility for all parts of the province that lacked permanent public health staff, but he was also deeply involved with his military duties. The solution was to allow Hastings and his staff to demonstrate effective community engagement and then to use this model for the rest of the province.<sup>52</sup>

When standard disease control measures proved ineffective at stemming the rising numbers of cases, Hastings turned to prevention.

50. Charles J. O. Hastings, *Democracy and Public Health*, Presidential Address to the American Public Health Association, 9 December 1918, reprinted from *Am. J. Pub. Health*, 1919, 9, 13.

51. "To Organize Dept. Of Public Health—Federal Government Will Ask Parliament to Pass Bill," *The Globe*, 25 October 1918, 2. See also J. Dickin McGinnis, "The Impact of Epidemic Influenza: Canada, 1918–1919," *Historical Papers* (Canadian Historical Association, 1977), 120–40, reprinted in S. E. D. Shortt, ed., *Medicine in Canadian Society: Historical Perspectives* (Montréal: McGill-Queen's University Press, 1981), 447–78.

52. J. W. S. McCullough, "Control of Influenza," *Can. Med. Assoc. J.*, 1918, 8, 1084–86. This article was republished by the *Canadian Medical Association Journal* on 26 April 2005, accompanied by an article in "The Left Atrium" section by Dr. Gillian Arsenault called "Lessons from History," in which she reminds her readers that we still do not have an effective treatment for influenza, and that we too should use early twentieth-century techniques of providing information and immediate closure of all but essential services to ensure that "when our time comes, we will be able to match the intelligence, energy, coordination and cooperation of our forebears." See [www.cmaj.ca/cgi/content/full/172/8/965/DC1](http://www.cmaj.ca/cgi/content/full/172/8/965/DC1) for the full text.

He brought back a *B. influenzae*-based vaccine from his visit to the New York City Laboratory to start flu vaccine production in Toronto. Most civilian and military health officers pinned their hopes for controlling the epidemic on either a preventive or a prophylactic vaccine. In 1914 the Connaught Laboratories had opened in Toronto to produce diphtheria antitoxin, but it quickly became the main supplier of vaccines for the war effort.<sup>53</sup> During the flu epidemic, Dr. R. D. Defries, the acting director, undertook the production and testing of flu vaccine using eighteen strains of the New York source and additional ones from Canadian soldiers at the base hospital. Although he was impressed by the impact of the vaccine on “desperate cases,” he was alert to growing evidence that the vaccine was ineffective because researchers were unable to demonstrate that the Pfeiffer bacillus was the cause of the disease and indeed had begun to argue that it was a filterable virus instead.<sup>54</sup> Defries later argued that “[T]he preparation and trial of vaccine was fully warranted by the existent knowledge of the disease and its etiology,” while Hastings commented in November 1919 that during the flu epidemic the medical profession was “severely censured for not having discovered a vaccine,” indicating that the public too expected science to provide a preventive for the disease.<sup>55</sup> But as many of the reports published in Canadian and American medical journals indicated, there was little clinical evidence that preventive or prophylactic vaccination made a difference.<sup>56</sup>

And what about the citizens? One of the most striking features of the outbreak was the extent to which Torontonians of all social classes suffered and yet sought to help each other. The middle class and well-to-do volunteered themselves and their cars to take food, medical and nursing supplies, and doctors and visiting nurses to

53. P. A. Bator with A. J. Rhodes, *Within Reach of Everyone: A History of the University of Toronto School of Hygiene and the Connaught Laboratories, Volume 1, 1927–1955* (Ottawa: Canadian Public Health Association, 1990), ix–24.

54. Tognotti, “Scientific Triumphalism and Learning from Facts,” 102–8; see note 24.

55. Robert D. Defries, *The First Forty Years, 1914–1955: Connaught Medical Research Laboratories University of Toronto* (Toronto: University of Toronto Press, 1968), 49–50; Toronto, Local Board of Health, *Monthly Report*, November 1919, 4.

56. J. J. Heagerty, “Influenza and Vaccination,” *Can. Med. Assoc. J.*, 1919, 9, 226–28; “Official Report on Influenza Epidemic, 1918,” *Can. Med. Assoc. J.*, 1919, 9, 351–54; Major T. F. Cadham, “The Use of A Vaccine in the Recent Epidemic of Influenza,” *Can. Med. Assoc. J.*, 1919, 9, 519–27; F. H. Wetmore, “Treatment of Influenza,” *Can. Med. Assoc. J.*, 1919, 9, 1075–80. See also Tognotti, “Scientific Triumphalism and Learning from Facts,” for an overview of the Italian response to the epidemic.

their patients.<sup>57</sup> Workers tried to maintain essential services while their customers faced a final round of privation prior to the end of the war. Teachers, homemakers, and nursing, medical, and dental students volunteered their services in hospitals and in the community. Settlement workers noted that the poor were so severely affected that they were unable to provide assistance to their neighbors—a breach of customary practice. And various immigrant groups were presented with additional challenges, as the information provided in pamphlets and local newspapers had to be translated into languages they understood. As the anonymous scribe who wrote about public health nursing noted: “The epidemic lasted approximately two months and it was an unforgettable experience for us all.”<sup>58</sup>

For the health authorities who had directed local and provincial or state efforts during the epidemic, the influenza outbreak provided a challenge to their authority and expertise that led figures such as Sir George Newman and Victor C. Vaughan to lament the inability of officials to either control or prevent the disease.<sup>59</sup> At the rescheduled annual APHA meeting in Chicago in December 1918, a committee was formed to prepare “A Working Program against Influenza,” which was published in the January 1919 issue of the APHA journal. This comprehensive review of the strengths and weaknesses of the efforts to combat the disease justified its prescription for action by noting that health agencies “must act in light of present knowledge,” even if that knowledge is limited or flawed.<sup>60</sup> But it is clear that there were many variables that affected the progress of the disease, and that finding the cause and an effective vaccine was high on the medical community’s agenda. For local health officers, however, the extent of public cooperation during

57. In *The Globe*, there were daily reports about the role of civilian volunteers, and the women’s pages during and after the epidemic listed the work of local chapters of the Liberal Association, the IODE (Imperial Order of the Daughters of the Empire), the Samaritan Club, the Red Cross Society, and women’s church groups. See *The Globe*, 16 October 1918, 4; 25 October 1918, 4; 2 November 1918, 10; 6 November 1918, 10. See also Elyllt Jones, “Contact Across a Diseased Boundary: Urban Space and Social Interaction During Winnipeg’s Influenza Epidemic, 1918–1919,” *J. Can. Hist. Assoc.*, 2002, New Series 13, 119–39.

58. *History of Public Health Nursing*, 10, City of Toronto Archives.

59. “The Provincial Board of Health of Ontario,” *Pub. Health J.*, 1919, 10, 29–30.

60. “A Working Program Against Influenza,” *Am. J. Pub. Health*, 1919, 9, 1–13.



attempts to prevent the spread of disease was paramount.<sup>61</sup> They were also concerned about relief measures and effective organization of existing staff and services.<sup>62</sup> Nearly all had discovered a significant lack of trained personnel and were hoping that the outbreak would spur the creation of additional positions in their organizations. Indeed, one of the results of the epidemic was the conversion of the Canadian Red Cross war effort into peacetime service that included funding the development of public health nursing programs at Canadian universities and supporting nurses to attend them.<sup>63</sup>

In May 1919, the Canadian Public Health Association, the Ontario Health Officers Association, and the Ontario Medical Association all met together in the Physics Building at the University of Toronto. On the morning of 26 May, the delegates heard papers on the new federal department of health by Dr. Michael Steele, Member of Parliament, and state health insurance by Dr. Charles Hastings, and then in the afternoon, there was a symposium on influenza that featured speakers such as Drs. Wade Hampton Frost of the United States Public Health Service, Augustus Wadsworth of the New York State Laboratory, and John McCullough.<sup>64</sup> Clearly the flu epidemic had influenced both clinical and preventive medicine in terms of organizational structure, administrative process, and scientific research. But would the lessons of this outbreak continue to influence public health practice?

Ironically, the support that Toronto's Health Department had received in 1918 proved limited. As the city returned to "normalcy" in 1919, the mayor and Board of Control recommended budget cuts to municipal services, including the Health Department. The effective organizing and yeoman services that staff had performed during the flu epidemic were forgotten or ignored when a mild form of smallpox appeared in October 1919. Anti-vaccination groups organized rallies attended by some city council members who objected

61. Dr. T. H. Whitelaw, "The Practical Aspects of Quarantine for Influenza," *Can. Med. Assoc. J.*, 1919, 9, 1070-74. Edmonton had to enforce Alberta Provincial Board of Health regulations requiring modified quarantine and found that many citizens objected because their neighbors were not subject to the same limitations, even though they too had mild cases of the disease.

62. S. Boucher, "The Epidemic of Influenza," *Can. Med. Assoc. J.*, 1918, 8, 1087-92.

63. "Influenza," *Pub. Health J.*, 1920, 11, 98; "University Course in Public Health Nursing Established in Ontario," *Pub. Health J.*, 1920, 11, 430-31.

64. "Preliminary Programme," *Pub. Health J.*, 1919, 10, 189.

to Hastings's dynamic leadership and his demand that mandatory vaccination be instituted. This well-established preventive measure was condemned as "German Born Compulsion" and rejected as antithetical to the principles of liberty and democracy for which the war had just been fought. Were the anti-vaccinationists reflecting concern at the inability of the medical profession to prevent the flu epidemic through immunization, or was their opposition to compulsory vaccination a postwar rejection of the social and moral authority of Progressive experts and their domination of the war effort?<sup>65</sup>

### SARS 2003

From 1919 to 2003, municipal and provincial health departments continued to be legally responsible for control of communicable disease. But with the development of vaccines against childhood diseases, the eradication of smallpox, and the use of antibiotics to treat tuberculosis and sexually transmitted diseases, the war on disease appeared to be won. As attention and staff interest shifted to behavior modification and encouraging community development, the financial resources and personnel devoted to disease surveillance, infection control, and isolation/quarantine diminished.<sup>66</sup> Instead of TB sanatoriums, preventive measures, and mass chest screening and tuberculin testing, for example, the Communicable Disease Control (CDC) unit in Toronto was using directly observed therapy against a resurgence of tuberculosis in the late 1990s.<sup>67</sup> But would this client-specific approach prove effective against a future pandemic? What role would municipal health departments be expected to play in the event of such outbreaks?

Experts and pundits began to warn about the possibility of a worldwide pandemic of influenza during the 1970s and 1980s, in the wake of the 1957 and 1968–69 outbreaks. The appearance of Legionnaire's disease, HIV/AIDS, Ebola, and drug-resistant strains

65. MacDougall, *Activists & Advocates*, 123–25; Paul Bator, "The Health Reformers versus the Common Canadian: The Controversy over Compulsory Vaccination against Smallpox in Toronto and Ontario, 1900–1920," *Ontario Hist.*, 1983, 75, 348–73; and Katherine Arnup, "Victims of Vaccination? Opposition to Compulsory Immunization in Ontario, 1900–90," *Can. Bull. Med. Hist./Bull. Can. Hist. Med.*, 1992, 9, 159–76.

66. MacDougall, *Activists & Advocates*, 157–58.

67. Jane Gadd, "Tuberculosis makes Comeback among Homeless and Poor," *Globe and Mail*, 7 March 1996, A1, A10; Trish Crawford, "Return of White Plague," *Toronto Star*, 18 April 1997, B1–2.

of tuberculosis, followed by human deaths from avian flu, was coupled with growing concern about environmental degradation.<sup>68</sup> In Ontario, the 2000 pathogenic outbreak of *E.coli* as a result of water contamination in Walkerton demonstrated the price that communities paid for failing to maintain basic services. A commission chaired by Justice Frank O'Connor highlighted the effect of provincial government cuts to the Ministry of the Environment and noted that it had failed to share vital information with local and provincial health authorities.<sup>69</sup> During the Harris regime from 1995 to 2002, the provincial government pursued tax cuts and reorganization of provincial services that focused on downloading duties to municipalities and regional governments. Convinced that Toronto and its surrounding cities—Scarborough, North York, the Borough of York, East York, and Etobicoke—were duplicating services, the province compelled them to amalgamate in 1997. This meant that the Toronto Health Department had to incorporate staff from the other five municipalities, determine whether its programs and services were appropriate to the new city, and try to find economies that would assist the new city's budget committee in dealing with its declining revenues.<sup>70</sup> The new MOH, Dr. Sheela Basrur, was a graduate of the University of Toronto (M.D. 1982, MHS. 1987) who had been the MOH of the East York Health Unit, which had approximately fifty employees. In 1998 she became the leader of over 1,800 staff, serving a population that was significantly different from its historical roots.<sup>71</sup> In addition to expanding in terms of territory, the new city had a multi-ethnic population that included 14.7% East and Southeast Asians, 10.8% South Asians, 1.9% West Asians, 2.6%

68. Andrew Nikiforuk, *The Fourth Horseman: A Short History of Epidemics, Plagues, Famine and Other Scourges* (Harmondsworth: Viking, 1991); Laurie Garrett, *The Coming Plague: Newly Emerging Diseases in a World Out of Balance* (New York: Farrar, Strauss & Giroux, 1995); Garrett, *Betrayal of Trust: The Collapse of Global Public Health* (New York: Hyperion, 2000). See also the epilogue to Nancy Tomes's study *The Gospel of Germs*, and her article "The Making of a Germ Panic, Then and Now," *Am. J. Pub. Health*, 2000, 90, 191–98.

69. D. R. O'Connor (Hon.), *Report of the Walkerton Inquiry: The Events of May 2000 and Related Issues* (Toronto, ON: Ministry of the Attorney General, 2002).

70. Gay Abbate, "Toronto Board of Health Defies Order to Cut Budget," *Globe and Mail*, 30 July 1997, A5; Colin Vaughan, "The Gap between Promise and Reality," *Globe and Mail*, 5 August 1997, A5. As Colin Vaughan noted, the province was arguing that amalgamation would save money, but previous cuts to Toronto's Health Department had already reduced staffing levels by 25%, and the Toronto region had been designated as under-funded in a 1996 provincial study called *Towards Equitable Funding for Public Health*.

71. "The Toronto Experiment," *Globe and Mail*, 6 September 2003, M10–11.

Africans, 6% Caribbeans, 19% North Americans, 27.4% British, and 1% Aboriginals.<sup>72</sup> Fortunately, Toronto Health had been hiring community workers from the various ethnic groups since the 1980s in recognition of the need to provide culturally sensitive approaches to health education and preventive services.

But would Toronto Public Health, as the new entity was known, be able to maintain its national and international reputation for innovative community-responsive public health services in the face of the province's mandatory programs and limited funding? The 1995 election of the Progressive Conservatives led by Mike Harris compounded the financial difficulties already facing Toronto Public Health as a result of the recession of the early 1990s. The Harris regime was committed to cutting government spending and staff, dismantling publicly owned utilities, remaking the public education system, downloading as many social service and welfare activities as possible, and privatizing certain environmental and health services. For TPH, staff cuts, program closures, and the pressure to reorganize and redefine future goals meant focusing on children, families, and specific "high-risk" groups such as HIV/AIDS victims and street people rather than expanding CDC activities.<sup>73</sup> In addition, the city's many acute-care hospitals and long-term-care facilities were struggling to maintain service levels because of funding shortfalls and declining numbers of staff. A widespread flu outbreak in the winter of 2002 had resulted in the deaths of several citizens who had not received prompt assistance in overcrowded emergency wards. As a result, the province introduced mass flu vaccinations in the fall of 2002. The immunization program was offered free to citizens through public clinics or their family physicians. But would this voluntary program be sufficient to protect Torontonians from the feared pandemic? Health Canada had been attempting to develop a national flu pandemic program, but Ontario was not supportive, preferring to develop its own approach, since the Harris Conservatives were engaged in an ongoing conflict with the Chrétien Liberals over which level of government had the authority to design

72. Ibid. The figures that are derived from the 2001 Canadian census do not include the 35.5% of the population who identified their origin as "Other European." The census also allowed citizens to indicate up to six different ethnic origins, with the result that the overall totals equal more than 100%.

73. Toronto Public Health, *Public Health Budget Fact Sheet*, 10 March 1998.

programs and deliver services. As Justice Archie Campbell's 2004 interim report noted: "To put together a provincial pandemic plan a number of parts needed to come together, including public health, labs, hospitals branch, emergency response and emergency management . . . . Had a pandemic flu plan been in place before SARS, Ontario would have been much better prepared to deal with the outbreak."<sup>74</sup> Toronto was in fact developing its own flu pandemic management plan, but like most other Ontario health units it was waiting for the Public Health Branch of the provincial ministry to provide a template for responding to such a calamity. And then through a fluke of nature, Toronto became the North American center of the SARS outbreak.

In mid-February 2003, a vacationing Torontonian, seventy-eight-year-old Sui-chu Kwan, was waiting for the elevator on the ninth floor of the Metropole Hotel in Kowloon when another guest, a doctor from Guangdong province in China, began to cough vigorously. He was ill with the atypical pneumonia that had been raging since November 2002 but had not been reported to the World Health Organization until early February. After Mrs. Kwan flew back to Toronto on 23 February, her symptoms—a high fever, muscle aches, and a dry cough—worsened, and she went to her family doctor's office on 28 February. Unfortunately, her condition deteriorated and she died at home in Scarborough on 5 March. Her forty-four-year-old son, Chi Kwai Tse, went to Scarborough Grace Hospital on 7 March with "a high fever, a severe cough, and difficulty breathing. He shared the open observation ward of a busy emergency department for 18 to 20 hours while awaiting admission."<sup>75</sup> This would prove to be the index case for the first phase of the SARS epidemic in Toronto. Mr. Tse died on 13 March, having infected several family members, emergency staff, and fellow patients. The respirologist who treated him in the ER had sent samples out to test for infectious tuberculosis and had called Toronto Public

74. Justice Archie Campbell, *The SARS Commission Interim Report—SARS and Public Health in Ontario*, 15 April 2004, 46. The Campbell report can be located online at [www.health.gov.on.ca/english/public/pub/ministry\\_reports/campbello4](http://www.health.gov.on.ca/english/public/pub/ministry_reports/campbello4).

75. Canada, National Advisory Committee on SARS and Public Health, C. David Naylor, chair, *Learning from SARS: Renewal of Public Health in Canada: A Report of the National Advisory Committee on SARS and Public Health* (Ottawa: Health Canada, 2003), chapter 2, "Anatomy of an Epidemic," 2–3, viewed at [www.hc-sc.gc.ca/english/protection/warnings/sars/learning/EngSe30](http://www.hc-sc.gc.ca/english/protection/warnings/sars/learning/EngSe30) on 26 October 2003 (hereafter, *Learning from SARS*).

Health to alert them to this possible problem. By 13 March, however, the tuberculosis test was negative, more people were sick, and infection-control experts at other Toronto hospitals were working with TPH to identify the new disease. On 12 March, the World Health Organization had issued a Global Alert announcing outbreaks of atypical pneumonia in Hong Kong and Hanoi, and this enabled TPH and Dr. Allison McGeer, an infectious-disease specialist at Mount Sinai Hospital, to identify the mystery illness.<sup>76</sup>

“In consultation with provincial and federal health officials, TPH held a press conference on March 14, activated its emergency response plan, established a public information hotline and assigned staff full-time to the outbreak investigation.”<sup>77</sup> This succinct statement fails to convey the sense of crisis that existed as all three levels of health authorities discovered the weakened state of communicable disease control measures. For more than fifty years, TPH had not imposed quarantine on its citizens, and although the provincial Health Promotion and Protection Act contained provisions to do so, TPH staff lacked recent experience. Even more challenging was the lack of knowledge regarding the disease itself. What was its cause? How was it spread? Where was it most likely to be contracted? What was the incubation period? How should it be treated? Who should be responsible for informing the public, provincial and federal authorities, and the WHO about suspected and probable cases?

The SARS outbreak starkly revealed the lack of coordination between federal and provincial health officials, and this conflict added to the demands being placed on TPH staff when they found themselves providing the same information to two different sets of officials. Differences of opinion about the confidentiality of patient information further challenged TPH containment efforts, since they needed names of contacts to determine who should undergo a ten-day quarantine.<sup>78</sup> In contrast to 1918, when there had been a united front against influenza, the SARS outbreak illustrated the gap between prevention at the community level and care in hospitals or

76. *Learning from SARS*, 3–7.

77. Sheela V. Basrur, Barbara Yaffe, and Bonnie Henry, “SARS: A Local Public Health Perspective,” *Can. J. Pub. Health*, 2004, 95, 22.

78. Mr. Justice Archie Campbell, *Second Interim Report: SARS and Public Health Legislation*, 5 April 2005, 213–30. This report can also be viewed online at [www.health.gov.on.ca](http://www.health.gov.on.ca).

other tertiary facilities. The situation was further complicated because of international air travel and the growing demand for preventive precautions at Pearson International Airport, located in Mississauga, outside the bounds of TPH's jurisdiction.

With virtually no scientific information to guide them at the start, and confused lines of communication with senior governments, Basrur and up to 700 of her staff began to track cases, monitor contacts, provide infection-control advice to long-term-care facilities and hospitals with SARS patients, and respond to growing public concern about the extent and nature of the outbreak. In addition to its printed materials, the TPH website posted descriptions of the symptoms as well as guidelines on hand-washing and quarantine procedures in fourteen languages. More than 200 staff did daily double shifts from 8 A.M. to 11 P.M. on the SARS Hotline, which received over 300,000 calls during the outbreak, 47,567 in a single day. Although staff worked diligently, they were aware that the fragmentary information they provided early in the outbreak caused frustration for many callers. As Justice Campbell commented: "The problem was not lack of dedication and effort, but the fact that it was impossible in the middle of a rapidly expanding crisis to create the necessary infrastructure."<sup>79</sup> Nevertheless, in recognition of the ethnic diversity of the city and the origins of the outbreak, TPH worked closely with the Chinese community, which had created a Community Coalition Concerned about SARS. This group trained Chinese-, Mandarin-, and Cantonese-speaking volunteers to staff a 6180 hotline (the numbers sound like the Chinese word for "I'm willing to help you"), produced and distributed Chinese-language SARS material, did promotional activities for hard-hit Chinese businesses, and raised research money for SARS studies.<sup>80</sup>

During the course of the outbreak, TPH's Case Management Team was involved in 2,000 investigations that required consultation with infectious-disease specialists because the symptoms were atypical and no diagnostic test was available, even though the genetic sequence of the coronavirus was established by British

79. Campbell, *The SARS Commission Interim Report 2004*, 146.

80. Weizhen Dong, "Beyond SARS: Health Care in a Highly Diversified Society—A Case Study of Toronto," University of Toronto Centre for Health Promotion, 14th Annual Report 2003–2004, 9–10, viewed at <http://www.utoronto.ca/chp/download/AnnualReports/2003-04.pdf> on 11 July 2006.

Columbia's Michael Smith Genomic Sciences Centre on 12 April.<sup>81</sup> The lack of clear diagnostic criteria complicated control procedures because TPH staff and their clinical colleagues were aware of the stigma attached to the disease and of the danger of missing a case. To compound their difficulties, technology failed at this critical moment. When the outbreak started, the only available disease-reporting system was a fourteen-year-old DOS-based one known as RDIS (Reportable Disease Information System). It was quickly apparent that this disease-specific program would not work, and TPH turned to paper files with Post-it notes to keep track of cases and their contacts. Within two weeks Excel spreadsheets were also in use, but at no point was the technology sufficiently flexible to provide the type of information and analysis that would have enabled a clearer picture to emerge.<sup>82</sup> The challenge of contact tracing and quarantine supervision was immense, as over 23,300 people were identified as contacts in each of the two waves of the disease and 13,374 spent ten days isolated in their homes. While they were in quarantine, staff from TPH phoned once or twice a day to see if they had any symptoms and to find out if emergency food supplies from the Salvation Army or Canadian Red Cross were required. In spite of frustration caused by having to review their situation with each TPH staff member who contacted them, very few Torontonians refused to comply with voluntary quarantine procedures. Only twenty-seven isolation orders were issued during the outbreak.<sup>83</sup>

81. Mark Hume, "In Search of a SARS Vaccine: 'It's been a Heck of a Ride,'" *Globe and Mail*, 7 February 2004, F6.

82. Campbell, *The SARS Commission Interim Report, 2004*. See Inadequate Infectious Disease Information Systems, 100–110, and Lack of Surge Capacity: The Toronto Example, 146–52.

83. Campbell, *The SARS Commission Interim Report, 2004*, 147–49. Justice Campbell noted a variety of criticisms about the lack of sustained follow-up by TPH staff who were familiar with the individual or family's case and several instances where TPH staff called to inquire about the health status of patients, only to discover that they had died in the hospital days earlier. See also Basrur et al., "SARS: A Local Public Health Perspective," 22–23. In his *Second Interim Reports: SARS and Public Health Legislation*, 5 April 2005, Justice Campbell discussed the legal meaning of the term "quarantine" in chapter 8. He also cited an article by Clete DiGiovanni, Jerome Conley, Daniel Chiu, and Jason Zaborski, "Factors Influencing Compliance with Quarantine in Toronto during the 2003 SARS Outbreak," published in *Biosecurity and Bioterrorism: Biodefense Strategy, Practice and Science*, December 2004, 2, 265–72, in which Torontonians and health care personnel who had been quarantined reported that they had complied with quarantine requests "to reduce the risk of transmission to others," to protect community health, and because they saw it as their "civic duty." Fear of legal consequences had little influence in the decision to undergo the hardship that ten days in isolation imposed.



In a post-outbreak survey of health care workers and the general population who had been isolated, an American organization discovered that respondents cited “protecting others” as their main motivation for undergoing quarantine. This strong sense of personal and collective responsibility for community welfare mirrors the dedication of visiting nurses and volunteers during the 1918 flu epidemic.

The good behavior by the general public may have stemmed in part from the growing recognition that SARS was apparently a nosocomial infection.<sup>84</sup> The outbreak was confined mainly to hospital staff, patients, visitors, and family members who had close contact with the index cases.<sup>85</sup> But in response to growing concern about SARS spreading more widely, the Ontario government declared a state of emergency on 26 March 2003 and ordered all of Toronto’s hospitals to move to Code Orange emergency procedures. As in 1918, this resulted in the cancellation of all surgical procedures, limited emergency access, and the cancellation of appointments and elective procedures. All visitors were banned, including families seeking to care for dying relatives. Four days later, this draconian measure was applied to the province in general to protect health care workers and to prevent the spread of SARS into the general population.<sup>86</sup>

By the middle of April, the number of new cases was declining and health authorities began to think that the worst was over.<sup>87</sup>

84. Caroline Alphonso, “Hospitals Scramble to Protect SARS Staff,” *Globe and Mail*, 22 April 2003, A1, 4; Carolyn Abraham, “Virus Can Live 24 Hours Outside Host,” *Globe and Mail*, 22 April 2003, A1, 4. The second story notes that a team from the Centers for Disease Control in Atlanta had arrived in Toronto to assist infection control experts at Mount Sinai and Sunnybrook and Women’s College Health Sciences Centre in determining what measures to take to protect health care workers from infection. Torontonians seemed calm about the outbreak, and even those who regularly used the GO transit system to commute to their jobs were not unduly worried about the possibility of having shared the train with a symptomatic nurse from Mount Sinai on 14 and 15 April. See Colin Freeze, “Commuters into Toronto Ride out Scare,” *Globe and Mail*, 22 April 2003, A5.

85. Chapter 2 of *Learning from SARS* describes the “Quest for containment” between 8 April and 23 April, 10–12, and notes that the media highlighted each story about possible community spread, leaving the impression that TPH and provincial authorities were not doing their jobs effectively.

86. Rhea Seymour, “Courage Under Fire,” *Univ. Toronto Mag.*, Winter 2004, 31, 30. The writer notes that medical and nursing students at the University of Toronto had their classes and clinical rotations canceled as a result of the SARS outbreak. In contrast to 1918, they were not asked to volunteer their services.

87. André Picard, “Outbreak Is Easing, Expert Says,” *Globe and Mail*, 24 April 2003, A1, A8.

Provincial officials and hospital spokespeople had issued daily reports on the number of actual, probable, and suspected cases and provided the media with information to calm public anxieties over the Easter and Passover holidays. As in 1918, religious groups were asked to use common sense and to avoid shaking hands, kissing, sharing common communion cups, and organizing large gatherings, including funerals. But as post-outbreak studies indicated, the mixed messages that the daily briefings provided did not convince external observers that the situation was under control.<sup>88</sup> Imagine their surprise and shock when the WHO imposed a travel advisory on Toronto on 23 April.<sup>89</sup> This unwelcome decision required Dr. Barbara Yaffe, Toronto's Director of Communicable Disease Control, to travel to Geneva with federal officials, the Ontario Minister of Health and Long Term Care, and the province's Chief Medical Officer to meet with WHO officials to reassure them about the success of containment measures.<sup>90</sup> On 30 April the ban was lifted, but the international publicity and the continuing cancellation of conferences and conventions meant that Toronto's economy was suffering greatly.<sup>91</sup> The loss of jobs in the tourism and hospitality industries added to the stress, and the civic and provincial governments turned to marketing campaigns in an effort to reassure Torontonians and visitors that the city was safe to visit.

During late April and early May, staff from North York General Hospital sought advice from TPH regarding possible SARS cases in the psychiatric ward and among elderly post-operative orthopedic patients. Since none of these people could be linked epidemiologically to previous cases, the situation remained in flux until an ICU nurse from North York General was admitted to the Toronto Western Hospital with SARS. In the interim, possible SARS patients had been transferred to St. John's Rehabilitation Hospital and the Baycrest

88. Campbell, *SARS Commission Interim Report 2004*, 56–63.

89. Carolyn Abraham and Caroline Alphonso, "Crossed Wires put Toronto on Hit List," *Globe and Mail*, 24 April 2003, A1, A7.

90. Seymour, "Courage," 32–33.

91. Danylo Hawaleshka, "SARS: Is This Your Best Defence?," *Maclean's Mag.*, 14 April 2003, 116, 24; Murray Campbell, "Disease Is Damaging Ontario's Economy, Cabinet Officials Say," *Globe and Mail*, 23 April 2003, A4; Jonathon Gatehouse, "SARS: Fear and Loathing of Toronto," *Maclean's Mag.*, 5 May 2003, 116, 19–22, and Mary Janigan, "Room at the Table," *Maclean's Mag.*, 5 May 2003, 116, 24–25.

Centre for Geriatric Care.<sup>92</sup> The province announced publicly that a second wave of the disease had appeared on 23 May, and the criticisms of all the flaws and failures that external critics had been making about the city's inability to control the disease increased in volume. Prime Minister Jean Chrétien had already appointed a national commission led by Dr. David Naylor, then Dean of Medicine at the University of Toronto, to investigate the outbreak, and now the Ontario Minister of Health, Tony Clement, announced the creation of an expert panel on SARS and infectious disease chaired by Dr. David Walker, Dean of Medicine at Queen's University in Kingston. And finally, on 10 June, Ontario's then-Premier, Ernie Eves, named Justice Archie Campbell to head a judicial commission to take testimony from patients, families, health care workers, and their representatives. These reviews made SARS one of the most intensively studied disease outbreaks in Canadian history, and the Naylor, Walker, and Campbell reports all stressed the lack of coordination, capacity, and communication that bedeviled federal/provincial/municipal relations in Ontario during the crisis.

On 30 June, the first nurse to die in the outbreak perished. Her death was followed by that of a colleague on 19 July, and by that of a family physician on 13 August. Out of the national total of 438 cases, Toronto had 224, with 44 deaths.<sup>93</sup> Twenty-nine nurses, fourteen doctors, and thirty other health care workers, including respiratory therapists, radiology and ECG technicians, paramedics, registered assistants, housekeepers, clerical staff, and security personnel, suffered from SARS, and many are still trying to recover.<sup>94</sup> In comparison to the morbidity and mortality of the 1918 flu, these numbers may seem small, but a century of medical progress had conditioned the public and health care workers themselves to expect medical professionals to provide prompt diagnoses and effective cures. The apparent speed with which SARS could spread and the

92. Kylie Taggart, "Independent SARS Commission Set up in Ont.," *Med. Post*, 2003, 39, 5. In this story, Taggart notes that a ninety-six-year-old man who died at NYGH was thought to be the index case for the second SARS wave: a health care worker on the same floor may have contracted SARS from her mother, who had been a patient in the Scarborough Grace Hospital.

93. *Learning from SARS*, chapter 1, 1, 4. According to Mark Hume's article, "In Search of a SARS Vaccine," China experienced 5,000 cases, with 349 deaths, and was leading in the race to produce a vaccine against SARS. Worldwide, the disease infected 8,500 people in 30 countries and killed 800, including the 44 in Toronto.

94. Terry Murray, "Health-care Staff Have a 'Duty' to Treat," *Med. Post*, 2003, 39, 6.

lack of provincial laboratory support for diagnostic purposes left Toronto Health reliant on volunteers from other health units in Ontario and medical researchers based in the city's hospitals for the information that it needed to determine whether individuals were at risk of contracting or spreading the disease. When experts like Allison McGeer became ill with SARS, not only was there concern for her, but the experts with whom she had been consulting had to undertake ten days of quarantine during the height of phase one.<sup>95</sup> The colleagues who cared for them, as well as the public health staff who supervised quarantine activities for their families, will never forget the stress that this outbreak brought.

#### LESSONS FROM EXPERIENCE?

What does reviewing the history of disease outbreaks and epidemics have to contribute to improving our understanding of disease transmission and control? What does this type of analysis tell us about how society reacts to disease threats? And how can the lessons of these traumatic experiences be integrated into future planning? In comparing and contrasting the Toronto Health Department's response to pandemic influenza in 1918 and SARS in 2003, three main areas of comparison emerge: coordination, capacity, and communication. In 1918, Charles Hastings was indisputably in charge of the city's efforts to stem the flu because there were no senior agencies to provide direction from either Ottawa or Geneva. Nearly ninety years later, Sheela Basrur had a similar role and responsibilities under the Health Protection and Promotion Act, but she was not recognized as the dominant leader because the disease had national and international implications, and therefore Health Canada, the Ontario Ministry of Health and Long Term Care, and the province's emergency measures and public safety unit all participated in determining how the outbreak would be handled. As the Naylor, Walker, and Campbell reports make clear, Basrur and her staff worked twenty-hour days to contain SARS. They were assisted by volunteers from other Ontario health departments, other provinces, and the United States, but found that in contrast to the close, collegial links that Hastings and his staff had with Toronto hospitals and provincial authorities, there was conflict and confusion over activities

95. Seymour, "Courage," 26–29. See also Terry Murray, "MD's Illness Gave Her a Unique View of SARS," *Med. Post*, 2003, 39, 5.

and authority.<sup>96</sup> Gradually, informal links with nearby health units emerged, as SARS spread beyond Toronto and York County into the Peel and Durham regions, but the shared sense of camaraderie that marked 1918 did not materialize, because there had not been the type of sustained contact and trust-building that had occurred in Toronto from 1914–1918.

Both outbreaks demonstrated the logistical and political challenge that contagious diseases pose to local public health administrators. In 1918, Hastings and McCullough knew that their plans would be overset by lack of personnel. But they also knew that they could call on willing volunteers for support, and that the mayor and Local Board of Health backed them. Almost a century later, Toronto Public Health had 250 to 300 people working in its communicable disease control section, but they were dealing with an unknown disease that quickly uncovered the gaps in existing procedures for infection control in public institutions. Although TPH staff had worked with the seventy-eight long-term-care facilities in the city to ensure that their infection control practices were effective, they had not provided the same level of service to acute care hospitals, because of budget cuts and because there were supposed to be infection control officers and committees in place.<sup>97</sup> As a result, the trust that enabled Hastings and McCullough to rely on their academic and hospital-based colleagues for curative services did not exist, and TPH moved to create effective relationships with Toronto hospitals by establishing a communicable diseases hospital liaison unit. This was fully funded by the province from June 2003 to March 2004, with a commitment for 50% funding thereafter. But as the *Toronto Star* reported, city bureaucrats think that unless the province pays the entire cost, the city should scrap the unit. Not surprisingly, TPH has argued that this unit is a critical part of future disease control efforts if a seamless transition from preventive to curative services is to be provided.<sup>98</sup>

In both outbreaks, communication was a vital part of the MOH's role. In October 1918, Hastings responded promptly to press

96. Jackie Smith, "First, Tell the Real Story," *Globe and Mail*, 28 April 2003, A13; Carolyn Abraham and Lisa Priest, "Cutbacks Fed SARS Calamity, Critics Say," *Globe and Mail*, 3 May 2003, A1, A6; Richard Mackie and Murray Campbell, "Public-health Spending Cuts Went too far, Critics Say," *Globe and Mail*, 6 May 2003, A9.

97. Campbell, *SARS Commission Interim Report 2004*, 132.

98. *Ibid.*, 133.

queries, relying on his well-established ties with various newspapers to ensure that a message of calmness and fortitude was presented. The extent of the epidemic meant that many reporters, typesetters, and delivery boys were among the ill, with the result that the official view was rarely questioned. As well, stories about the final days of the First World War occupied many readers' attention. In 2003, the local press was initially very supportive and provided excellent summaries of existing knowledge regarding symptoms and where to seek help.<sup>99</sup> The nightly news included the daily press conferences attended by senior provincial officials, local infectious-disease specialists, and Dr. Basrur. Her calmness throughout the crisis had an impact, according to one Toronto hospital's administrative assistant: "When the medical officer of health gets on TV and says everything is ok, we believe her."<sup>100</sup> Unfortunately, the information provided by hospital-based specialists and provincial authorities seemed to contradict the MOH's steady confidence in her staff and their activities.<sup>101</sup> As the Naylor, Walker, and Campbell reports suggest, this approach was ultimately perceived as indicating a lack of leadership and a possible attempt at covering up the extent of the outbreak. In retrospect, a single spokesperson would have been advisable, but there was little that any of the officials could do to overcome the voracious appetite of the media for information.

The information and misinformation that was broadcast internationally undoubtedly contributed to the WHO travel advisory and to the decline in tourism and convention business.<sup>102</sup> As a result, politicians at the provincial and federal levels tried to demonstrate their faith in the disease control efforts by TPH and its supporters by having widely publicized meals in Chinese restaurants. Gallant as these attempts to jump-start Toronto's economy and promote solidarity

99. Nick McCabe-Lokos, "Know What Is Known about SARS," *Toronto Star*, 28 March 2003, D5; André Picard, "Fear Factor: So just how Big a Risk Is SARS?," *Globe and Mail*, 5 April 2003, F8.

100. Gatehouse, "SARS," 22. What made the statement more surprising is that Pat Green's husband was a Toronto firefighter and her son, Derek, was a Toronto Transit Commission bus driver, indicating that all three of them were in occupations that would be at risk if SARS had been spreading in the community.

101. Campbell, *SARS Commission Interim Report 2004*, 60–61.

102. The *Learning from SARS* report estimated that SARS would cost Canada two billion dollars, while the former Ontario auditor, Erik Peters, stated that SARS-related spending by the provincial government would cost \$720 million, only \$250 million of which would come from federal coffers. See Justice Campbell's 2004 *Interim Report—SARS and Public Health in Ontario*, Appendix E: The Economic Impact of SARS.

with potential voters were, they did not mask the underlying tension between the two levels of government. TPH was caught in the middle because it was the body that had to help people qualify for federal employment insurance, provide food and other necessities while they were in quarantine, and respond to all the calls for information that flooded the hotline. Perhaps the most difficult ones to deal with were those asking for assistance in avoiding ethnic stigmatization. With its origins in China, SARS provided critics of Canadian immigration policy with a platform from which to vent their concerns. But the April outbreak among a charismatic Filipino religious group meant that they too were treated with hostility and fear.<sup>103</sup> As previously noted, nineteenth- and twentieth-century epidemics were replete with racist critiques directed against the presumed human vectors of diseases such as cholera, typhus, and plague. Even AIDS prompted a similar response because of the high morbidity rate within the Haitian community.<sup>104</sup> But one of the striking features of the SARS outbreak was the uniform condemnation of racist epithets by politicians, reporters, and concerned members of the public.

And when it became clear that SARS was predominantly hospital-based, health care workers also found themselves socially isolated. Each of the official reports commented on the sense of “fear, anger, guilt and confusion” that health care professionals felt as they tried to protect themselves and their families from the disease and from the fear evinced by their fellow citizens. Even more perturbing was the rift that appeared when provincial public health experts suggested that some of the in-hospital transmission occurred because of lack of hand washing, lack of proper use of N95 masks, and lack of common sense about staying home if symptomatic.<sup>105</sup> A team from the Centers for Disease Control and Prevention in Atlanta was invited to Toronto to adjudicate this dispute, but well after the outbreak was over, it was revealed that very few of the N95 masks had been properly fitted. Little wonder that hospital-based nurses who appeared before each of the commissions of inquiry were vehement

103. “Voices from the Front,” *Maclean’s Mag.*, 5 May 2003, 116, 23–24. Tess Malolos, a member of the Bukas-Loob sa Diyos congregation, explains the misinformation that was harming her family and the Filipino community.

104. Paul Farmer, “Pestilence and Restraint: Haitians, Guantánamo, and the Logic of Quarantine,” in *AIDS and the Public Debate: Historical and Contemporary Perspectives*, 139–52.

105. Danylo Hawaleshka, “Is This Your Best Defence?,” *Maclean’s Mag.*, 14 April 2003, 116, 21–23; André Picard, “Mommy, Are You Going to Die?”

in their criticism of the way the outbreak was handled.<sup>106</sup> For these frontline workers, the SARS outbreak demonstrated once again the gap between theory and practice in clinical settings and the continuing hierarchy that privileged medical rather than nursing and other staff. A century of evolution in professional identities and status expectations was laid bare by SARS.

In 1918, flu was a known disease whose virulence seemed unaccountably to have mutated to the point that it became lethal. SARS was an unknown virus whose incubation period, degree of virulence, symptomatology, treatment, and sequelae were determined through experience and monitoring events in Hong Kong, Singapore, Hanoi, and other stricken centers.<sup>107</sup> In both instances, local public health agencies were the principal agents of the state because they provided the organization and staff to conduct case-finding home visits, arrange contact tracing and quarantine measures, and organize hospital accommodations for the seriously ill. These standard disease-control measures were overwhelmed by the magnitude of the 1918 epidemic, but the volunteer efforts of many citizens meant that the supportive care needed to prevent flu sufferers from succumbing to pneumonia and other sequelae was available. In 2003, the unity of purpose that had linked Toronto's Health Department, city hospitals, and the Neighbourhood Workers' Association no longer existed. The hospital sector dominated much of the press coverage, and the cleavage between provincial officials and nurses' unions became widely known as a result.<sup>108</sup> "Name, blame, shame" replaced the deference to authority that had marked early

106. *Learning from SARS*, chapter 2, 16. "SARS has provoked welcome discussion of the occupational culture in health care . . . . Countless health care workers faced a fundamental conflict between self-preservation, and a professional obligation to serve the greater good. . . . The Committee would like to salute each and every one of them for their courage and commitment."

107. Judy Gerstel, "Doctor's Diary of Deadly Disease, Hong Kong M.D. Shares Experience, His Notes Help Toronto's Battle," *Toronto Star*, 28 March 2003, D1, D4.

108. *Learning from SARS*, chapter 2, 16. "Nurses have long voiced concerns that their knowledge and experience is not taken seriously by senior decision makers. At North York General Hospital, nurses alleged that administrators ignored their warnings of an impending second SARS outbreak." For the nurses' perspective, see "SARS War's Unsung Heroes—Nurses at Their Posts through Crisis despite Stress, Danger," *National Nursing Week Supplement, Globe and Mail*, 12 May 2003, N1. In a more pointed critique of the system, thirty nurses who contracted SARS as a result of nursing patients decided to sue the provincial government. See "Nurses Sue over SARS," *The Record*, 26 March 2004, A1, A2. The case is still pending.



twentieth-century news reports. Nevertheless, the work of TPH staff was recognized by international experts, and on 12 July 2004, Mayor David Miller presented Dr. Barbara Yaffe, the acting MOH, and frontline staff with the Canadian Public Health Association Certificate of Merit Award for “their exceptional contribution in managing the SARS crisis” by “controlling the outbreak and implementing one of the largest quarantines in modern history.”<sup>109</sup> Such recognition from peers and colleagues across the country is welcome confirmation that in spite of all the flaws and failures, Toronto Public Health fulfilled its obligations. And in his second interim report, Justice Campbell argued for the primacy of local and provincial medical officers, stating that they “must have the lead role in public health emergency mitigation, management, recovery, coordination and risk communication.”<sup>110</sup>

#### CONCLUSION

When the SARS outbreak began, reporters looked for parallels and historical models. The 1918 flu epidemic was cited by epidemiologists and historians as a possible parallel, largely, one suspects, because it has recently been the subject of renewed research and because it was worldwide.<sup>111</sup> But was there perhaps another reason? Were reporters and newscasters seeking reassurance that all would be well and that civilization would survive? In the western media, attention was divided between the war in Iraq and the SARS outbreak. In the twenty-first century, death in combat seems somehow more comprehensible than death from disease. But as environmental degradation proceeds and species-jumping viruses and bacteria multiply, the certainties that pervaded twentieth-century western medicine are beginning to fade. In their place is increasing respect for the ability of microorganisms to mutate and a determination to use all available scientific tools to combat threats to human health. To date,

109. Celia Milne, “SARS Will Strike Again—and Again,” *Med. Post*, 2003, 39, 5, quotes Dr. Mark Lipsitch of Harvard University, who stated that “TPH did a very good job under completely uncertain circumstances.” See also City of Toronto Press Release, 12 July 2004, viewed at [wx.toronto.ca/inter/it/newsrel.nsf](http://wx.toronto.ca/inter/it/newsrel.nsf) on 15 August 2004.

110. Justice Campbell, *Second Interim Report: SARS and Public Health Legislation*, April 2005.

111. Prithi Yelaja, “Fear Recalls Past Outbreaks,” *Toronto Star*, 28 March 2003, D2; Anne McLroy, “1918 Redux?,” *Globe and Mail*, 5 April 2003, F9; Danylo Hawaleshka, “Killer Viruses,” *Maclean’s Mag.*, 2003, 116, 50–51.

three vaccines have been developed against SARS; the Sino-European project on SARS Diagnostics and Antivirals has reported that cinanserin, a drug for schizophrenia, is a useful therapy; and Dr. Josef Penninger's research team has demonstrated that the protein ACE2 can be used to combat the fluid buildup that killed SARS patients.<sup>112</sup> Clarifying the clinical picture and finding effective medications may remove the fear that epidemic diseases create, but, as this review of disease control activities has demonstrated, age-old methods such as case identification, contact tracing, quarantine, and isolation are the first stage of containment and hopefully eradication. Toronto's experiences in 1918 and 2003 demonstrate "the power of public health" as the bedrock of disease control efforts.

But is it the historian's responsibility to point out the "lessons of the past"? If so, to whom should her observations be addressed? Policymakers and public health administrators will be using the recommendations of the three reports as the foundation for change, and indeed, the federal government has already created a junior minister of state for public health, while Ontario, under its new Liberal government, has promised \$41.7 million over the next three years to create the Ontario Health Protection and Promotion Agency. Dr. Sheila Basrur has been appointed the new Chief Medical Officer of Health, and the powers of the position have been expanded to enable future planning and better coordination.<sup>113</sup> Does this signal the senior governments' recognition of the crucial importance of prevention? Has the balance of power within the biomedical world shifted, or will the SARS outbreak fade from memory as quickly as the events of 1918? These questions will challenge future historians to explain the long-term impact of epidemic disease on society and to analyze the role of local health departments in the ever-expanding war on disease.

112. Mark Hume, "In Search of a SARS Vaccine"; "SARS Vaccine Team Hits Serious Hurdle," *The Record*, 29 November 2004, A3; *Toronto Star*, small news item, 20 June 2005, A13; Sheryl Ubelacker, "SARS Link to Acute Lung Failure Discovered in Laboratory Mice," *Globe and Mail*, 12 July 2005, A11.

113. Carolyn Bennett, "Building a National Public Health System," *Can. Med. Assoc. J.*, 2004, 170, 9; Richard Mackie, "Ontario to put SARS Lessons into Practice," *Globe and Mail*, 23 June 2004, A9. As a result of experience during the SARS outbreak and growing concern about a future influenza pandemic, all three levels of Canadian government have created pandemic influenza plans. See [www.health.gov.on.ca](http://www.health.gov.on.ca) for information on the Ontario plan and its links to the federal plan. See [www.toronto.ca/health/pandemicflu/index.htm](http://www.toronto.ca/health/pandemicflu/index.htm) for Toronto Health's plan.