CHAPTER THREE: The Story of SARS

Guangdong to Scarborough Grace Hospital

Ontario's SARS tragedy began a world away, yet only a plane ride away, in a land hugely different from Canada. Guangdong is a province of China, the landmass surrounding Hong Kong on the South China Sea. Its subtropical monsoon climate nourishes moist green areas where plants grow 12 months a year. The province is slightly larger than Southern Ontario, but much more densely populated, with up to 110 million citizens compared with Southern Ontario's 11 million.[61]

South China is 12,000 kilometres distant from Ontario, but the fact that deadly SARS came to us so quickly and easily from such a great distance proves again that "global village" is not just a catch phrase. It reinforces the reality that a sneeze on the other side of the world can bring infectious disease to us in days, if not hours.

Although the two provinces seem worlds apart, they are increasingly connected through trade and immigration. Guangdong has been a major source of immigrants for North America, including Canada.

Guangdong is one of the more prosperous areas of China. It has teeming industrial centres surrounded by fertile farming areas where people work and live in close proximity to their animals. Animals are an important part of life there, and not just for the farm folk. South China is famous for its live animal markets. Many people believe that eating freshly killed wild animals promotes vitality and good health. Live animal markets display cages of domestic and wild animals, from cats and dogs to snakes and bats and civet cats, which are closely related to the mongoose. Customers choose what they wish at the markets and see it butchered on the spot.

61. Xinhua News Agency February 16, 2005, as found at www.chinaview.cn.

These live markets and the fact of animals and humans living so close together are known factors in the development of new diseases, particularly influenzas. Links between animal-human relationships and disease worry the World Health Organization (WHO), which has said that health authorities should "examine the risk to humans from dangerous agricultural practices such as raising chickens, ducks, pigs and other animals together – often in unsanitary conditions and normally with no barriers between them and humans."[62]

It is in this environment of "wet" markets and crowded farm settings that SARS is believed to have developed.

On November 16, 2002, a 45-year-old man in Foshan, a Guangdong city of 3.4 million about 100 kilometres from Hong Kong,[63] became ill with an unusual respiratory illness. No one is quite sure where or how he contracted the illness. He did not travel in the previous 14 days, but he did prepare chicken, domestic cat and snake for household consumption. Some of the earliest SARS patients had links to the use of wild animals for food.[64]

The man, an administrator and local leader in the province, was married with four children. Within weeks, his 42-year-old wife, a 22-year-old niece, a 50-year-old aunt and her 50-year-old husband also became ill.[65]

He was Patient 1, the earliest retrospectively identified case of a previously unknown lung disease later named severe acute respiratory syndrome.[66] He and his four family

62. Dr. Shigeru Omi, World Health Organization Regional Director for the Western Pacific, speech to 2nd FAO/OIE Regional Meeting on Avian Influenza Control in Asia, Ho Chi Minh City, Viet Nam, 23 to 25 February 2005.
63. Data on Foshan are from materials developed by a 2004 Massachusetts Institute of Technology planning workshop. See http://web.mit.edu/11.952/www/en/today/today.htm.
64. Xu R-H, He J-F, Evans MR, Peng G-W, Field HE, Yu D-W, et al. "Epidemiologic clues to SARS origin in China." *Emerg Infect Dis*. 2004 Jun. Available from: http://www.cdc.gov/ncidod/EID/vol10no6/03-0852.htm (Xu R-H et al., "Epidemiologic clues to SARS origin in China.").
65. Xu R-H Article.
66. In June 2004, researchers from China, the United Kingdom, Australia and the World Health Organization published the results of their retrospective analysis of the Guangdong surveillance database and a case investigations database. They also interviewed staff from the Guangdong Provincial Centers for Disease Control, and Foshan Municipal Center for Disease Control to obtain supplementary information on early-onset cases. Information on early cases in the neighbouring Guangxi Province was obtained from local investigators by a visiting WHO team. An important limitation is that none of the cases cited were laboratory confirmed. Diagnoses relied on clinical case definitions. See: Xu R-H et al., "Epidemiologic clues to SARS origin in China."

members are thought to have been the first cluster[67] of a disease that infected 8,096 people around the world and killed 774 before ebbing in the summer of 2003.[68] Guangdong was especially hard hit, accounting for more than 1,500 probable cases and 58 deaths.[69] Southern Ontario was the worst-affected jurisdiction outside Asia, with SARS infecting 375 people and killing 44.[70]

It took months after this first known infection for health authorities throughout the world to identify the disease as something new, learn its characteristics and determine how to deal with it. In the early days of SARS, little was known by anyone anywhere about this mysterious disease. Medical workers had no diagnostic criteria and no clinical test, and the incubation period was unknown. The method of transmission was uncertain, as was the effectiveness of protective equipment and safety requirements. To this day it is still not known exactly how the disease developed or whether it will reappear.

SARS spread from Foshan into other areas of Guangdong. By January 2003 it was seen in Guangzhou, the provincial capital, where workers in the health industry began to fall ill.

Communication about spread of the disease was poor. Poor communication became a hallmark of the outbreak over the coming months, and when it arrived in Canada. Again and again, as noted below, the Ontario response to SARS was hampered by lack of communication between governments, public authorities, agencies and hospitals.

There were some alerts, but for various reasons they did not register as clearly as they should have. On November 27, 2002, the WHO received a Chinese-language news

67. Cluster: "Aggregation of relatively uncommon events or diseases in space and/or in time in amounts that are believed or perceived to be greater than could be expected by chance." Source: Last, John M., ed., *A Dictionary of Epidemiology* (Oxford, U.K., 2001), p. 31-2.
68. World Health Organization, "Summary of Probable SARS cases with onset of illness from 1 November 2002 to 31 July 2003." See http://www.who.int/csr/sars/country/table2004_04_21/en/index.html.
69. McLean, A.R., May, R.M., Pattison, J. and Weiss, R.A., Eds., *SARS: A Case Study in Emerging Infections* (Oxford University Press, 2005), p. 31.
70. Because of the difficulty in diagnosis, the precise number of Ontario SARS cases has been reported slightly differently at different times. The figure of 375 probable and suspect cases was given by Dr. Colin D'Cunha, then Ontario's Chief Medical Officer of Health, when he appeared before the Commission's public hearings September 29, 2003. Retrospective studies since have yielded slightly different numbers.

report of a flu outbreak in China. The report had an English heading but was not fully translated.

It was not until five weeks later, in early January 2003, that word of the disease began to spread more widely. Newspapers in Hong Kong reported on an epidemic of respiratory illness, but it was not until the end of January that Guangdong Province instituted province-wide reporting requirements for atypical pneumonia.

The world outside China did not hear of this mysterious respiratory illness until February 10, 2003, when reports began circulating on the Internet. These included an email to the WHO in Beijing describing a "strange contagious disease" that has "already left more than 100 people dead" in Guangdong Province in the space of one week. The message further describes "a 'panic' attitude, currently, where people are emptying pharmaceutical stocks of any medicine they think may protect them." [71]

At roughly the same time, ProMED-mail, an Internet-based reporting system that provides early warnings on infectious diseases, posted an email from Dr. Stephen Cunnion, a retired U.S. Navy epidemiologist living in the Washington, D.C., area. He had heard through a friend that there was sickness and fear in Guangzhou, so he asked the question on the ProMED service:

> Have you heard of an epidemic in Guangzhou? An acquaintance of mine from a teachers' [Internet] chat room lives there and reports that the hospitals there have been closed and people are dying.[72]

On February 12 health officials from Guangdong Province reported a total of 305 cases and five deaths from the new respiratory illness between November 16, 2002, and February 9, 2003. Laboratory analyses were negative for influenza viruses.[73]

The outbreak in China was not totally unknown in Canada in January and February. *Sing Tao*, a Chinese-language newspaper in Toronto, reported on it in early February and raised the possibility of a spread to Canada. It contacted Health Canada and was told the government was closely monitoring the spread of a pneumonia.[74]

---

71. WHO, Update 95 – SARS Chronology.
72. National Advisory Committee on SARS and Public Health, Learning from SARS: Renewal of Public Health in Canada (Health Canada: October 2003), p.23-24 (Naylor Report).
73. WHO, Update 95 – SARS Chronology
74. *Behind the Mask*, CBC News Online, November 19, 2003

After the Canadian SARS outbreak ended, the CBC reported that surgical masks had been disappearing from the shelves of pharmacies in Vancouver's Chinese Community as early as January. It said people there had been receiving panicked telephone calls from relatives in China.

On February 14, 2003, WHO reported in its weekly newsletter that an unusual respiratory illness had killed five people in Guangdong Province since November 2002.[75] The Chinese Ministry of Health informed WHO six days later that the illness was caused by *Chlamydia pneumoniae*, a common bacterium.

In Guangzhou at this time, Dr. LJL, a 64-year-old physician and professor of nephrology at Zhongshan University, attended patients as the respiratory disease outbreak became an epidemic. It was a hectic and worrisome time for health workers in Guangzhou because, as Dr. LJL would tell medical staff in Hong Kong later, scores of doctors and nurses had become ill and he and his colleagues had begun to wear gowns and gloves for protection.[76]

The outbreak in Guangzhou was complicated by community fear, difficulty in getting important information, the newness of the disease and confusion about who would take charge of the crisis. Those complicating elements of SARS were seen again when the disease found its way to Toronto.

All over the world the problems were the same: lack of preparation, bad communication, the mystery of a new disease; at first no one knew how to diagnose it, how it spread, how to stop it, how to treat it. All over the world front-line health workers stepped into danger and all over the world governments tried desperately to manage a mysterious outbreak for which they were tragically unprepared.

Dr. LJL worked late nights at the university's No. 2 Affiliated Hospital. His nephew was getting married and he and his wife would travel to Hong Kong for the wedding. Six days before he was to leave, he came down with flu-like symptoms and treated himself with antibiotics.[77] He felt well enough to make the three-hour bus trip and on February 21 checked into the 487-room, three-star Metropole Hotel in Kowloon's tourist district. He was assigned room 911 on the ninth floor of the 19-storey hotel.

75. Naylor Report, p. 23.
76. "The Metropole Mystery," *Washington Post*, May 23, 2003
77. Hong Kong SARS Expert Committee Report, p. 18. www.sars-expertcom.gov.hk.

He arrived still feeling unwell. Unknown to anyone, including himself, when he walked through the front entrance of the hotel, he was about to spread an infectious disease, SARS, around the globe and trigger a world health emergency.

Gateway to Horror

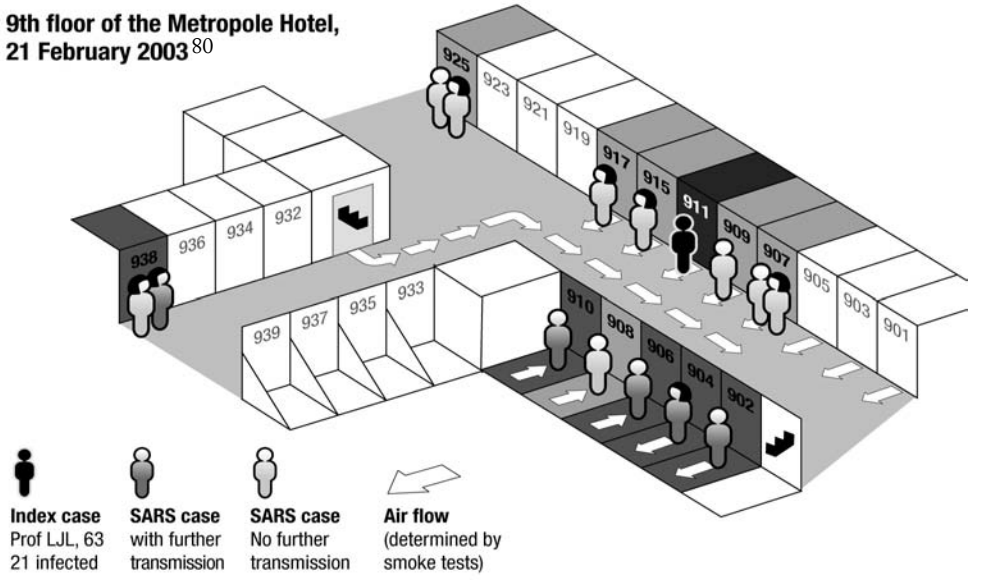
SARS found its gateway to the world on the ninth floor of the Metropole Hotel at 45 Waterloo Road in Kowloon. The hotel is in Kowloon's busy tourist district, and is popular among visitors to Hong Kong seeking a reasonably priced, decent hotel close to shopping and other attractions. The ninth floor had 32 rooms housing a variety of visitors during the third week of February 2003, including Guangdong doctor Dr. LJL and several Canadians.[78]

One of the Canadians was a 78-year-old Toronto woman, Mrs. K, who had returned to visit her Chinese homeland with her husband. Another was a 55-year-old Vancouver man, Mr. C.

The Vancouver man and the Toronto woman both stayed on the ninth floor of the hotel.[79] Both fell ill with SARS. She transmitted it to her son when she got back to Toronto. Her son and the Vancouver man, both sick with SARS, went to hospital in Canada on March 7, one to the Vancouver General and the other to Scarborough Grace in Toronto. The Toronto case sparked an outbreak that brought Ontario to its knees. The Vancouver case resulted in very little transmission. British Columbia escaped the overwhelming outbreak that overcame Ontario. This tale of two cities is explored in detail below.

After checking in, Dr. LJL felt reasonably well, enough to shop and have dinner. His room was across from the elevators and it is assumed he walked out the door of 911 over to the elevator doors and descended to the lobby and the street. He returned to room 911 that evening and awoke the next morning with a high fever. Instead of going to his nephew's wedding, he walked to Kwong Wah Hospital, where he was admitted.

78. *SARS: How a Global Epidemic Was Stopped*, p. 141, Published by WHO 2006.
79. Mrs. K stayed in room 904, almost across the hall from Dr. LJL in 911. Mr. CKL was in 1409 after apparently having switched from 909, although there is some confusion about that.



The Toronto woman, Mrs. K, arrived in Hong Kong to visit relatives February 13,[81] and stayed there at the same time as the infected doctor from Guangdong, from February 18 to February 21 or 22.[82] Dr. LJL never left Kwong Wah Hospital and died there March 4 of the respiratory disease yet to be named SARS. WHO investigations later determined that his brief stay at the Metropole began a terrible chain of infection that resulted in serious outbreaks in Hong Kong, Canada, Singapore and Vietnam. At first, no one suspected the Metropole as the point of spread.

Then, three things happened that raised suspicions about the Metropole Hotel. On March 12, eight days after Dr. LJL's death, Singapore reported three cases of the disease. Three women on a shopping trip to Hong Kong had stayed at the Metropole at the same time and on the same floor as Dr. LJL. The following day, March 13, the Hong Kong department of health learned that a Canadian man admitted to hospital in Hong Kong March 2 with respiratory distress also had been at the Metropole. On March 18 Health Canada notified Hong Kong that Mrs. K was the index case for a Canadian outbreak and that she too had been a guest at the Metropole.

---

80. Diagram is adapted from: *SARS: How a Global Epidemic Was Stopped*, p. 141, Published by WHO 2006.
81. "Identification of Severe Acute Respiratory Syndrome in Canada," *New England Journal of Medicine*, May 15, 2003, p. 1996.
82. There is some question about the exact dates she stayed at the Metropole. WHO lists her as being there from Feb. 18 to Feb. 23. Toronto Public Health records say Feb. 18 to 21, while an expert paper presented to the Hong Kong SARS Commission says Feb. 18 to 22. There appears, however, to be no dispute that Mrs. K and Dr. LJL were in the hotel at the same time.

The Hong Kong health department now had seven cases of the new disease linked to the ninth floor of the Metropole. Later investigation revealed that 16 guests at the Metropole, and one hotel visitor, had caught the disease from Dr. LJL.

Three years and many investigations later, it is still not known how SARS was spread at the Metropole. How could the Guangdong doctor infect 17 people at the Metropole but leave hotel staff and so many others untouched? Most of the 17 infected at the Metropole Hotel did not pass the disease to others. But four did. These four individuals ignited devastating outbreaks in Hong Kong, Toronto, Singapore and Vietnam.

This mystery remains unsolved. There are still more questions than answers. If SARS is spread primarily by droplet and is only rarely airborne, as some Ontario infection control specialists still insist, how could this one man infect 17 others with whom he had no known direct contact?

None of the investigations found the hotel's plumbing, heating, air conditioning or ventilation systems responsible for carrying the disease. The contamination occurred in one wing of the ninth floor and never moved up or down the building or endangered people in their rooms.[83]

There is speculation that Dr. LJL might have coughed or vomited in the corridor near the elevator or his room, leaving the disease there for other ninth-floor guests to walk through. A WHO investigation, conducted by four experts from Health Canada, concluded:

> The investigation favours a contamination in the corridor that subsequently exposed several of the guests either by walking by the contaminated area or by opening their guest room entrance doors. It is interesting to note that genetic material could still be detected after more than two months since the incident and after a disinfection of the rooms and corridor.[84]

However the disease spread in the Metropole, its transmission was remarkable.

Mr. JC in room 910 carried the virus to Hanoi, setting off an outbreak of 63 cases there. The three Singapore women in Rooms 915 and 938 all were hospitalized within a day of each other, two in the same hospital. Two of them did not transmit the

83. *SARS: How A Global Epidemic Was Stopped.*
84. Final report Metropole Hotel WHO Environmental Investigation, July 2003.

disease to anyone else. Yet one of them did and sparked an outbreak of 238 Singapore cases, 195 with a contact history to her.[85]

Mr. AC, a Canadian in room 902, was hospitalized in St. Paul's Hong Kong, and nine people he had contact with there caught the disease.

An outbreak at Prince of Wales Hospital in Hong Kong was traced to the 17th person infected at the Metropole, a visitor who walked past room 911 to visit a friend in 906. A total of 143 of his contacts were infected.

Others who contracted the disease on the ninth floor of the Metropole did not transmit the disease. They had symptoms and many contacts, but did not pass the disease on to others.

These remarkable stories show the volatile, unpredictable, dangerous and still mysterious nature of SARS. Some got it from the index case and some did not. Some transmitted it to others and some did not. Some sparked international outbreaks that brought entire countries and provinces to their knees. Yet there are still no clear answers as to how and why it spread in and from the flashpoint at the Metropole Hotel. The story of the Metropole Hotel is a cautionary tale to everyone, however expert they may be, who thinks that science has all the answers to the spread of SARS. The WHO, in its 2006 report *SARS: How a Global Epidemic Was Stopped,* asks:

> Was it because their infection was milder and they had fewer contacts? … Perhaps some people, even though infected, are not infectious.

Mrs. K flew back to Canada and passed the disease on to five family members, becoming the index case for the first Canadian cluster of 136 cases and the outbreak that killed 44 and left more than 330 ill.

SARS Arrives in Toronto

Mrs. K returned to her Scarborough home on February 23 after her 10 days in China, including the stay at the Metropole Hotel in Kowloon. There is no evidence to indicate she was ill, and as far as is known, no one on the large passenger jet bringing her home became ill with SARS, which raises more questions about how SARS is spread.

85. *SARS: How A Global Epidemic Was Stopped.*

She settled back into the apartment that she shared with her husband, two grown sons, daughter-in-law and a five-month-old grandson. Two days after her return she developed a high fever. When the fever did not leave and was joined by muscle aches and a dry cough, she saw her family doctor on February 28.[86] She was prescribed antibiotics and her family tried to treat and comfort her.

Mrs. K's condition did not improve with the care and antibiotics. Her condition weakened and she died in her home on March 5. Her family did not want an autopsy, nor did the coroner. A heart attack was listed as the cause on her death certificate. There was no apparent reason to suspect anything else. Mrs. K had a history of heart problems, plus diabetes. SARS was not identified or named as a new disease until later that month. Her case was not uncommon among elderly people: heart disease, diabetes and pneumonia. No one suspected that a deadly new virus was spreading in the family apartment. Five of the 11 members of Mrs. K's family became ill with SARS.[87] Two, including Mrs. K, died.

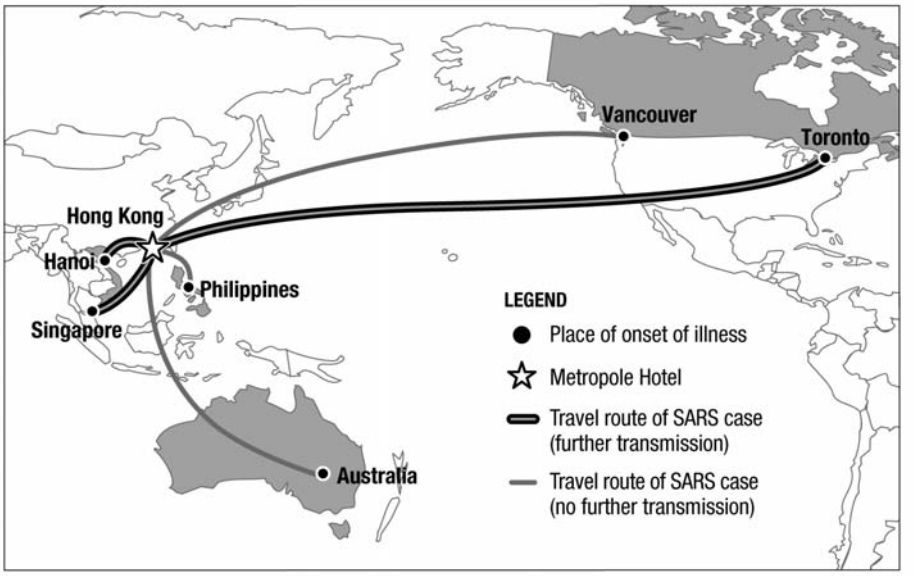
The disease later identified as SARS was introduced to Scarborough Grace Hospital, the first hospital in Ontario to admit a SARS case, on March 7, 2003, when Mrs. K's son, Mr. T, was taken to hospital via ambulance. Doctors and nurses at the Scarborough Grace were unaware of what was happening in Hong Kong and unaware Mr. T had been exposed to a new infectious disease. As Mr. T remained in hospital, seriously ill, other family members were also falling ill. On March 13, SARS took the life of Mr. T and sent four more family members to hospital. Public health and hospital officials struggled to understand this new and deadly disease. The story of the T family and the introduction and spread of SARS at the Scarborough Grace Hospital is told below.

In a remarkable coincidence, another potential SARS nightmare was developing on exactly the same day in Vancouver. Three to four hours before Mr. T was taken by ambulance to Scarborough Grace, Mr. C and his wife returned home to Vancouver from Asia. He was so ill that they went directly from the airport to their doctor, who sent him by ambulance to the emergency department of Vancouver General. He, like Mrs. K, had been a guest at the Metropole Hotel in Kowloon. Also like her he carried SARS from the Metropole. However, unlike in Toronto, SARS did not spread in Vancouver. The reasons are examined later in this report under the section titled Vancouver: A Tale of Two Cities.

86. Naylor Report, p. 25.
87. Health Canada, http://www.phac-aspc.gc.ca/sars-sras/pef-dep/gta-20030424_e.html.

With Mr. T's arrival at Scarborough Grace, SARS was ready to invade the Toronto hospital system and the general community. It had its first firm foothold in Ontario. The next chapters show the lightning spread of SARS from Mr. T.

Spread of virus from the Metropole Hotel[88]



HANOI	SINGAPORE	HONG KONG	TORONTO
Mr JC, 47 **Number infected:** >20 directly 63 indirectly	Ms EM, 22 **Number infected:** 21 directly 195 indirectly	Mr CT, 26 **Number infected:** 143 directly Mr AC, 72 **Number infected:** 9 directly	Ms KSC, 78 **Number infected:** 4 directly 136 indirectly

88 Diagram is adapted from: *SARS: How a Global Epidemic Was Stopped*, p. 146, Published by WHO 2006.

The Disaster Unfolds

SARS Comes to Scarborough Grace

In March 2003, Scarborough Grace Hospital[89] became the first hospital in Ontario to be struck with SARS and the flashpoint from which it spread quickly through the hospital system. After the first patient arrived at the Grace Hospital on March 7, 2003, until the outbreak was contained in July 2003, 375 people became ill with SARS, 44 of them dying. Of those who became ill, 257 were associated with the outbreak at the Scarborough Grace Hospital, which became known as SARS I.[90]

The Grace Division, now part of the Scarborough Hospital, was formerly a Salvation Army hospital. The hospital services an ethnically diverse community, including a large Chinese-Canadian community, many of whom maintained close ties to China and Hong Kong.

Among such families was the T family.[91] The matriarch of the family, Mrs. K, was exposed to SARS while she was a guest at the Metropole Hotel in Hong Kong, between February 18 and 21. Mrs. K became ill on February 27, 2003, after she had

89. The Scarborough Grace Hospital is located at 3030 Birchmount Road, in the City of Toronto. In 1988, it amalgamated with the Scarborough General Hospital, and is now part of the Scarborough Hospital. Canada's largest urban community hospital, it employs approximately 3,700 staff, more than 700 physicians and over 1,100 volunteers. It has an annual budget of $236 million and a 650-bed capacity. Source: The Scarborough Hospital website.

90. The outbreak at Scarborough Grace Hospital became known as SARS I, while the subsequent outbreak at North York General became known as SARS II. For many this was a misnomer, as it suggested two separate outbreaks, each with a distinct beginning and end. In reality there is no clear dividing line to demarcate two separate outbreaks. SARS never left. SARS simmered throughout North York General Hospital during April and May until precautions began to be relaxed commencing on May 7. At that point it began to spread, leading to widespread infection in the hospital and resulting in the closure of North York General Hospital on May 23, 2003. The story of the outbreak at North York General Hospital is told later in this report.

91. Although the initials of other patients have been changed, because the T family were named in the press and their story has been widely reported, the initial of their name is used throughout this report.

returned home to Canada. She died at home on March 5, 2003. Her story is told earlier in this report.

Mrs. K's family (the T family) were exposed to SARS through their contact with her. As March unfolded, five other family members became ill. Mrs. K's son, Mr. T, was the first to become seriously ill, entering the Grace Hospital on Friday, March 7, 2003, via the emergency department.

Unaware that Mr. T was ill with anything other than pneumonia, emergency room staff did not isolate Mr. T and did not use precautions. Mr. T was isolated almost 21 hours[92] after his arrival at hospital, when intensive care unit (ICU) staff began to suspect that he might have tuberculosis. But during that initial 21 hours, patients and staff were exposed to SARS, and some later spread the disease to others. The following chart[93] shows the explosive nature of this spread.

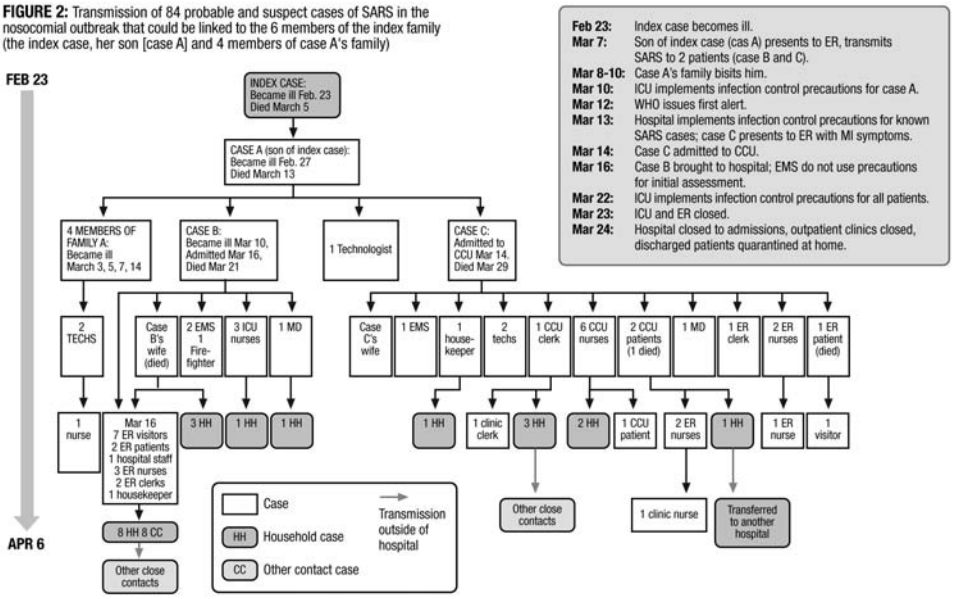


FIGURE 2: Transmission of 84 probable and suspect cases of SARS in the nosocomial outbreak that could be linked to the 6 members of the index family (the index case, her son [case A] and 4 members of case A's family)

92. Time estimates between his admission to hospital and his isolation vary. Mr. T was triaged in the emergency department at 7:00 p.m., and admitted to the emergency department at 7:45 p.m., on March 7, 2003. Mr. T was moved to a medical floor, 4D, at approximately 12:00 noon on March 8th. He was transferred to the ICU at approximately 3 p.m. on March 8. As will be seen below, Dr. Finklestein, the physician who isolated Mr. T, recalled that at approximately 4:00–4:45 p.m., he saw Mr. T and that initial steps were taken to isolate him. Public Health records report that Mr. T was moved to a negative pressure room at 6:45 p.m. on March 8, 2003. It is the approximately 21 hours, between 7:45 p.m. on Friday, March 7 and 4:00 p.m. on Saturday, March 8, when initial isolation steps were taken, that the Commission uses in this report. The time between admission and isolation in a proper negative pressure room is 23 hours.
93. Varia et al., "Investigation of a nosocomial outbreak of SARS".

By Thursday, March 13, tuberculosis tests had come back negative and Mr. T's deterioration as well as the declining health of his family members, combined with the travel history of the T family matriarch, Mrs. K, led to the realization that this was likely the atypical pneumonia transmitted from Hong Kong. The name "SARS" had not yet been coined.

In the days that followed, public health officials, infectious disease experts from across the city, and physicians and infection control staff at Scarborough Grace Hospital tried to learn as much as they could about this new, unknown disease. In the meantime, the number of cases and contacts grew. By March 16, Toronto Public Health (TPH) had identified 500 possible contacts for the T family alone. Within a week it became clear that the disease had spread beyond the T family, to other patients, visitors and staff. By March 25 the number of possible SARS contacts had grown to 5,000, and it would continue to grow in the weeks that followed.

As cases began to spread to other hospitals, through patient transfers or through the admission of exposed contacts, the scope of the outbreak became impossible to identify. Because no one knew where all the cases and contacts were, sources of possible exposure were unknown and unlimited.

On Wednesday, March 26, Premier Ernie Eves declared a provincial emergency. It was the first provincially declared public health emergency in the history of Ontario. As a result of the declaration of emergency, hospitals were directed to institute their Code Orange status, an emergency status that severely curtailed hospital activities, visitors and patient care.

The following chart highlights the key dates to remember as the story of the first phase of SARS is told:

DATE	EVENT
February 20	• Alert to all Ontario Hospitals for H5N1 • In Toronto, TPH provides information re: events in Hong Kong and H5N1 to members of Toronto Pandemic Influenza Steering Committee (list includes some ID [infectious disease] and ER [emergency room] doctors in Toronto but not all)
March 5	• Mrs. K dies at home – cause of death: congestive heart failure
March 6	• T family members become ill
March 7	• Mr. T is seen at Scarborough Grace Hospital (SGH) emerg – diagnosis: community acquired pneumonia • While in emerg, two patients, Mr. M and Mr. H are in the same room as Mr. T – these two patients contract SARS
March 8	• Funeral Services are held for Mrs. K • Mr. T is moved to the ICU at SG Hospital • Mr. T is seen by Dr. Finklestein – TB [tuberculosis] suspected • Mr. T is isolated and staff begin to use precautions
March 9	• Rest of T family seen by Dr. Finklestein – x-rayed and sent home to isolate selves • Dr. Finklestein reports possible TB cases to TPH
March 10	• TPH commences TB investigation
March 11	• 1st TB test comes back negative
March 12	• WHO issues alert about atypical pneumonia outbreak
March 13	• 2nd TB test comes back negative – diagnosis of TB is revoked • Mr. T dies • Dr. Finklestein contacts Dr. McGeer – discusses possible connection to outbreak in Hong Kong • Other T family members admitted in isolation, to hospitals across the GTA • Mr. H is readmitted to Scarborough Grace Hospital to the CCU [coronary care unit]
March 14	• Letter sent from Ministry of Health and Long-Term Care (MOHLTC) to all physicians in Ontario

	• MOHLTC and TPH issue press releases re: atypical pneumonia cases and hold press conference to inform public • Dr. Bonnie Henry, TPH, interviews Ms. T and obtains details of family's health history and contact history
March 15	• WHO issues travel advisory re: SARS • First time word SARS is used in public communication
March 16	• Mr. M is taken to Scarborough Grace Hospital • Mrs. M who is also ill, exposes other patients and staff in the emerg dept • Mr. H is transfered to York Central Hopsital
March 17	• Mr. M is intubated – three nurses and physician later develop symptoms
March 21	• Mr. M dies
March 22	• Mrs. M is assessed for SARS – is admitted to Mount Sinai Hospital
March 23	• TPH investigation concludes that widespread transmission of SARS to SGH staff has occurred – recommends closing hospital • Ill staff are brought in for assessment • West Park Hospital opens unit to care for ill staff • Emergency Department and ICU are closed at SGH
March 25	• Scarborough Grace Hospital closes
March 26	• Declaration of Provincial Emergency
March 28	• Outbreak at York Central Hospital is identified and hospital is closed

For the health care system SARS was a wake-up call on many levels. It was a call to be more vigilant for infectious diseases, to be better prepared to respond to health emergencies, to better protect health workers and to better communicate at all levels, between all parties. For health workers, it was a terrifying period, filled with confusion, uncertainty, anxiety and fear. For those who continued to work during SARS on the front lines of our health system, SARS brought out the best of their courage and commitment to helping others. But for those who became ill, especially those who lost loved ones to SARS, the wake-up call and the lessons from SARS came at a terrible price, and nothing can ever replace or repair the suffering and loss of the victims of SARS.

Before beginning the story of Mr. T and his family, it is important to put the time and the situation in context, to understand and appreciate the environment in which doctors and care providers in 2003 were operating which had implications for his case management. As noted at the outset of this report, it is important to acknowledge that everything is clear now with the benefit of hindsight but that doctors, health workers, hospital management, Public Health and others, did not have the benefit of knowing all that we now know, post-SARS. While it does not detract from the importance of examining the events and looking back to help us move forward, to better prepare for the next outbreak, it does require that the story be read without judgment and without blame. More so than any other stories of SARS, those at the Scarborough Grace Hospital and those involved in the investigation of the outbreak at Scarborough Grace Hospital were literally learning about the disease as every day of the outbreak passed and in the early part of the outbreak were having to make decisions based on little knowledge and without a full understanding of the severity of the situation.

Notification About Developing Events in China and Hong Kong

Between November 2002 and February 2003, there were rumblings in the Chinese media about the possibility of a bird flu in various provinces of China. The rumblings gained credibility and attracted international concern when, on February 11, the World Health Organization issued an alert in respect of a mysterious acute respiratory disease in China. Subsequent alerts were issued on February 12 and 14.[94]

As the alerts came to the attention of Ontario officials and local public health officials, efforts were made to communicate information to hospitals and infectious disease specialists in Toronto. However, because the Province and local health units lacked the ability to communicate with front-line physicians in Ontario, the alerts reached only a select few. Front-line physicians in Ontario, including physicians in family clinics and emergency departments, along with emergency medical services, would be the first line of defence for an infectious patient entering the health care system. But they were not informed about developing events in Hong Kong and China and were not alert to the possibility of such a case appearing in Canada.

94. The World Health Organization issued alerts on February 11, 12, 14, and 20 (this is a reference to early alerts only and not to the many other alerts issued by the WHO throughout the course of the SARS outbreak).

On February 19, 2003, during a conference call with Canada's Pandemic Influenza Committee, Health Canada recommended that all provinces go on heightened alert for the avian flu, which was also occurring in China at the same time. That day, the Public Health Branch of the Ministry of Health and Long-Term Care sent an alert to local medical officers of health advising them of identification of influenza (H5N1) in Hong Kong, considered pandemic phase I (a novel virus detected in the community, little or no immunity in general population) and requesting that when they do follow-up in local influenza cases, they elicit travel history.

On February 20, 2003, the Public Health Branch of the Ministry of Health and Long-Term Care, through the Ontario Hospitals Association, relayed to all hospitals the National Pandemic Influenza Committee alert in respect of H5N1. It also sent a memorandum to all local medical officers of health providing a template letter drafted by the Public Health Branch to be sent to all emergency room physicians. The letter was to alert physicians to the developing situation and to request increased vigilance for recognition and prompt investigation of any influenza cases with unexpected outcomes. This correspondence did not reach all Toronto-area emergency room physicians. Few physicians interviewed by the Commission were aware of this correspondence and many cited the media as their first source of awareness of the atypical pneumonia outbreak in Hong Kong and China.

Also on February 20, 2003, Dr. Bonnie Henry, a Toronto Public Health physician and Associate Medical Officer of Health, distributed an email to members of the City of Toronto Pandemic Influenza Steering Committee. Included in the email list were infectious disease specialists and other physicians who were part of this group. The email advised them of a Level 1 Pandemic Influenza alert. The email further advised that a child and father in Hong Kong had been identified with a novel H5N1 influenza virus and requested that hospital physicians be on alert for severe cases of influenza, particularly in otherwise healthy people. The email provided:

> As of 19 February the World Health Organization (WHO) has confirmed reports of the presence of an avian influenza virus in a child in Hong Kong. Tests conducted on two samples from this single patient have identified the virus as the influenza A(H5N1) strain. A similar virus caused an outbreak in Hong Kong in 1997, with 18 cases detected and six deaths.
>
> In the current outbreak, a 9-year-old boy, who visited the Fujian Province (China) in January with his mother and his two sisters, became ill on February 9 and was admitted to a Hong Kong hospital on February 12.

> He has recovered and is in stable condition. Other members of his family presented with a similar illness. The child's sister and father have died. The boy's mother was ill but has recovered.
>
> Today it was reported the boy's father was also infected with influenza A(H5N1). A medical and epidemiological investigation is ongoing in Hong Kong to determine the cause of those illnesses. Results should be available in the next few days. Investigations are ongoing to determine the source of the infection.
>
> The World Health Organization (WHO) is collaborating closely with health authorities in Hong Kong and China in investigating the outbreak. The WHO Global Influenza Surveillance network has been alerted. Source: http://www.who.int/csr/don/2003 2 19/en/
>
> Health Canada is also monitoring this situation through ongoing communication with the World Health Organization as well as with the provincial governments. To date, there have been no reports of other human cases of this novel strain of influenza from anywhere else in the world.
>
> Toronto Public Health is requesting increased vigilance in surveillance of influenza-like illness [ILI], particularly for any unexpected outcomes (e.g. unusually severe ILI or death in otherwise healthy individuals or severe ILI in young healthy individuals). Please look out for any unusually severe cases of ILI and query any recent travel to Hong Kong or China. We recommended that clinical samples should be taken from such cases for viral culture (nasopharyngeal swabs are preferred). Please make a notation of positive travel history (recent return from Hong Kong, China or elsewhere in Asia) or other notation of increased suspicion (hospitalization, death) as a comment on the laboratory requisition form.[95]

Dr. Bonnie Henry described for the Commission efforts she made, on behalf of Toronto Public Health, to alert local infectious disease specialists and emergency departments about the developments in China and Hong Kong:

95. Email from Dr. Bonnie Henry, Associate Medical Officer of Health, Toronto Public Health, to ID [infectious disease] Drs Group, February 20, 2003, 4:21 p.m., Subject: Alert and Response to Identification of H5N1 Influenza in a child, Hong Kong.

> There were two alerts, not about the atypical pneumonia, the third one was about the atypical pneumonia. The first ones were about a family cluster of influenza which was thought to be what's circulating now, the bird flu issue, in a family from Hong Kong who had gone to visit relatives in Guangdong Province. The daughter got ill and died in Guangdong but was not tested. The father and son both got ill in Hong Kong and were found to have H5N1 influenza. So I sent out the alerts about that … and then I sent out a little more information about this atypical pneumonia cluster that had been reported showing up in Guangdong Province. At the time they had said they were 300 cases and 5 deaths and it was due to *Chlamydia pneumoniae* and my comment that I had put on that was, this would be an unusual type of outbreak for *Chlamydia pneumoniae*, but they tell us that this outbreak is over and there is nothing else going on. However we need to be vigilant, and the bottom line for both of these were to make sure that we are careful to look for people who come to hospital with a respiratory illness and ask about travel.

But these alerts went to only a specific list of physicians, as Toronto Public Health lacked the capabilities to communicate directly with front-line physicians and health providers in Toronto. Dr. Henry described the mailout list for these early alerts to the Commission as an initiative by Toronto Public Health, with the help of outside infectious disease experts such as Dr. McGeer, to improve communications between the hospitals and Public Health:

> Question: Did all three notices that you sent out go to the same people?
>
> Dr. Henry: Yes they did.
>
> Question: And, and the list of people … ?
>
> Dr. Henry: The list of people included all of the medical microbiologists, the infectious disease physicians, emergency department heads of the hospitals in Toronto, and it was the list that was compiled for us maybe a year before. Dr. Allison McGeer had helped us pull it together, mostly to help us foster communication around communicable disease issues, with the hospital physicians, because people needed to be kept in the loop around things, and we were finding it difficult to

> communicate. Actually it was after the West Nile virus issues … so we tried to foster the communication by having this email list where we sent things out periodically about what we were seeing happening, and it was a way for them to send information to us and we actually had some discussions about things. Dr. Barbara Yaffe actually was the initial person who had the list, and she used it, and we used it on her behalf on a couple of occasions.

Question: How many people, roughly, would you know?

Dr. Henry: Were on the list?

Question: Yes.

Dr. Henry: Maybe, maybe 30 or 40.

Dr. Henry told the Commission that even before SARS, Toronto Public Health had been trying to foster relationships and improve communication with Toronto-area hospitals:

> It [the email contact list] was a two-way thing, it was a way for them to communicate with us, because we had been trying, [Dr.] Barbara Yaffe particularly, myself and the other communicable disease physicians, had been trying to foster a better relationship with our hospital counterparts, after the things that had happened and, particularly, anthrax and people going into hospitals, and being able to make sure that they understood what we felt were the community risks and vice-versa. So we had used it [the email list] for a variety of things prior to that. We had also done things like, we would try and attend the monthly rounds that medical microbiologists had so that we could exchange information, so we were making a concerted effort to try and increase our connectivity, as it were with the hospitals, and World Youth Day was a big help on that because we made a lot of contacts with the emergency department heads particularly, the emergency department chiefs and worked with them in the surveillance system, so it helped them understand who we were, and it helped [us] understand who they were.

The problem was that the initiative and efforts of Toronto Public Health and a group of physicians did not amount to broad-based communication that reached all front-line health providers. Despite the communication efforts of Dr. Henry, emergency room staff, family physicians, infection control practitioners and infectious disease specialists across Ontario were not informed as none of these alerts were broadly disseminated to the front lines of the medical community.

It reflects poorly on the level of preparedness in Ontario that there was no system for broad-based communication with Ontario's physicians. As will be seen below, even when the Ministry attempted to communicate with Ontario's physicians, had no timely means to do so.

The inability to communicate quickly and effectively with front-line physicians was critical, because, as will be seen below, when the first patient entered the health care system, at the Scarborough Grace Hospital, staff and doctors did not know to ask about travel history and were not alert to the possibility of a new infectious disease. Even when this patient was known to have had contact with a person who had recently travelled to Hong Kong and China and who had subsequently also become ill and died, even when the patient's condition rapidly deteriorated, doctors and staff did not suspect that they were dealing with a new infectious disease because they did not know about the events in Hong Kong, China and elsewhere in Asia.

As one health worker who dealt with this first patient, Mr. T, on March 7 when he entered the emergency department at Scarborough Grace Hospital told the Commission:

> SARS took us by surprise, yet it had already happened in China and we were kept in the dark. That was a fatal mistake. Nurses and doctors were not aware of it. If we had known about it they would have been asking him [Mr. T] the proper questions and the case would have been contained right away. The fact that it was unknown to us but not unknown to rest of world … Had we known about it, he would have been questioned more about his illness.

The emergency room physician who saw Mr. T, the first SARS case to enter hospital in Ontario, had also not received any information or alerts about events happening in China or Hong Kong. As he told the Commission:

Question: Had you received any notification from any level of government or any officials about events in China?

Answer: No. No. I did not.

Dr. Sandy Finklestein, an intensive care specialist at the Scarborough Grace Hospital and the physician who took over caring for Mr. T, had also not heard about events in Hong Kong and China. As he told the Commission:

Question: There were a couple of alerts, one as early as February, from either Public Health or Ministry of Health, raising the fact that there was an outbreak of atypical pneumonia in China, did that ever come to your attention?

Dr. Finklestein: It didn't filter down to me, I can't say about doctors in general, but it didn't filter down to me.

Question: There was another one in early March from the Ministry of Health but in any event the first information you got about it came from …

Dr. Finklestein: Through back channel …

Question: Through Agnes Wong?

Dr. Finklestein: Yes. And also I should mention, to protect my good friend Dr. [David] Rose, I believe he was on vacation, and backup infectious disease consultations, I can't even remember who was doing them then, but I do remember at some point during that first week, I called up David, I knew where he was, and I asked him for some advice and I can't remember the question or maybe he said, call [Dr.] Allison McGeer, it was on Thursday the 13th.

One of the physicians who became ill as a result of his involvement with one of the early SARS cases remarked on this lack of communication:

> There wasn't any communication to the workers in the fields such as myself about the potential danger. I think early communication would have been very helpful particularly warnings about recent travel, people arriving from the suspect area.

The problem was not that no one thought to tell front line physicians, it was that there was no system for quick, effective communication with physicians in Ontario. As Dr. David Rose, the infectious disease specialist at the Scarborough Hospital, said:

> I think the first thing that went wrong was that there wasn't and isn't a system wherein front-line practitioners can be apprised of a situation reliably so that they have it on their radar when they see an individual patient. I'll give you an alternative example, we had an infection control meeting last week and the public health individuals on our committee spoke about an outbreak of measles in Germany. We said, okay, let's make sure that the manager in emerg and the chief of the emerg department knows that this has happened so that we hope they will pass that information along. It is not a part of Germany where there are any World Cup games being played but between games they may go and visit, there are games being played in that province, not in that particular area of that province, but who knows, maybe tourists, visitors are coming back from the games who have been in a measles area. So, we need to know that. It's a bit catch as catch can. We don't meet every week, we don't meet every day, we meet once a month, and if the person from Public Health wasn't there or got cut off or we didn't have time to deal with her report maybe we wouldn't find this out.
>
> I don't think we are alone in this but I don't think there is a system whereby every alert can be gauged or evaluated. And even if somebody was assigned to read these alerts or be the recipient of them, it would still be a judgment call in terms of, do I need to let people know this. If it was somewhere sufficiently remote, or the person made the judgment that this is not, the outbreak of measles is not in the World Cup city, it's not going to affect us. So, we made a different judgment but again, were we right or wrong, I don't know that. And there is way too much information for all of that to become high priority, you can't possibly make everything a high priority. So, that was one thing that was a fault that I don't know how to address. I don't think it has been fixed …

Dr. Barbara Yaffe told the Commission that the problem was that Public Health lacked, and still lacks, the ability to communicate quickly and effectively with Ontario's physicians:

Question: There are lots of front-line physicians who say they never heard of it, they never heard of anything. And some of them have stories, about the volume of information they get inundated with. Was there, at that time, in place any kind of reasonable system that could get information out to front-line physicians not just the ID specialists … ?

Dr. Yaffe: Family doctors …

Question: Yes.

Dr. Yaffe: No, there was not and there still isn't. I can speak to that at great length if you wish, because this is something that has been a real bone of contention for me, certainly since amalgamation if not before. I have been working on this a lot. There are approximately 9,700 physicians licensed to practice medicine in the City of Toronto. So, it is a large group, a very diverse group, a lot of them are independent practitioners, they are running a business, and although they are licensed and they are obviously compensated through OHIP [the Ontario Health Insurance Plan], primarily, it is a very difficult group to reach. I have tried to work through the OMA [Ontario Medical Association], they have a list … They will send information out if they approve it first and if we pay them. So it's not terribly timely at all, because they have a fax list, a mailing list and so on, so that is not very timely. We do have a fax list for maybe two-thirds of the physicians in Toronto, and on occasion we have faxed things out, but it takes, because of our technology, two to three days to get them all. And it's a machine that just sends things out. So if you have the kind of fax machine where somebody has to call first and say, turn on the fax machine, which many physicians do, believe it or not, the machine is not

> going to call and say, please turn on the fax machine, so we'll get a busy signal, so, it won't go. Or sometimes people have given out the fax number of their personal home. So, unfortunately the fax machine would ring at three in the morning beside their bed. So, then they call the next day they would call and complain, you woke me up with your fax. They'd get very few saying, thank you so much for giving me this information …

Three years after SARS, it is a problem that remains. As Dr. Yaffe told the Commission:

> In early April of this year [2006] or maybe it was March, I got so fed up, I said, okay, I am sending a letter to every physician in Toronto because we are now doing pandemic flu preparedness, as you know, and saying we need to be able to contact you in an emergency, give me your email, if you don't have an email, give me your fax. And we got a 22 per cent response rate and of those 22 per cent, well, the bottom line is at this point we've updated our database, we now have email addresses for 10 per cent of the physicians in Toronto. We have fax numbers for most of the rest of them, and regular mail for 10 per cent. So, it's a great frustration.

To the credit of Toronto Public Health, it has been making efforts to try to work the best it can to communicate with physicians, but it is an ongoing frustration. As Dr. Yaffe told the Commission:

> The other thing we have been doing, I started post-amalgamation, I don't remember if it was 1999 or 2000, a newsletter for physicians. It goes to every physician, I think we didn't include anaesthetists and pathologists, but all the family doctors and specialists were on that. A quarterly newsletter on communicable disease matters, it's called *Communique*. We are going to evaluate it. But I don't know how many of them read it. They get a lot of mail and we try to make it short and snappy, and relevant and all those things, but a lot of them just look at "public health," they don't differentiate local, provincial, federal, we're all government. And it is extremely frustrating.

The inability to communicate with physicians quickly and effectively during SARS became a barrier to timely and effective response throughout SARS. Critically, as will be seen below, even when it was identified that there was a case of atypical pneumo-

nia of the kind that was causing outbreaks in parts of Asia, public health officials at both the local and provincial level, in the largest province in Canada, had no means to communicate quickly and effectively with all physicians in Ontario. So, when the first patient entered the Scarborough Grace Hospital, a busy emergency department in Canada's largest urban centre, no one was on the alert for anything suspicious and questions that might have identified concerns about the first patient sooner were not asked because no one knew to ask.

The Decline of Infection Control in Hospitals

When SARS hit in 2003, it revealed a system-wide underemphasis on and decline in infection control practices and standards. For most hospitals in Ontario, prior to SARS, infection control was not a high priority. Like public health, its critical importance went largely unrecognized until something went wrong. Infection control got attention primarily when some problem was noticed, such as the outbreak of on antibiotic-resistant disease or the need to notify patients that they may have been subjected to a procedure with poorly sterilized instruments. It was only then that the failure to invest in infection control was noticed.

As Dr. James Young, then Commissioner of Public Safety and Security, later said when he spoke at the Commission's public hearings in September 2003, when SARS hit, Ontario had a health system that did not put a premium on infection control, and the importance of infection control was a clear lesson of SARS:

> I want a health care system that puts a premium on infection control, but, as I mentioned earlier, the system didn't and it didn't for good reason. We were spending our money on other things. We have to look at what was done from the point of view of the reality of what we had to deal with. We did not have hospitals that were prepared for infection control. We did not have nurses and doctors who practised good infection control, who were used to getting in and out of gloves, and gowns and masks, who were used to working in these situations, who knew and thought infection control day in and day out. We now are building a system that has to consider those things but it did not exist and our management and our decisions were based on what we knew and what we didn't know and how to make the system as safe as possible for everyone, including health care workers.[96]

96. SARS Commission, Public Hearings, September 30, 2003.

The decline of infection control in Ontario's hospitals was the subject of a survey conducted in 2000, which tried to gauge the level of infection control in Ontario's hospitals. When the authors of the survey and subsequent report commenced the project, they did not know that their findings would be so clearly shown in practice and that a new infectious disease would hit Ontario and reveal the weaknesses in the system, that were well known to most infectious disease and infection control specialists.

In 2000, surveys were sent to all infection control programs in acute care hospitals in Ontario with more than 80 acute care beds.[97] The results of the study, published in August 2003, confirmed what SARS had demonstrated so dramatically. Hospital infection control was inadequate throughout Ontario. The article, by Dr. Dick Zoutman and a number of other physicians,[98] many of whom were members of the Science Committee during SARS, identified the following gaps in infection control in hospitals:

> In 1981, 88.1% of general hospitals with more than 99 beds and teaching hospitals engaged in surveillance, whereas in this survey, all but 1 respondent hospital engaged in surveillance. ICP [infection control program] staffing levels in the 1980s were considerably less than that recommended by SENIC[99] and 12% of acute care hospitals with more than 200 beds had no ICP. Although there have been improvements in the interim and all hospitals in this survey have ICPs, 40% of infection control programs had fewer ICPs than that recommended by SENIC, and 80% did not meet Canadian recommendations. In our survey, 40% of Canadian hospitals did not have physicians or doctoral professionals with infection control training who provided service to the infection control program, yet this is viewed as a key requirement of infection control

97. Dick E. Zoutman, B. Douglas Ford, Elizabeth Bryce, Marie Gourdeau, Ginette Hébert, Elizabeth Henderson, Shirley Paton, "The state of infection surveillance and control in Canadian acute care hospitals," *American Journal of Infection Control*, 31, no. 5 (Zoutman et al., "The state of infection surveillance and control").
98. Zoutman et al., "The state of infection surveillance and control."
99. SENIC is short for the Study on the Efficacy of Nosocomial Infection Control, a study conducted in the U.S. to investigate the efficacy of nosocomial infection prevent and control programmes in hospitals in the U.S. The overall plan was to assess the surveillance and control activities in hospitals in the U.S. in 1970 and 1976, to measure the change in the nosocomial infection rates from 1970 to 1976 as determined from a carefully conducted retrospective chart review, and to assess the influence of changes in these programmes on infection rates after controlling for other important changes that occurred during the interval. Taken from website of The National Library of Medicine and The National Institutes of Health.

> programs. Expert panels have recommended secretarial services for infection control programs; however, only 69% of Canadian hospitals presently have such support.
>
> There also were significant computer and reference resource deficits. One third of infection control programs did not use computers to tabulate data and prepare reports, and a majority did not use statistical software, although these resources have been judged as being essential. One fifth of programs did not have a complete set of the current Health Canada guidelines on preventing nosocomial infections in acute care hospitals.
>
> Intensive surveillance and intensive control activities were shown to be the most important factors in reducing nosocomial infections in the SENIC study. Twenty-three percent of hospitals in our survey scored less than 50 on the surveillance index, indicating they were conducting fewer than half of recommended surveillance activities. Only 13% of hospitals conducted more than 80% of recommended surveillance activities. The figures were similar for control activities, with 21% of hospitals scoring less than 50% on the control index and only 10% conducting more than 80% of recommended control activities.
>
> ICPs and physicians were found to be spending considerably less than the recommended 50% of their time devoted to infection control engaged in surveillance. Surveillance was heavily based on microbiology reports, whereas active patient and device-related clinical surveillance that is more informative was used less frequently. In some centers, surveillance was ineffective because it was not being reported to staff: only two thirds of hospitals routinely communicated surveillance data to staff and only a third reported surgical site infection data to individual surgeons. It was found in SENIC that success in reducing surgical site infection rates required reporting the rates directly to surgeons.[100]

It may in fact have been worse than this. Dr. Zoutman noted that the results of the study may have actually overestimated the resources available to hospitals:

> A limitation of this study is that the non-responding hospitals may have differed from our sample hospitals. It is possible that nonrespondents

100. Zoutman et al., "The state of infection surveillance and control."

> may have been unable to complete the comprehensive survey because of a lack of infection surveillance and control resources. This limitation may have resulted in an overestimation of resources available to hospitals for these activities and understated the extent of the deficits in infection surveillance and control resources that have been highlighted by this survey.[101]

The Scarborough Grace Hospital was no different from most Ontario hospitals in 2003. Although it had an infection control program, there were two and a half full-time staff dedicated to the infection control program. These two and a half positions serviced both the Scarborough Grace Hospital and the Scarborough General Hospital, with a combined 650-bed capacity. When SARS hit, the infection control staff worked tirelessly to try to educate staff, follow cases and work with Public Health to identify contacts of cases in a hospital that employed thousands of staff and had hundreds of patients. It was an enormous task. The challenge of SARS was that many of the programs and education that we now know were critical to the successful containment of SARS, such as the use of personal protective equipment and surveillance for febrile illness, and early and careful isolation of patients with febrile respiratory illness, did not exist pre-SARS and therefore had to be initiated, communicated and enforced as the outbreak unfolded.

As one nurse told the Commission, infection control staff worked very hard but things were changing daily as they learned things as they went along:

> And you know who was wonderful? Our infection control nurse responsible, and she was wonderful. She would keep us up to date and tell us about changing, and what we should be wearing, and how we should be taking this layer off and taking a layer off outside in the anteroom, very specific about what to do. It's difficult. It's a whole new ball game for us. Nobody knew what exactly was going on. Especially when things were changing, you did something this way and the next shift came on and, no, you have to do it this way now. And you think, what just happened in the prior two shifts I had worked, how much exposure did I have then? But they were learning as well.

101. Zoutman et al., "The state of infection surveillance and control."

For example, pre-SARS, infection disease surveillance was limited. As Dr. Rose, the infectious disease specialist at the hospital, told the Commission:

> Question: Can you describe the surveillance program that was in place at that time?
>
> Dr. Rose: It was predominately a surveillance of antibiotic resistant organisms, wound infections. To a certain extent there was surveillance of febrile illnesses, but it was minimal. There was education around infection control practices but that's not surveillance. That was most of the surveillance activity that went on.

This was certainly not unique to the Scarborough Hospital, as was identified in the Zoutman Infection Surveillance and Control Study, referenced above.

It was also not the practice in most Ontario hospitals to routinely isolate febrile illness or respiratory cases or for staff to use personal protection in such cases. Thus, as will be discussed in greater detail below, when Mr. T presented at the Scarborough Grace Hospital, he was not isolated and not handled with precautions. While SARS showed the importantce of isolation and use of protective equipment, pre-SARS it was not a routine part of patient care unless the patient was suspected of having an infectious disease such as tuberculosis. One emergency physician from North York General Hospital described how SARS changed the practice of medicine:

> SARS has changed medicine for me unbelievably. Part of that is not just me, part of it is that I am forced to be aware of it because the minute someone develops a fever with a respiratory component, we have strict orders to isolate. We are forced to examine it very carefully … There is a better knowledge of what happened. That is in itself is key because we are aware of what happened and we are more knowledgeable now. Anyone with fever and cough is isolated until you sort it out. That is number 1. If somebody has fever with no symptoms, the nurse notes it and I am notified. They could just have a urinary tract infection. Fever with respiratory illness or complaints or fever with cough are isolated. Cough without fever may not be. If you are not sure, 24/7 we have an ID [infectious diseases] team we can call for advice which the staff use. They use it wisely. Anybody who has a medication it is delivered by droplet. I had a patient who I am pretty sure we are talking about congestive heart failure, they required high concentration oxygen. Decided the O_2 was to be

> humidified. As soon as that happened the patient was put in isolation. When we intubate a patient, I have to mask and gown and glove. I still have difficulty with that. Although for the younger doctors it is like seatbelts. Anyone intubated there is three point protection … none of this was around before SARS. It is now like seatbelts. For the nurses it is now a natural reflex.

Pre-SARS, while there were ongoing education efforts by the infection control practitioners, there was no regular, mandatory formal education program. As Dr. Rose explained:

> Question: And the education you referred to, what form did that take, who got the training?
>
> Dr. Rose: It was both in small groups, one on one, visits to the nursing stations, discussions with staff by the infection control practitioners.
>
> Question: Were there formal sessions?
>
> Dr. Rose: Some a bit more formal than others. There was some formal education, I think, at the time, new staff were hired and after that it was on a more informal basis, but practitioners going to the wards and attending staff meetings and program group meetings, but also providing education on a small group basis.

Dr. Finklestein described the level of training for physicians on infection control prior to SARS as nonexistent:

> Question: Now was there, to your knowledge, education and training provided to health care workers that included physicians with respect to infection control?
>
> Dr. Finklestein: I don't think I would speak to health care workers in general. But to physicians, upon coming on the hospital and teaching there for ten years, I do not recall receiving any education in infection control nor do I remember receiving any of it during my residency.

Many health workers interviewed by the Commission, from a wide variety of health care facilities, including Scarborough Hospital, told the Commission that before SARS, the last time they received training in isolation protocols and techniques was during their professional training, which for some staff was more than 10 to 20 training on the use of protective equipment. The system-wide lack of attention to the use of personal protective equipment became evident during SARS, as hospitals suddenly became aware of provincial laws that required training and fit testing for staff using the N95 respirator. This meant that in the midst of the outbreak, hospitals had to scramble to train and fit test thousands of employees. For many health workers throughout the health care system, fit testing and training did not occur until long after the SARS outbreak was over. More will be said about masks, respirators and the use of personal protective equipment later in the report.

Ms. Glenna Raymond, the Vice-President of Patient Services at the Scarborough Hospital, who later became the CEO, described the increased knowledge about the importance of infection control, post-SARS, both in general and its impact globally:

> As far as what we really learned in the end from this, if I interpret your question, again I come back to that notion that the observation related to the dedication to health care workers and what they have contributed, the willingness of health care workers to put the needs of patients before themselves and their families. What we have learned in terms of much more specifically and scientifically about infection control, about this illness in particular, but infection control in general, and we need to be much more vigilant and aware of the global impact. I think that's a learning for all of us, that we're not just in Toronto or in Ontario, we are in fact part of a global health system, I don't think that understanding was as strong then as it is today.

Post-SARS, there have been many improvements, and the importance of infection control is well recognized. Many health workers interviewed by the Commission remarked upon the improvements at the Grace Hospital post-SARS. One nurse, who worked at multiple hospitals in Toronto, said:

> The Grace, their infection control practices have really improved. I've been to other hospitals in the last year or two and I went to [name of hospital] and there was a man there that had pneumonia. He was coughing up copious amounts of disgusting stuff and he was less than four or five feet away from the next patient. Our practice, that would not happen

> at the Grace anymore. The Grace's infection control practices are phenomenal now, compared to what they used to be.

The danger, however, is that as the memory of SARS fades, so too will the attention to infection control. That is why it is critically important that the story of SARS be told, that it not be forgotten, and that its lessons help us better prepare for the future.

Crowded Emergency Departments

As will be seen below, another factor that impacted the handling of the index case was the fact that Mr. T was not admitted to a hospital room until over 16 hours after he first entered the emergency department. During that time he stayed in the emergency department, unwell and in close proximity to other patients.

The overcrowding[102] of the emergency department at Scarborough Grace and the lack of capacity in the hospital, and at many other hospitals in Ontario, were not an unusual event. As one emergency room employee at the Grace said:

> It [the Scarborough Grace Hospital emergency department] was very, very crowded. They [patients] may be admitted but there were no beds upstairs. At that point [March 2003], I think there were sometimes two and three days, they were in emergency waiting for beds to become available.

One physician described the impact of crowded emergency rooms:

---

102. "Emergency department overcrowding" was defined by the Canadian Association of Emergency Physicians and the National Emergency Nurses Affiliation to mean:

> . . . a situation in which the demand for emergency services exceeds the ability of a department to provide quality care within acceptable time frames. ("Emergency Department Overcrowding – Position Statement, 2003)

The comments with respect to overcrowding and lack of capacity refer to bed space and admission issues, as opposed to quality and timeliness of care issue, something that is not part of the Commission's mandate and was not part of the Commission's investigation. To be clear, by using the words "overcrowding" the Commission is not suggesting that Mr. T or any of the other patients were not seen or treated in an acceptable time frame while they were in the emergency department.

> The Canadian index case, or the primary case, was the son of the index case that brought it to Canada. The spread that occurred from that person was very significant. And the reason was, which we've all forgotten in this whole affair, is that emergency departments were jam packed with admitted patients. The last government removed 1,000 beds out of the GTA [Greater Toronto Area], which means there were no inpatient beds. And what happens every single day in every single emergency department across the GTA, and it's much worse in the GTA than it is in London, in Ottawa, in fact anywhere else in the province, is that 80, 90, even 100 per cent of your emergency stretchers are taken up by inpatients. So therefore emergency patients can't be seen. Therefore, you have waiting rooms filled with people. Waiting rooms aren't exactly the most hygienic areas … People who come in to hospitals who need to be admitted are stacked in waiting rooms and hallways, anywhere in the emergency department … And I guarantee you this, until the inpatients in emergency departments are addressed, this will happen again, and it doesn't matter whether it's SARS, SARS III, a new agent, or one of the old agents that just seems to spread again.

Another physician agreed, saying that overcrowding in emergency departments in Ontario has become the norm:

> … [The index case was in emergency] with various mechanisms that actually induced the spread of the disease, including aerosol masks, and so on. The fact is that the way that that patient was treated was no different than the way patients are treated every day in emergency departments in Ontario. And it's undignified and it's unacceptable and it still continues to occur. When you have a system that is operating at 150, 120 per cent capacity, something's going to happen, and we saw that.

One of the physicians who was working the night of March 7 and observed Mr. T in the emergency department agreed that the crowding in the emergency departments was a problem and said that the bargaining of patients between hospitals is also not conducive to good infection control. As he said:

> … Part of the problem is that bed spaces are always at a premium, they're always bargaining, and then there is the other problem why it spread to other hospitals. There's never any elbow room, every bed's filled. They're always horse trading, trying to get people out, then sort of trying to send them to other hospitals. It's kind of like, bees pollinating various flowers.

> These jam-packed hospitals who are trying to bargain and trade back and forth their sickest patients, that is, from a virological point of view, a pretty bad strategy.

The overcrowding of emergency departments and hospitals in Ontario has been the subject of alarm and debate for some time. In a 2003 Position Statement, the Canadian Association of Emergency Physicians and the National Emergency Nurses Affiliation said:

> Canadian emergency departments (EDs) often deal with more sick patients than there are staffed stretchers to treat them in. Acutely ill people overflow into hallways and waiting rooms, ambulances are diverted from hospital to hospital looking for an ED that will accept incoming patients and, after arriving, ambulance attendants often cannot off-load patients onto an ED stretcher. Sick patients endure prolonged waits in ED waiting rooms and face unacceptable delays in care. ED overcrowding has been described, defined and studied for over two decades. Despite a range of initiatives and management strategies, it is worsening, and it remains the most serious issue confronting Canadian EDs. The ultimate consequence of overcrowding is a lack of access to timely and appropriate care for the sickest patients in our system – those described in Levels I, II and III of the Canadian Emergency Department Triage and Acuity Scale (CTAS) …[103]

It reflects poorly on Ontario's health care system that an ill patient whose health status warrants admission must wait over 16 hours for an available bed. In the case of Mr. T, his prolonged stay in the emergency department, which was not atypical for emergency departments in Ontario, and certainly due to no fault of the Scarborough General Hospital, resulted in him being in a relatively small area, filled to capacity, in close proximity to other patients who were also ill, for a lengthy period of time.

103. Canadian Association of Emergency Physicians and the National Emergency Nurses Affiliation, "Emergency Department Overcrowding Position Statement, 2003."

Hospitals and Shopping Malls

As will be seen below, as SARS spread, the challenge became to identify and contact all those persons who had been in the hospital and may have been exposed to SARS. The number of staff and patients alone was daunting, but there was an added burden of visitors, most of whom were untracked and unknown.

Many physicians and nurses interviewed by the Commission remarked on the fact that hospitals have become like shopping malls: open to the public and often quite crowded. One physician said that pre-SARS the number of visitors to the hospital was a problem:

> One of the problems with hospitals is they become almost like flea markets and bazaars. You get some little kid who comes in for ear tubes and they bring twelve people in with them. They have bake sales and junk sales in the lobbies and people come to use the food court for lunch because it's probably cheaper than the surrounding areas.

This physician told the Commission that one of the pleasant effects of SARS was the greater control over who was coming in and out of hospitals:

> The few months after SARS it was actually, I thought, one of the more pleasant times paradoxically, partly because I was alive, but also because they were much more stringent on who could come in.

Another nurse told the Commission some of the improvements post-SARS, such as tighter control over the number of visitors, have been lost:

> We're going in circles with our infection control SARS is over, people are forgetting, so they're allowing more visitors to come in again …

This is not to minimize the important role that families and friends play in supporting and caring for the ill. But during SARS, when it suddenly became necessary to identify all those persons who were in a hospital or in a particular area of a hospital, the changing landscape of hospitals made contact tracing a huge challenge. Post-SARS, it is important that infection control standards are not overcome by the need to turn hospitals into something other than a place to care for those who are ill. It is important that visitor policies are consistent and clear across the health care system and that visitors are educated about the important role they play in keeping hospitals

as safe as possible, a role that includes respecting limits on the number of visitors, particularly where the illness is not serious or life-threatening.

Public Health Capacity and Resources

When SARS hit, infection control in hospitals was not the only weak line in our defence against infectious disease outbreaks. SARS hit a public health system that had been in decline for many years. As the Commission found in its first interim report:

> The decline of public health protection in Ontario began decades before SARS. No government and no political party is immune from responsibility for its neglect. As one witness observed at the public hearings:
>
> > The second concern stems from the fact that we are in an election week. I worry that members of the media who are present here today, or those on the campaign trail will use what is said today as cannon-fodder, against one political party or another. I am not wedded to any party right now, in fact, I'm troubled by all of them, but let it be clearly noted; no party, federal or provincial, no bureaucracy, federal or provincial, is any less culpable for the problems we are seeing in the healthcare system today.
>
> One local Medical Officer of Health remarked that in his opinion, the general public has shown little interest in public health as well:
>
> > I think that the general public has no general interest in public health until there is a specific problem [despite] the kind of wide spectrum of things that public health is supposed to be doing and trying to do with very limited resources and difficulty getting additional resources.
>
> Ontario is not alone in its neglect of the public health system. There has been a clear recognition in the past few decades of a general decline in public health capacity across Canada. Warnings of the decline in Canada's public health capacity to protect against infectious disease have been raised since the 1970's. In 1997, this problem was clearly identified by Mr. Justice Horace Krever in his report on Canada's blood system. Mr. Justice Krever recommended "that the provincial and territorial ministers

of health provide sufficient resources for public health services". He stated:

> Public health departments in many parts of Canada do not have sufficient resources to carry out their duties. They must have sufficient personnel and resources to conduct adequate surveillance of infectious diseases, to develop and implement measures to control the spread of infectious diseases, including those that are blood borne, and to communicate with other public health authorities at both the federal and the provincial-territorial levels.[104]

As Dr. Larry Erlick, President of the Ontario Medical Association, told the Commission:

> If SARS indicated one thing to the Medical Officers of Health of the Province and to the Public Health Branch itself it was that there is insufficient capacity in the system to deal with public health emergencies. This was highlighted in the Ontario Medical Association submission to the Walkerton Inquiry where Justice O'Connor's first recommendation, which was suggested and promoted by the Ontario Medical Association, was that each region be required to employ a full-time Medical Officer of Health. To this date, there are vacancies in eight (8) full-time Medical Officer of Health positions and five (5) associate positions in the Province.
>
> It is not only a human health resource issue that has led to this lack of Medical Officers of Health but also a grossly underfunded public healthcare system. The current public healthcare system as it exists today has no elasticity.[105]

When SARS hit, the workload imposed on local public health units was overwhelming. The hardest hit jurisdiction was Toronto, where the workload snowballed with each passing day of the outbreak. Staff worked long hours and demonstrated remarkable dedication to the response effort. Twenty-hour workdays were not uncommon. The problem was not any 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. As noted in the Commission's first interim report:

104. SARS Commission, first interim report, p. 33.
105. SARS Commission, first interim report, p. 34.

There was a shortage of staff at Toronto Public Health to do the day-to-day work of identifying contacts, calling them to provide accurate and timely information and to maintain consistent contact throughout the period of quarantine. Some surge capacity was achieved by redeploying staff from other public health work. Additional capacity was achieved at times from other health units and the federal government. Dr. Sheela Basrur, Dr. Barbara Yaffe and Dr. Bonnie Henry noted in a recent article:

> Public health staff and physicians from the City of Hamilton, County of Lambton, Middlesex-London, City of Ottawa and Leeds, Grenville and Lanark Health Units as well as the federal government also provided on-site assistance, which proved invaluable in sustaining the TPH response. However, even with this out-of-town assistance and the redeployment of workers from other public health jobs, there simply were not enough people to do the work and there were insufficient internal coordinating mechanisms to ensure that the information was both obtained and provided in a smooth and efficient manner. Consequently, a number of significant problems arose during SARS around the ability of Toronto Public Health to handle the massive workload.[106]

As the Commission found in its first interim report:

> However one addresses this question of staffing levels as between infectious disease and other health programmes, the fact remains that extra surge capacity is required in a significant outbreak. The solution is not to hire large numbers of people to sit around and wait for the next outbreak to arrive. The solution is devise a system through cross-training and reassignment to deploy more workers on the ground for the painstaking work of contact tracing and following up on those in quarantine. It speaks equally to the need for better internal information systems and a planning process which ensures that the work of core personnel and added personnel can be properly coordinated …
>
> … Provincial plans and local plans are required for response to outbreaks, both large and small, which mobilizes surge capacity through redeployment of public health workers cross-trained in outbreak investigation and

106. SARS Commission, first interim report, p. 148.

> management. Such plans should include prearranged agreements and memorandums of understanding between health units to redeploy workers from areas of relatively light activity to areas of peak activity. Under this system, an outbreak in Windsor might attract the temporary redeployment of workers from Toronto and vice versa. This is easier said than done; it requires a real commitment in expenditure to achieve the necessary cross-training, willingness and dedication on the part of the individuals who will be reassigned away from their homes and families and a strong cooperative motivation from all levels of the public health system to make redeployments work. The other obvious limitation to redeployment is that it will not work if the entire province is hit by an outbreak which takes up all the spare capacity of every health unit, in which case the local plans will be critical.
>
> Finally, the province must collaborate with other provinces and with the federal government to ensure clear agreements for support during times of crisis. During SARS the province received help from outside Ontario as a consequence of the goodwill created between colleagues, not as a result of any formal agreement. SARS was a wake up call. It demonstrated the need to create surge capacity by planning in advance so that every available worker can be redeployed where necessary.[107]

One of the challenges during SARS was how to collect, analyze and manage the massive amounts of information collected by public health officials. The Toronto Public Health unit, which had the majority of the SARS cases, relied on a paper-based system of case tracking. This nightmarish system generated cardboard boxes spilling over with paper, all of which had to be collated and analyzed by hand. Although Toronto Public Health had initially attempted to gather and track the contact information electronically, as the numbers swelled this quickly became impossible to do with the Excel system they were using. Toronto Public Health, despite its best efforts, was forced to resort to a paper-based system, which remained in place throughout the outbreak.

Dr. Bonnie Henry, an associate medical officer of health with Toronto Public Health and a key figure in the SARS outbreak, wrote in her notes of the outbreak that:

> This outbreak has also made clear the paucity of resources put into public health in Toronto with 5 physicians and lack of nursing staff to deal with

107. SARS Commission, first interim report, pp. 150-151.

> some of the complex medical issues that this outbreak has required. As well, the deficiency in our IT system is readily apparent as we were unable to create a data base that was able to manage the vast number of contacts that we were receiving in a very short period of time.
>
> We do not have the ability to input data into a single database from multi-terminals. At the same time, our IT system was clearly overwhelmed when the Scarborough Grace part of the outbreak occurred. The need to enhance public health's infrastructures clear from this outbreak especially with scope and size of this outbreak. In addition, the need to enhance the mechanisms of communication between TPH, the Ontario Ministry of Health and Health Canada need to be assessed. Much time in the first few weeks of this outbreak were spent on conference calls that did pass some information but resulted in exchanging of opinions and very little time to actually get the work done that needed to be done to help manage the outbreak and TPH opted to not participate in the Health Canada conference calls after the first few days as it became apparent that the degree of crises in Toronto is very different from that in the rest of the country and that we would need to implement measures in a more stringent fashion, in a more rapid fashion than the rest of the country was willing to consider at that time.[108]

The importance of strong public health resources, including the capacity to redeploy staff and the resources to effectively respond to an infectious disease outbreak, became evident during SARS as the number of contacts increased daily. Each contact had to be identified contact information located, contacted and interviewed and in some cases followed. As will be seen below, at times a call to one contact would yield further contact work for many more contacts, because in speaking to the initial contact more contacts would be identified to Public Health.

As the memory of SARS fades, as budget pressures loom and when there is so much talk about change, it is important that governments, local, provincial and federal, are held to the talk: that talk becomes action and that necessary resources levels are maintained and are not permitted to decline.

108. Dr. Bonnie Henry, Associate Medical Officer of Health, Toronto Public Health, "Summary of the Events of the SARS Outbreak on April 11, 2003" (Dr. Henry's Summary of SARS).

The T Family

By all accounts the epitome of dignity and cooperation in the face of fear and uncertainty, the T family was the first family to become ill with SARS in Ontario. Their story is told below. Although the story details the introduction and spread of SARS in Ontario, it is important to remember throughout the story of SARS that above all for the victims of SARS it was a time of loss and suffering. The T family lost Mrs. K, a mother, grandmother and wife, and Mr. T, a husband, son, father and brother, and four other family members were hospitalized for SARS. For them, and for so many other victims of SARS, the cost of SARS is impossible to calculate or describe, and telling the story of SARS, while important for learning the lessons of SARS, does nothing to replace their loss or ease their suffering.

As noted above, the matriarch of the family, Mrs. K, was exposed to SARS while staying at the Metropole Hotel in Hong Kong from February 18 to the 21st. Mrs. K died, at home in Toronto, on March 5, 2003. At that time, no one knew that she had SARS. The family members, unaware that their mother had been exposed to an infectious disease, were in contact with her during the period of time that she was ill.

By March 6, her son (Mr. T) and his sister, (Ms. T[109]) were ill. Both saw a family physician on March 6, 2003. They were diagnosed as having either a chest infection or the flu and were given medication. By the afternoon of March 6, Mr. T's infant son and wife were also ill. Mr. T's sister took Mr. T's wife and child to a family physician and then on to the Scarborough Grace emergency department. They were treated and sent home.

The following chart provides a chronology of the key events in the history of the T family cluster of illness. As can be seen from the chart, the story of the T family unfolded over less than a week. While it is easy now, with the benefit of hindsight, to review and dissect every step and decision made, at the time things happened within a short period of time and many things seemed to happen at once.

109. Although not all the family members' last names start with a "T," since their actual last names are not in the public domain for the purposes of this report all family members, immediate and extended, are referred to by the initial "T."

DATE	EVENT
March 5	• Mrs. K dies at home. Cause of death: congestive heart failure
March 6	• T. family members become ill
March 7	• Mr. T is seen at SG emerg – diagnosis: community acquired pneumonia
March 8	• A funeral is held for Mrs. K • Mr. T is moved to the ICU at SG hospital • Mr. T is seen by Dr. Finklestein – TB is suspected • Mr. T is isolated and staff begin to use precautions
March 9	• Dr. Finklestein reports possible TB cases to TPH • Four members of T family remain ill. Family members are seen by Dr. Finklestein, x-rays are taken – family members are sent home with masks and instructions to isolate themselves
March 10	• TPH commences TB investigation
March 13	• Mr. T dies • Dr. Finklestein speaks to Dr. McGeer • Other T family members are admitted in isolation, to hospitals across the GTA

Friday, March 7

Mr. T, the son of Mrs. K, continued to be unwell and on Friday, March 7, 2003, he was taken to Scarborough Grace Hospital via ambulance. He was triaged at 7:30 p.m. and admitted at 7:45 p.m. At that time he complained of a high fever and a severe cough and had difficulty breathing. His sister, who was with him, reported to emergency room staff that their mother had been ill and had recently passed away.

Unaware that there was a new and potentially deadly disease that was spreading in China and Hong Kong, staff in the emergency department at the Grace had no information to make them consider the possibility of a new and unknown infectious disease. The emergency physician who saw Mr. T in the observation room of the emergency department recalled that Mr. T had been referred to him as a case of pneumonia. At that time, there was nothing about Mr. T's case that caused any alarm bells to go off. As he told the Commission:

> It was a community acquired pneumonia. A man who hadn't had a significant medical history in the past and nothing unusual about his own personal situation as far as I can tell.

This physician noted that Mr. T had been in Canada for some time and, although he became aware that the mother was ill, it was not known at that time that she had recently travelled to Hong Kong. It was not a standard question on any screening tool to ask patients presenting at the emergency department about travel history of close contacts or travel within a family. The physician who saw Mr. T noted that even if he had known about the mother's travel, he was unaware of the outbreak of a mysterious atypical pneumonia in Hong Kong. As noted above, alerts about events in China and Hong Kong had not reached the front lines of the health system. Mr. T's physician said that while he did think that it was unusual that the mother had died of pneumonia, there was still nothing to raise alarms about the possibility of an infectious disease at that point in time:

> Question: And what was your understanding of her illness?
>
> Answer: I was actually told that she had died at home of pneumonia. And I thought that that was really quite strange … I had a hard time understanding how somebody, in this day and age, would die at home of pneumonia.
>
> Question: So, you thought it was strange that she died at home of pneumonia?
>
> Answer: Yes.
>
> Question: Did that cause you any concern?
>
> Answer: It didn't ring any bells.
>
> . . .
>
> Question: So as far as the mother goes, you're aware that she died at home, from what you understand, being pneumonia, you were not aware she had recently been to Hong Kong.

Answer: Absolutely not. That wasn't offered at all.

Question: Even if you had known that, were you aware at that time, of the events that were unfolding in Hong Kong?

Answer: No.

Question: Did any alerts come through to you at that point about an atypical pneumonia in Hong Kong?

Answer: None.

As noted above, because there was no bed available for Mr. T in the hospital, he remained in the emergency department, waiting for a bed to become available, for over 16 hours. Most of the time that Mr. T was in the emergency department, he was in the observation room. The observation room was essentially a large holding room in the emergency department which held eight other patients. Dr. Finklestein, an internal medicine specialist and respirologist who later became involved with Mr. T, described the layout of the room:

Dr. Finklestein: It is maybe about eight feet, nine feet from the edge of the nursing station to the end of the bed and they leave five feet between beds maybe. If I walk beside the bed and there is somebody sitting in a chair beside the next bed, I will bump their head with my behind.

Question: Maybe five feet between beds.

Dr. Finklestein: Maybe four or five feet between beds.

Question: And a curtain?

Dr. Finklestein: And a curtain.

Question: Full curtain to the floor, or partway?

Dr. Finklestein: It would have been within a foot of the floor.

Question: So basically he [Mr. M, whose story is told below] is there when Mr. T is there.

Dr. Finklestein: He is there, however, Mr. T spent a little time in the resuscitation room … it is a separate room, but he seemed to improve and the nurses and the overnight staff did not feel he needed that level of care, so they brought him over here [to the observation room].

Throughout his stay in the emergency department, Mr. T was not isolated and staff and physicians did not use protective equipment. Because the emergency department was busy, the observation area was full, as patients waited to be seen or admitted.

Pre-SARS, it was not a common practice in Ontario to isolate patients with pneumonia or respiratory illness. The above-quoted physician, who saw Mr. T in the emergency department that night, explained that at that time he was not aware of any protocols that required isolation of patients with respiratory illness, nor was it standard practice to do so:

Question: At the time that you saw Mr. T in emergency, were there any policies and protocols in place about precautions to be taken with patients with respiratory illness?

Answer: No, not particularly. I mean, if there were, they weren't acted on by people before me and for the years that I have been there. If somebody came in with a concern about tuberculosis, as an example, if somebody had made that decision. Occasionally people who were in isolation rooms, sometimes they're in isolation rooms not so much for other people's benefit, but for their benefit, in other words people who are immunosuppressed, who might be ill in some fashion, are sometimes put in isolation. But they wouldn't be explosive.

This physician said that the only time they isolated a patient was if there was a concern about tuberculosis. He told the Commission that when Mr. T was in the emergency department, tuberculosis was not identified as a concern. This physician

said that there was no greater concern for passing pneumonia to people beside Mr. T than there was for any other patient:

Question: As far as pneumonia, was there any concern about, here he is in a room when many other people, some who were elderly. Any concerns about him passing it on to the people beside him, even from a pneumonia perspective?

Answer: No more so than anybody else with pneumonia who comes into emergency at any other time.

Question: And pneumonia cases are generally not isolated?

Answer: That has been my experience.

Question: Are you aware of any written policy about that?

Answer: I am not aware of any policy written like that at the time.

Question: And your experience prior to that, had you ever isolated a pneumonia patient?

Answer: Only if there is a concern about them having something like TB.

One Toronto doctor who was involved in SARS, agreed that the treatment of Mr. T in the emergency department on March 7, 2003, was consistent with standard practice. While practices are much different now post-SARS, when Mr. T presented at the emergency department no one had the benefit of knowing all the things we now know post-SARS:

Answer: I think what happened at Scarborough Grace, that patient that night, was a patient with community acquired pneumonia, and that if you look at the CDC and the Health Canada guidelines, the patient was managed appropriately so there were no rules that were broken, and I don't think that was the problem.

Question: You mean because the only diagnosis that was realistic was community cquired pneumonia and the patient was handled appropriately for that diagnosis?

Answer: That is right. A day later, they thought, maybe it's tuberculosis, and he was put on precautions.

Question: So unless one adopted the approach you suggested a few minutes ago, that treated every lower tract respiratory ailment as an infection you would be bound to follow the same …

Answer: That's right. Remember, we've never experienced anything like this and so next time, you would respond sooner, and if you saw a cluster of cases, you would react differently, knowing what we know now. But at that time, we did not know that we would see something like this. And so it wouldn't ne as bad next time, but it was just that no one expected it to be this bad.

Mr. T remained in the emergency department, unmasked and in close proximity to other patients in the room, for over 16 hours[110] before he was admitted to a medical unit. As it turned out, this was a crucial event in the spread of SARS. During this time medical intervention included commonly used treatments that, unknown to health care providers at the time, potentially exacerbated the spread of the disease in the absence of special precautions later associated with SARS. As noted in the Naylor Report:

> Many patients and staff were exposed to Mr. T before he was placed in isolation, and two of the patients being treated in the Grace emergency department at the same time would also fall ill. Partly due to hospital overcrowding, Mr. T remained in the emergency department long after doctors had authorized a hospital admission. While waiting for a bed to be freed up, Mr. T received oxygen and vaporized medications (potentially capable of transforming infectious droplets into an infectious aerosol), and had numerous visitors.[111]

110. As noted earlier, Mr. T was triaged in the emergency department at 7:30 p.m. on March 7, admitted 15 minutes later, at 7:45 p.m., and transferred to a medical unit, 4D, at approximately 12:00 noon on March 8.

111. Naylor Report, p. 25.

The impact of Mr. T's protracted stay in emergency was profound. Two other patients who were in the emergency department the same time as Mr. T were exposed to SARS and became ill. As the transmission chart referenced earlier in this section shows, the spread from Mr. T was relatively limited, due to his eventual isolation and the use of protective equipment by staff. But the spread to two other patients, Mr. H and Mr. M,[112] whose stories are told below, later went on to spread the disease to 27 other people, including family, other patients and health workers. Those 27 went on to spread the disease to another 34 people, including other patients, visitors, health workers and household contacts, who then went on to spread SARS to another 17 people.[113] These numbers do not include transmission that ensued as ill patients were admitted or transferred to other hospitals and further spread the disease before anyone knew that they were infected with SARS.

Saturday, March 8

On Saturday, March 8, between 10 a.m. and noon, funeral services were held for the family matriarch, Mrs. K. Approximately 40 to 60 people attended the funeral, including Mr. T's wife, who was unwell with a cough but stayed away from the rest of the family at the funeral.

Meanwhile, Mr. T remained in the emergency department at Scarborough Grace Hospital until 12:00 noon, when he was transferred to a medical floor, 4D. Because he was still thought to have pneumonia, he was not isolated on 4D and the staff did not wear personal protective equipment when caring for him. Mr. T's condition continued to deteriorate and on March 8, 2003, at approximately 3:00 p.m. he was transferred to the intensive care unit.

When Mr. T first arrived in the intensive care unit he was placed in a regular room, not in isolation. Staff did not wear personal protective equipment. As one of the ICU nurses who worked that day recalled, they had no reason for alarm:

> We were told that there was a patient with pneumonia who was having difficulty breathing and needed to be put on BiPap [bilevel positive airway pressure device], so when he arrived in the ICU he was put into

112. As noted above, in this chapter, with the exception of Mr. T, the initials of the other patients whose stories are told in this report have been changed.

113. Varia et al., "Investigation of a nosocomial outbreak of SARS."

> room 1, no isolation because in those days, pre-SARS, we didn't isolate people with pneumonia. And very soon after he was put on BiPap, because he was struggling to breathe. A little later on, his sister came to the desk and this is when it became apparent that there was something really wrong because she was quite upset and she wanted to see a social worker. That was her question to me: Could I see a social worker. And I said, why do you need that, because it was certainly an odd question for a family member to request for someone with pneumonia. And she said, well, my whole family is sick with this pneumonia; my brothers, and my mother just died of it two days ago, and myself. You can imagine the nurses, we all kind of backed away, thinking at that point that it must be TB, because that was the type of thing that spread through a family like that.

Dr. Finklestein recalled being asked by the nursing staff late that afternoon to see Mr. T:

> … I came back to the hospital at about roughly 6:00 [p.m.], for reasons I cannot remember, it was a bit earlier that day, and I walked as I usually do through the ICU to make that everything is good and the patients are not deteriorating. And the nurses said we just got this patient down about 4:30 or 4:45 and he was sitting in ICU bed 1, which is a private room, which at that time had no negative pressure capacity. The door was open, he was on BiPap, facial ventilation, they said he had deteriorated on the ward and he was getting worse and he had a fever. And then they told me … his mother died two weeks ago, I don't necessarily remember if she told me about the travel history at that point, I certainly knew it by the end of the night, and that was enough. I was told clearly she died of congestive failure, which I later verified with the coroner, who is an acquaintance of mine. I happen to bump into him and said what do you think? He said it really it looked like congestive heart failure, and that is what was on the death certificate I believe. Anyways, it just didn't feel right, fever, and infection, and your mother just died of a questionable illness, because she didn't have heart failure before. I said put him in room ten, even before I walked in the room. Room 10 is like the big negative pressure room with antechamber … Before I even walked in the room, it didn't sound right; it didn't feel right. TB, react and think.

Dr. Finklestein told the Commission that he and other staff at Scarborough Hospital had always maintained a high degree of vigilance for tuberculosis, due to the makeup

of the community that the hospital served:

> At Scarborough [Grace] we already have a high degree of vigilance, because of our ethnic population and TB. Everyone had TB until proven otherwise, was my motto. You saw more TB than almost any other hospital, even though we are a smallish hospital, we saw tons of TB, so it was always on the surface, we were always thinking about, and any x-ray that looked too funny or any patient that the story didn't quite fit, got isolated, at least that was my practice. On the basis of, you know what, if I had any reason that this doesn't make sense, you've got TB until I prove it otherwise, and I'm going to isolate you. That is what we did with the Patient no. 1, it just didn't fit, and so we have to isolate on intake and I will say that four or five more times.

As noted above, like the physician who saw Mr. T in the emergency department, Dr. Finklestein had also not heard about events in Hong Kong and China. He did not know to ask about travel history of the patient and his family members and did not know to be suspicious for anything unusual. However, because tuberculosis was suspected, steps were immediately taken to limit exposure to this patient, before they could move him to a proper, negative pressure isolation room. At approximately 6:45 p.m., Mr. T was moved to a negative pressure room in the ICU. Staff began to use precautions, which included gowns, gloves and a surgical mask. As Dr. Finklestein told the Commission:

> Question: You moved him to a negative pressure room?
>
> Dr. Finklestein: Before I even walked in the room, it didn't sound right; it didn't feel right. TB, react and think.
>
> Question: Is this your precautionary principle approach?
>
> Dr. Finklestein: TB until proven otherwise, and react and think. Put him over there, it doesn't hurt him. In ICU, the closed door doesn't matter because there is so much nursing. And we put him over there, and everyone was wearing masks, I don't think at that time we were wearing, we didn't start gowning until the next day.
>
> Question: You were wearing surgical masks, or N95s?

Dr. Finklestein: I don't think anyone knew what an N95 mask was before SARS.

Question: What would you wear for TB?

Dr. Finklestein: Just a regular surgical mask. So we moved him over there by 6:00 p.m. that night. I do feel that that one thing that we did prevented, that plus something I did the next day, but I think those two things really prevented us from have two more generations of SARS before it was clued in that this was an outbreak, I am absolutely sure of it. So that evening I met with his family, I don't remember if someone told me they had a fever, I said, you don't look well, do you have a fever? I mean, they looked unwell.

Sunday, March 9

On March 9 a skin test was done on Mr. T to test for tuberculosis. The T family, many of whom were by this time ill, visited their brother in the ICU. While they were in the hospital, Dr. Finklestein met with the family and provided them with education about tuberculosis precautions. Dr. Finklestein met with four of the family members and noted that all four of them were unwell. They were all sent to the diagnostic imaging department for chest x-rays as part of their tuberculosis work-up. The Naylor Report described the assessment and handling of Mr. T and his family:

> The physician who treated Mr. T was a respirologist and intensive care specialist who astutely suspected tuberculosis. He had not received any information about the mysterious respiratory illness in Guangdong. With tuberculosis a possibility, he isolated Mr. T, and asked the rest of the family to isolate themselves at home. He contacted Toronto Public Health.[114]

Dr. Finklestein told the Commission that because he did not have the capacity to admit all of the ill family members in proper isolation and because none of them were seriously ill at that point, he sent the family members home with masks and with instructions to isolate themselves. As noted above, before the family members went

114. Naylor Report, p. 25.

home, Dr. Finklestein said he ensured that they each had an x-ray done:

> … that night with masks on, I explained to them what we do, and everyone would wear a mask when they are out, not N95, just a regular mask. And because I did not have the ability at that time to admit five people, and usually until we confirm an illness, I mean, we will say isolate yourself at home, this is a practice we did and we still use. I sent them for x-rays that evening, the whole family, and I x-rayed them all and everyone had an abnormal x-ray. Dad's was really abnormal, but he had chronic lung disease before. X-rayed them that evening, they went with masks on, and I spoke to the x-ray tech, who told me they [the T family] wore their masks, they were good in terms of following instruction. And they essentially, for the most part, stayed away from the hospital, but I did meet with them again Sunday morning.

Also on March 9, Dr. Finklestein phoned Toronto Public Health to report the family cluster of illness and suspected diagnosis of tuberculosis for Mr. T. He told the Commission that although reports to Public Health were typically made by the infection control practitioners in the hospital, he made the report himself as he was concerned about the patient and the family illness:

> I said your x-rays are all abnormal, you've got fevers, you look lousy, there is something going on in your family. And I did something I have only done, that was the only time I did, I picked up the phone and I called public health. From the hospital there is absolutely zero indication for a physician to call public health, because we have an infection control team. You know what, it was Sunday; I had the family, there was some travel involved. I said this might be TB, but it is progressing more rapidly than I would have expected, TB is a slower developed disease. But I have done this, I have isolated them … I said go home, stay home; I'll get you sorted out in the next day or two. And I spoke to someone in TB control, there is one person covering all of public health, I mean, they should know all the outbreaks going on, at least I hope so, but I don't know what happened as a result of that phone call …

Dr. Finklestein advised Toronto Public Health that some of the family members were also symptomatic and that they had been sent home with masks. Dr. Finklestein queried if the matriarch, who had died of a myocardial infarction (heart attack) on March 5, might also have tuberculosis. Toronto Public Health noted that the "family is from an area where TB is endemic."

Dr. Finklestein said that at this point in time he was still trying to figure out what they had but he did not have any information to say it was something other than pneumonia or possible tuberculosis. There was still nothing to suggest that they had a new infectious disease or to connect their case to the developing outbreak in Hong Kong and China, an outbreak that Dr. Finklestein still had not been alerted about. As of March 9, Mr. T was in hospital being cared for and the other family members were home with directions to isolate themselves and had been given masks. Their health was being monitored. As he told the Commission:

> I didn't know, again I was treating, they had an infections disease, that part I knew. It was spreading; it spread rapidly from one person, the mother, to three people, the four people [the four family members], and it spread rapidly to them so that wasn't really following TB's behaviour. It could have been a viral pneumonia I thought, but I did not have any other background to say it's something different.

Although Dr. Finklestein was aware of the travel history of the mother and reported it to Public Health, he received no information back that would suggest there was a concern about an imported disease. As he told the Commission:

> When I picked up the phone I said, I definitely knew the travel history by that day, because I had met with the family. What I would have expected … I have a patient, I have the travel history on the family, mom is dead, a few people are sick, I would have expected Public Health to say, oh, don't you know about the outbreak in Hong Kong? That's what I would have wanted to hear back.

What Dr. Finklestein and others, including Toronto Public Health, did not know, is that this was not TB, but something far more infectious and that others in the hospital had already been exposed to the disease and that it was spreading beyond the T family.

Monday, March 10

On Monday March 10, the Toronto Public Health Tuberculosis Team (East Region) was notified of the report made by Dr. Finklestein on March 9, 2003. Toronto Public Health began a tuberculosis investigation and started to identify contacts. As part of the investigation, the status of Mr. T's family members was reviewed. It was determined that three adult family members had symptoms with abnormal chest x-rays, and that one child had mild upper respiratory symptoms. Toronto Public Health advised the family to follow up with their family physicians but to use a mask when attending the physicians' offices.

Also on March 10, Ms. Agnes Wong indirectly became involved in Mr. T's case. Agnes Wong was an important figure in the first outbreak. The patient care manager and nurse educator for the intensive care unit (ICU) at the Scarborough Grace Hospital, Ms. Wong was and continues to be highly regarded by her staff. Ms. Wong recalled speaking to one of the ICU nurses on the weekend and hearing about Mr. T being recently transferred to the ICU. She recalled that on the morning of Monday, March 10, another ICU nurse came to her office and also mentioned Mr. T, who had continued to deteriorate since arriving in the ICU.

Ms. Wong, who spoke and read Chinese, recalled that she had read a report in a Hong Kong newspaper about a young father and his daughter who were from Hong Kong who had both died of a mysterious illness after returning from a visit to mainland China. As she told the Commission:

> In fact, it could have been a magazine or paper, a weekly magazine or paper, I don't remember exactly where it is but I remember that night. It was a story type of information that I read. It was about a Chinese family who was from Hong Kong. They travelled to mainland China. And then the whole family kind of got sick and then the daughter, no, the father was in Hong Kong at the time, the daughter, the son and the mother were travelling in China and the family got sick and I remember the daughter was very sick. And the father went from Hong Kong to China to look after the daughter and the father got sick from the daughter as well. And eventually the daughter died, the father died and the son and the mother I believe survived, went back to Hong Kong and I believe they recovered. But I just found the story very sad …

Ms. Wong said that even before she read this article, she had heard on a Chinese radio station about reports of an outbreak of atypical pneumonia in China and Hong Kong:

> For a while, even before that [before reading the article described above] we heard some news from the Chinese radio talk about atypical pneumonia and that's happening in China, and then, you know, also in Hong Kong. So for a few months at least, I believe. It was on and off my radio. I usually drive to work and then I turn on the radio to work and after work, to the Chinese station, so they're giving the news report and they usually mention something about atypical pneumonia.

Recalling this story and the radio reports, Ms. Wong asked the nurse to check if there was a record of the travel history for the patient. Ms. Wong described the sequence of events for the Commission:

> Over the weekend, somehow, I don't remember what happened, I happened to talk to one of the nurses who looked after Mr. T and then over the phone, that nurse told me that night, this patient is a very sad story. The mother died and then he became so sick. So I kind of learned a little bit over the weekend before I came in, and on the day that I came in, in the morning, the nurse looking after Mr. T [a different nurse] came to my office and talked to me about his case again. And then I told them about … so I told her what happened in Hong Kong, the stories that I read and the atypical pneumonia, all this news I heard. So I told [an ICU nurse] to check the patient's history and see if there was any travelling history that occurred with this patient. So she went out and checked and told me that night the mother had travelled back home in Hong Kong. So I became more suspicious. So I told [an ICU nurse] to inform Dr. Finklestein and also infection control about this and then they can check further.

It reflected poorly on the lack of coordinated warning systems that this alert came not from government or public health officials, as part of a warning system, but anecdotally and accidentally from Ms. Wong. It was not Ms. Wong's job to monitor world events and provide alerts that should have been made through a coordinated warning system to all hospitals and physicians. The ability to flag the danger of a new disease should not depend on the happy accident that an alert health professional like Ms. Wong would happen to notice international reports of the disease. The information about what was happening in China and Hong Kong had still had not reached the front lines of the health care system.

Tuesday, March 11

On March 11 one of Mr. T's tuberculosis tests came back negative. One further test remained outstanding. In the meantime, the Toronto Public Health tuberculosis program continued to follow up with contacts and arrange for assessments.

As Mr. T's condition continued to deteriorate, staff in the ICU at Scarborough Grace worried that something strange was going on. They were concerned that Mr. T was more ill than would be expected if he had tuberculosis or pneumonia. As one ICU nurse stated:

> We had already decided amongst ourselves that this was something we didn't like … we said this was just a gut feeling, this guy is really sick.

The ICU nurses who worked with Mr. T took matters into their own hands, doubling up on gowns, and being very careful with their personal protective equipment as they cared for Mr. T. Their manager, Agnes Wong, supported them and took the position that they could wear whatever they needed in order to feel safe. Ms. Wong's immediate response to the nurses' concerns about their protection reflected an exemplary concern on her part and an understanding of the importance of worker safety in the face of an unknown illness. Ms. Wong said that although she did not want to frighten staff, she tried to impress upon them the importance of being very careful with this patient and of using precautions:

> I told [an ICU nurse] what had happened in Hong Kong. So I kind of alerted them because of those serious problems. I don't want to overwhelm them by telling them that in fact some health care workers already contracted the disease, while they're looking after the patient. I told them they need to be very, very careful. It was serious and it was the same kind of problem, it's going to be very serious. So telling them to be very diligent with respiratory infection control practices.

Ms. Wong credited her staff for containing the spread of the disease from Mr. T while he was in the ICU, saying that they recognized it was a serious illness and they were careful to protect themselves and others:

> I think the protection that we started early in ICU and I think the right thing is the nurses followed the advice, even though it wasn't proven or they hadn't heard the story in Hong Kong themselves. They chose to

> believe right at the beginning, and they all believed more when they see Mr. T's family get sick one after another. The first few days it was very critical. I think the thing they did right, I give credit to the nurses here, they're not only thinking about themselves. I know that they were very diligent in terms of policing the other people to make sure that they enter the room or leave the room properly, like housekeeping staff, x-ray staff or even some physicians and so on. And I know that they've been having fights with some other staff workers when they are not following the rules properly so they have some conflicts. They are willing to take the steps to stop people from contacting the patient. In one case they stopped the RT [respiratory technician] and the student from entering the room to watch a resuscitation going on. So I think that hard work was done right.

Wednesday, March 12

On March 12, 2003, Mr. T remained in isolated in the ICU. His condition continued to deteriorate and his diagnosis remained uncertain as doctors and Public Health waited for the second test result for tuberculosis to come back. His family remained ill at home, in contact with public health officials who were still investigating tuberculosis.

On March 12, 2003, the World Health Organization issued a global alert advising of atypical pneumonia cases in Hong Kong, China and other parts of Asia. The alert provided:

> Since mid February, WHO has been actively working to confirm reports of outbreaks of a severe form of pneumonia in Viet Nam, Hong Kong Special Administrative Region (SAR), China, and Guangdong province in China.
>
> In Viet Nam the outbreak began with a single initial case who was hospitalized for treatment of severe, acute respiratory syndrome of unknown origin. He felt unwell during his journey and fell ill shortly after arrival in Hanoi from Shanghai and Hong Kong SAR, China. Following his admission to the hospital, approximately 20 hospital staff became sick with similar symptoms.
>
> The signs and symptoms of the disease in Hanoi include initial flu-like illness (rapid onset of high fever followed by muscle aches,

headache and sore throat). These are the most common symptoms. Early laboratory findings may include thrombocytopenia (low platelet count) and leucopenia (low white blood cell count). In some, but not all cases, this is followed by bilateral pneumonia, in some cases progressing to acute respiratory distress requiring assisted breathing on a respirator. Some patients are recovering but some patients remain critically ill.

Today, the Department of Health Hong Kong SAR has reported on an outbreak of respiratory illness in one of its public hospitals. As of midnight 11 March, 50 health care workers had been screened and 23 of them were found to have febrile illness. They were admitted to the hospital for observation as a precautionary measure. In this group, eight have developed early chest x-ray signs of pneumonia. Their conditions are stable. Three other health care workers self-presented to hospitals with febrile illness and two of them have chest x-ray signs of pneumonia.

Investigation by Hong Kong SAR public health authorities is on-going. The Hospital Authority has increased infection control measures to prevent the spread of the disease in the hospital. So far, no link has been found between these cases and the outbreak in Hanoi.

In mid February, the Government of China reported that 305 cases of atypical pneumonia, with five deaths, had occurred in Guangdong province. In two cases that died, Chlamydia infection was found. Further investigations of the cause of the outbreak is ongoing. Overall the outbreaks in Hanoi and Hong Kong SARS appear to be confined to the hospital environment. Those at highest risk appear to be staff caring for the patients.

No link has so far been made between these outbreaks of acute respiratory illness in Hanoi and Hong Kong and the outbreak of "bird flu," A(H5N1) in Hong Kong SAR reported on 19 February. Further investigations continue and laboratory tests on specimens from Viet Nam and Hong Kong SAR are being studied by WHO collaborating centres in Japan and the United States.

Until more is known about the cause of these outbreaks, WHO recommends patients with atypical pneumonia who may be related to these

> outbreaks be isolated with barrier nursing techniques. At the same time, WHO recommends that any suspect cases be reported to national health authorities.
>
> WHO is in close contact with relevant national authorities and has also offered epidemiological, laboratory and clinical support. WHO is working with national authorities to ensure appropriate investigation, reporting and containment of these outbreaks.[115]

But this alert was not rapidly disseminated to physicians and other health care staff in the Toronto area. This fact was remarked upon in the Naylor Report:

> Physicians at several hospitals in Toronto involved in the first wave of the outbreak later advised that they were not informed of the alert by any level of public health – local, provincial or national. The next day, these physicians discovered the WHO alert through their own intelligence gathering.[116]

Toronto Public Health, still thinking they were dealing with a case of TB, continued to follow up with contacts and arrange for assessments.

Thursday, March 13

On March 13, Mr. T's second tuberculosis test came back negative. It was clear that whatever he had, it was not tuberculosis. The negative tests results were reported to Toronto Public Health by the infection control department at Scarborough Grace Hospital. The diagnosis of tuberculosis was revoked.

In the meantime, Mr. T's condition continued to deteriorate. His family was permitted to visit, but were required to wear masks and gowns. Nursing staff on the ICU, in an act of compassion and grace, tried to fashion protective equipment so that Mr. T's young child could be brought in to see his father but still be safe. At 12:28 p.m., on March 13, 2003, Mr. T died.

115. World Health Organization, "WHO issues a global alert about cases of atypical pneumonia: cases of severe respiratory illness may spread to hospital staff, March 12, 2003."
116. Naylor Report, at p. 25.

By this time, four members of the T family, his sister, his brother, his wife and his infant child, remained ill. Dr. Finklestein had been following the family and saw Mr. T's sister, Ms. T, in his office that day. Her condition was deteriorating, so Dr. Finklestein sent her to the emergency department. Mr. T's brother had already been sent to the emergency department earlier that day. Mr. T's siblings were placed in a negative pressure room in the Grace emergency department and precautions were used by staff when dealing with these patients.

Concerned and looking for help to try to understand what was happening with Mr. T and his family, Dr. Finklestein phoned Dr. Allison McGeer, at Mount Sinai Hospital. Dr. McGeer, a highly regarded infectious disease specialist, had an agreement with the Scarborough Hospital to provide infectious disease support, in the absence of their own infectious disease specialist, Dr. David Rose, who was away at this time.

Dr. Finklestein spoke to Dr. McGeer, who provided him with more information about what was known at that time about an outbreak of atypical pneumonia in Hong Kong and China. Dr. Finklestein said that he also asked for help with the other family members, as the Scarborough Grace Hospital did not have the capacity to isolate all the family members properly:

> I said, Allison [Dr. McGeer], give me a hand, I've got a problem, I've got a family with fevers and rapidly progressive symptoms, and one just died, and the others are sick and I am going to need some help with negative pressure intensive care capacity, and she assisted me in finding some beds for the family.

With the help of Dr. McGeer, beds were found for the rest of the T family. Mr. T's brother was admitted to Sunnybrook and Women's College Health Centre. Mr. T's sister and Mr. T's wife were admitted to Mount Sinai Hospital. Mr. T's child was admitted to the Hospital for Sick Children. The Naylor Report described the admission of the family to these various hospitals across Toronto:

> The attending physicians recognized the need to prevent further transmission of a disease that was unequivocally contagious, but whose mode of transmission was unknown. They arranged transfers of Mrs. K's family members to hospitals with negative pressure isolation rooms, important in preventing transmission of airborne disease. Sunnybrook and Women's College Health Sciences Centre, Mt. Sinai Hospital, and the Toronto Western Site of the University Health Network all accepted family

> members. A granddaughter was admitted to the Hospital for Sick Children.[117]

Dr. Finklestein told the Commission that at this point in time, they still had no idea what was to come. In fact, he thought that they had averted an outbreak, and that the crisis had passed. As he told the Commission:

> … I spoke to [Dr.] Allison McGeer, whether it was a two-way conversation about the outbreak or a one way, she telling me, I don't remember. I don't remember if I knew something and I said what's going on in Hong Kong or she told me, I vaguely recall what she told me. And, you know, at that point they went into hospital, I thought things were terrific. I thought, I curbed a little outbreak although one [family member] had died unfortunately.

In the days that followed, as Public Health struggled to get a grip on the unfolding outbreak, the T family was dealing with the awful tragedy of losing Mrs. K and Mr. T, while four family members struggled to recover from SARS. Thankfully, all the other T family members ultimately survived their battle with SARS. Although the T family was the focus of much attention throughout the early stages of the outbreak and in later reports, little has been said about them. By all accounts they were a quiet, dignified family, who listened to instructions and did the best they could to help public health officials during the investigation into their illness. They had the terrible misfortune, through no fault of their own, of being the first contact case for SARS in Ontario. It could have been anyone in their place. One of the nurses who cared for Mr. T and dealt with his family described them to the Commission:

> They were a very dignified family. They never demanded anything. They did exactly what you told them to do. They never made a fuss about not being let in. They were just so scared all the time. But they never raised their voices. They lost their business. It must have been terrifying not knowing the language and being in that situation.

Post-SARS, there has been much reported about the failure to isolate Mr. T and that fact that he remained in the emergency department, in close proximity to other patients, for over 16 hours before he was admitted to hospital and 21 hours before he was isolated.

---

117. Naylor Report, p. 26.

In hindsight, we now know that had Mr. T been isolated sooner, the spread of SARS could have been contained. But doctors and other staff treating Mr. T at the time did not have the benefit of knowing that they were dealing with anything other than pneumonia. Dr. Finklestein, when asked what went right during SARS, said that one thing that went right was that Mr. T was isolated in the ICU. Dr. Finklestein noted that without the clinical judgment of possible tuberculosis, including the judgment of the ICU nurses, who also suspected tuberculosis and took precautions on that basis, Mr. T could have sat longer in the ICU, unprotected, exposing many more patients, staff and visitors. As he told the Commission:

> What went right, is early on some staff and people made some good early decisions, just based on good clinical skills, as opposed to having useful information. That was a good thing, because I know that if I had just left [Mr. T] to be on his own, we would had the whole ICU being sick in two days, and that would have been the standard of practice then, there wouldn't have been a question about it, so that would have failed.

Dr. Finklestein told the Commission that he did not think that Mr. T had been missed:

> Question: Stepping back, was Mr. T missed?
>
> Dr. Finklestein: No, not at all. Mr. T was not missed. I am not even so sure Mr. M [whose story is told below] was missed because we did not think we had a community outbreak, or a hospital based outbreak of something at that point. The only way you can take care of the first patient is to isolate them before you know you have a problem, and it is an incredibly difficult thing to identify. But once the first patient is into the hospital system or there is close contact, you will have two generations of infection before you are aware of it. You need to make sure that patients who are at risk, are identified at the triage screening and are put in appropriate precautions. What are appropriate precautions? I do think that will have to undergo a degree of evolution. I think it will have to be like this, some will become well secluded and others will become open.

One ICU nurse said that everyone did their best and that it was contained initially because of the efforts and actions of the ICU staff and management:

> …We did our best. And as far as I can think of, the doctors were good and the nurses and the managers played an important role too. So it was contained, very well contained, because of the action of the nurses in the ICU. As soon as he came, because we thought it looked like a TB patient, the concerns were taken to Dr. Finklestein and he came up, and the same day, within a few hours, he was isolated. And even from then on, the care given to the patient, because we discussed everything and he wasn't improving, so they were trying to find out what's going on, so the care that was given to the patient was excellent. And also isolation procedures, because that's the best we could do those days. We didn't have all those special masks and different gear for each patient and all that, because we didn't know what the disease was. So if SARS came now, we are more equipped to look after the SARS patient.

The Commission finds that with the knowledge doctors had at the time, there was nothing to cause them to suspect that Mr. T was infected with a new, very serious atypical pneumonia, of the kind that was spreading throughout China and Hong Kong.

The Commission finds that alerts about an outbreak of atypical pneumonia in China and Hong Kong did not reach front-line physicians. Because front-line physicians and health care providers were unaware of events in China and Hong Kong, they were not on the lookout for cases of atypical pneumonia and did not know the significance of finding such a case, particularly one with links to China or Hong Kong.

In contrast, the first case in B.C. was isolated at Vancouver General Hospital, shortly after his arrival in the emergency department. While there are clearly differences in the two cases,[118] one key difference was the level of knowledge of front-line staff

118. As Dr. Finklestein pointed out to the Commission, in the case in B.C., the patient who came to hospital had travelled. In the case in Toronto, Mr. T had no travel history; it was his mother, who had died at home:

> Night and day [between Toronto and Vancouver]. That patient [the Vancouver patient] got off a plane, our patient did not travel anywhere, our patient's mother travelled. Our patient's mother was pronounced dead from congestive heart failure, that patient got off a plane, was sick when he got off the plane and I believe went right to the emergency room or soon thereafter. Our patient, at no time as I mentioned, did we ask have your family members been travelling, that was not a standard question, now it is.

about events in China and Hong Kong and the connectivity between hospital staff and a central public health agency, with lab capacity and scientific support, such as the B.C. Centre for Disease Control. More will be said about the Vancouver experience, later in the report.

The Commission also finds that Mr. T's unprotected exposure to other patients, visitors and staff prior to his isolation was the result of poor system-wide infection control standards and policies with respect to the handling of cases of febrile respiratory illness. These standards were not unique to the Scarborough Grace Hospital. Rather, they were consistent with a general system-wide decline in infection control and inattention to worker safety and the use of personal protective equipment.

The Commission finds that the transmission of SARS at the Grace Hospital was not the result of individual errors, but rather the result of a poorly prepared health care system that did not effectively communicate information to front line physicians about emerging infectious diseases, that had allowed the decline of infection control standards, and that did not routinely provide protective equipment for health workers and educate them in its use.

By March 13, although the family was now in hospital, isolated and being cared for with precautions, no one knew what exactly they were dealing with. There was no case definition for this disease, no test to confirm the diagnosis, no clear clinical progression. No one knew its incubation period, its infectivity or how it was transmitted. It still did not even have a name, but was referred to as an "atypical pneumonia." What was also unknown was that it had not been contained with the hospitalization of the T family members. As the investigation unfolded over the next two weeks of March, it became clear that the disease had spread further than anyone knew or could have imagined.

The Investigation Begins: Investigating the Unknown

Prior to Thursday, March 13, Toronto Public Health was investigating the case as a possible tuberculosis case. They too had never dealt with this disease, which would later be called SARS, and for them, everything about it was new and unknown. When the tuberculosis results came back negative on March 13, 2003, Public Health officials realized they were dealing with something other than tuberculosis but they did not know exactly what it was. The case was referred to Toronto Public Health's Infectious Disease program for further investigation.

Also on March 13, Dr. McGeer spoke to Dr. Barbara Yaffe, the Director of Communicable Diseases for Toronto Public Health. Dr. McGeer expressed concerns about the T family. She reported to Dr. Yaffe that the other family members were also being admitted to hospital.

Throughout the day Public Health officials and infection control at the Scarborough Grace Hospital, with the assistance of Dr. McGeer, tried to learn more information about Mr. T's case and the family's illness.

Dr. Bonnie Henry, a senior physician with Toronto Public Health and Associate Medical Officer of Health, had taken the investigative lead on the case. As a stark example of how totally unaware everyone was of what was to come, when the choice arose between this investigation and an investigation into a measles outbreak, another Toronto Public Health physician had offered to take a measles investigation, leaving Dr. Henry with the T family investigation, believing that the measles investigation would take longer. As Dr. Henry told the Commission:

> … [another Toronto Public Health physician] called me because there was a measles outbreak ongoing at the time and they were going to go public with a press release about issues around this measles outbreak, and he had this case report from one of the hospitals of these two members of the family who were really ill with influenza-like illness and he said to me, I think the measles one is going to take a lot of time, so why don't you take this influenza thing, and I'll take this measles one, so I offered to be the physician in charge of the initial investigation of that, and that would be under Barbara Yaffe.

Dr. Henry said that initially the travel history was unclear, because when Toronto Public Health had followed up on this, the patriarch, who suffered from other medical problems and with whom there was a language barrier, did not recall his and his wife's travelling to Hong Kong. As Dr. Henry told the Commission:

> I know when I became involved on, particularly on the morning of the 13th, the travel history was unclear, largely because family members were ill, there were language difficulties, and what we knew was that the mom had died at home from a heart attack, as far as the family knew, but it took some time to understand that the mom, who had died at home on the 5th, that she and her husband had travelled to Hong Kong.

However, when public health officials were able to speak to other family members,

they were able to confirm the travel history and to piece together the history of the family illness. On March 13, many things happened that shed light on the case and allowed those involved in the investigation to start to piece everything together. As Dr. Henry told the Commission:

> At the time that we heard about it [the travel history], it was still unclear. But we did clear it up on that morning of Thursday the 13th, but many other things were happening at that time. The young man in hospital died, his brother was in intensive care and intubated, his sister was admitted into hospital at [Mount] Sinai, so all those things were happening at once …

As this information all started to come together on Thursday, March 13, 2003, the alarm bells started to go off, six days after Mr. T's admission on Friday, March 7, to Scarborough Grace Hospital. Later that day, March 13, during a teleconference with Toronto Public Health, infectious disease specialists including Dr. McGeer (of Mount Sinai) and Dr. Andrew Simor (of Sunnybrook Hospital) as well as infection control, attending physicians and ICU management at Scarborough Grace Hospital, it was recognized that Mr. T likely had atypical pneumonia imported from Hong Kong.

As the Naylor Report points out, the dots connected:

> Public Health officials, in consultation with experts like Dr. Allison McGeer and Dr. Andrew Simor, connected the dots. There was an unusual respiratory illness in Guangdong that had apparently spread to Hong Kong. Mrs. K had recently traveled to Hong Kong. She had died at home. Soon after, her son had developed a respiratory illness that did not respond to the usual treatment. He too had died, and other family members were now developing symptoms.[119]

At this time it also became apparent to both hospital and public health officials that there were a number of contacts, patients, visitors and health workers who had potentially been exposed to Mr. T and/or his family before they were isolated. The Toronto Public Health case file contains the following note, recorded March 13, 2003:

119. Naylor Report, p. 26.

> … There was an approximate 24 hr period where staff and other hospital clients may have been exposed. Hospital locations of concern include 4D, ICU, ER. Those hospital staff who were experiencing respiratory symptoms were asked to report to the SGGH Occupational Health. Testing of staff was to include NP for viruses, acute serum and Chlamydia. Patient lists were also being compiled by the hospital.

During the teleconference the following case definition was formulated:

> One or more symptoms of shortness of breath, cough, acute upper respiratory infection with or without fever.

The following day, Friday, March 14, Dr. Henry went to Mount Sinai Hospital and spoke at length with Ms. T. Ms. T was very cooperative and provided helpful information to Toronto Public Health about the family's health history and about family contacts. As Dr. Henry collected the family history, she learned that members of the T family, while ill, had visited six different family physicians and that Mr. T's sister, wife and child had been to the Scarborough Grace Hospital emergency department on March 6, 2003, the day before his admission.

Public health officials knew that it was important to identify contacts of Mr. T and to monitor them for onset of illness. But this was no small task. Among the possible contacts of the T family were:

- those who attended the funeral of the matriarch, Mrs. K, held on March 8, 2003
- contacts of Ms. T. during a business trip to the U.S., during which time she was ill
- contacts of Ms. T. during her flight home from the U.S.
- employment contacts of Mr. T
- hospital contacts of Mr. T for the approximately 21 hours he was in the hospital without isolation
- visits to six different family physicians, including x-rays
- contact with EMS and fire personnel who attended the 911 call for Mr. T

Throughout March 14, there were teleconferences between Toronto Public Health, the Ministry of Health and Long-Term Care, Health Canada, infectious disease experts, and Scarborough Grace Hospital officials and infection control. The objective was to gather as much information as possible about this new disease and to

develop a course of action. But the challenge was that no one knew what exactly they were dealing with. There were many unknowns, including what the clinical picture of the disease looked like, what level of protection was required to protect health workers, how long the incubation period was, how long people were infectious and how the disease was transmitted. For example, it was initially thought that the incubation period was one to three days, then it was thought three to five days. In the days that followed this understanding would change to seven days and then 10 days.[120]

Dr. Henry described the challenge they faced, and the enormous task of identifying and contacting all of the T family contacts:

Question: You went in on the 13th?

Dr. Henry: The morning of the 13th, we started.

Question: Did you go to Scarborough Grace at that point, or did you do to Mount Sinai?

Dr. Henry: No. Toronto Public Health first, and we had a meeting with all the people involved to try to get a handle on what was happening. And this is when we were pulling in, we were getting more information, there was information about the travel, and he died that morning.

Question: So now, pretty well right away, it seemed like maybe it was more than TB?

Dr. Henry: Yes. Or something different from TB, yes. And during the period of the 11th, 12th, the tuberculoses testing had come back negative. But so did everything else.

Question: Right.

Dr. Henry: Including influenza, which was our best guess at the time, given what we knew what was happening in Hong Kong that this must be a form of influenza like

120. Seven days by March 15, 10 days by March 16.

the H5N1, that had been affecting other people. And that sort of drove a lot of things, because the incubation period for influenza is very short.

Question: What is it, 24 hours?

Dr. Henry: One to three days, in general; one to five days maximum, but one to three days, when most people get ill in day two or day three and you can transmit the disease before you become ill yourself, with influenza. So, we thought, oh, this is a major issue. We knew that there had been a funeral on the 8th for the mom who died, and when we went back through it, we started doing contact tracing and trying to figure out who these people may have had contact with and there were about 500 people that we needed to get in touch with. We didn't have a list of the people who had attended the funeral, so that's why we went public on the 14th. I had asked for permission from the family to release the names of the two people who had died, so that we were better able to find [contacts] and they had given me permission to do that.

Question: Who was the person that was in charge to flush out the people who attended the funeral?

Dr. Henry: Attended the funeral, who had worked at the place where the young man had worked, contact [the U.S. city to which Ms. T had travelled], contacts with the other brother, family, find everybody who had been in contact with that family during this period of time. We went back from the date of the mother's death, I think we went back a week prior to that.

Question: And that week prior to … ?

Dr. Henry: There had been, prior to the mom's death, so there had been the coroner who attended at the house, there were six family physicians who had seen various family members over that period of time, they had gone into

> the hospital for chest x-rays at our direction to see if they had TB, there had been a whole bunch of people who could have been infected, so our primary focus at that time was to try and find those people and to see if anybody else was sick.

From the family history it became clear that March 7 to 8 might not have been the only window of exposure, nor Grace the only possible site of transmission. No one knew where all the possible contacts were. This meant that a contact could walk into a doctor's office or hospital at any time, ill and seeking medical treatment. It was critical that front-line physicians, particularly family physicians and emergency physicians, be on the lookout for new cases of SARS.

And the task of contact tracing was becoming enormous. The number of possible contacts of Mr. T in the emergency department at Scarborough Grace alone was over 200. After speaking to Ms. T, the number of contacts in total grew to approximately 500 people. Not all contacts were not easily identifiable in a timely manner, and public health officials wanted to ensure that no one was missed.

Two key communications had to occur: one to the public, to alert those who had been in contact with Mr. T or his family to monitor their health and to isolate themselves and contact public health officials if they became symptomatic; the other to Ontario's physicians, to put them on the lookout for possible contacts, as those who did become ill sought medical attention.

Public Notification

On Friday, March 14, in an effort to take the crucial step not taken earlier of communicating widely and effectively with Ontario's doctors, the Ministry of Health and Long-Term Care, Public Health Branch, attempted to send a letter to all physicians in Ontario. Again communication problems plagued the response effort. As one government official observed:

> I am appalled to say that when this started back in March the Ministry did not have a single source to contact health care providers or service providers in the province. We had some ratty distribution systems but none of them were really current or complete. Our only way in the short term of contacting individual physicians was to provide material to Ontario Medical Association and ask them to distribute the material to

> its membership. But it is not 100 per cent. We know that and we know that not everybody reads everything they get from the Ontario Medical Association. That was a problem. The Ontario Hospital Association was helpful in sending material out and, we would sent it to the [hospital] CEOs' offices, but they are not usually there at 3 a.m.

To distribute the letter, the Ontario Medical Association (OMA) was contacted by the Public Health Branch of the Ministry of Health and Long-Term Care to use its communications network to distribute an alert about atypical pneumonia to all physicians in Ontario.[121] The OMA distributed this document on behalf of the Ministry and through this email and fax network reached 90 per cent of membership throughout the province in a matter of hours.[122]

Also on March 14, 2003, the Ministry of Health and Long-Term Care issued a public alert about four cases of atypical pneumonia:

> Dr. Karim Kurji, on behalf of Toronto's Chief Medical Officer of Health Dr. Colin D'Cunha, today took steps to alert physicians, hospitals, ambulance services and public health units across the province that there are four cases of atypical pneumonia in Toronto that have resulted in two deaths.
>
> The Ministry of Health and Long Term Care's Public Health Division and the Toronto Public Health Unit are working closely with four Toronto area hospitals to investigate these four cases of atypical pneumonia which have occurred within one family.
>
> Public health officials are working as quickly as possible to determine the cause of these cases.
>
> "The public health system is following standard procedures to notify the public about the outbreak of a potential communicable disease," Dr. Kurji said. "We are confident that the hospitals are following all the necessary infectious control procedures to contain and monitor the illness."

121. The alert was titled "Ontario issues alert about four (4) cases of atypical pneumonia to all physicians in Ontario."
122. SARS Commission Public Hearings, September 30, 2003.

> The three hospitals where the family members have received treatment are the Scarborough Hospital (Grace Division), Sunnybrook and Women's College Health Sciences Centre and Mount Sinai Hospital. One child is currently under observation at the Hospital for Sick Children.
>
> Two of the family members have died of symptoms related to atypical pneumonia. The provincial coroner is investigating one of the deaths.
>
> Further laboratory testing is being conducted at the provincial laboratory with additional specimens being sent to the federal laboratory in Winnipeg.
>
> Atypical pneumonia is a severe form of pneumonia that begins with fever, fatigue, shortness of breath and cough. In some cases, it can progress to an acute respiratory distress syndrome.[123]

Toronto Public Health also issued a press release providing information to the public about the index case. The notice provided a contact number for Toronto Public Health and details of their hours of operation. In an effort to identify all contacts of the T family, Toronto Public Health took the unusual step of identifying the family by name, with the consent and cooperation of the family. The release included the following information:

> Toronto Public Health, in coordination with the Ministry of Health and Long-Term Care and local hospitals, is investigating several cases of respiratory illness in one Toronto family.
>
> Two individuals from this family have died and four other members are hospitalized. They have a severe form of pneumonia.
>
> The World Health Organization issued a global alert this morning on similar illnesses and deaths occurring in Hong Kong, Viet Nam, and Guangdong province in China. Three members of the family recently traveled to Hong Kong.

123. MOHLTC, "Ontario issues alert about four cases of atypical pneumonia", News Release, March 14, 2003.

> At this time, it is unknown if the Toronto cases are linked to the cases in Asia.
>
> Toronto Public Health is asking members of the public who came in contact with [name provided], who passed away March 5, or her son [name provided] who died March 13, or their immediate family and are experiencing the following symptoms, to contact Toronto Public Health. Symptoms include:
>
> - Sudden onset of high fever (over 38.5 degrees Celcius)
> - Muscle aches
> - One or more of the following respiratory symptoms – cough, sore throat, shortness of breath, difficulty breathing.
>
> Individuals who have traveled to any of the countries mentioned above within the past two weeks, and are experiencing these symptoms, should also contact Toronto Public Health.
>
> One of the affected family members also attended the Emergency Room of the Scarborough Hospital, Grace Division on the evening of Friday, March 7 until Saturday March 8. The individual was transferred to medical floor 4D and then to the Intensive Care Unit before being put in respiratory isolation. Individuals who were present at any of these wards on these dates, and are experiencing the symptoms listed above, should contact Toronto Public Health.[124]

On Friday, March 14, Toronto Public Health, the Ministry of Health and Long-Term Care and Mount Sinai Hospital also convened a press conference, advising the public that there was a cluster of cases of "atypical pneumonia" that might be related to an outbreak in Hong Kong. Hotlines were established to allow people to receive information about the illness and for people who might have been in contact with index family. Dr. Yaffe described the steps taken to alert the public about the family cluster of atypical pneumonia:

124. Toronto Public Health, "Notice of travel-related respiratory illness," press release, March 14, 2003.

> Of course, SARS the word didn't exist yet. What we announced … is that we had, I am going by memory here, I don't have any notes on that, is that we had some people who were very seriously ill with pneumonia in a small cluster. At that point I think, we had figured out that mother had been in Hong Kong, the mother who the coroner had put down she had died of a myocardial infarction and there was no autopsy. But that we had a small cluster of atypical pneumonia. That may be what they were seeing in the Far East. And we specifically gave the name of the mother on the press conference, because they felt it was important that anyone who was at her funeral would call us. And we said, "We're setting up a hotline," this was late Friday night, we said we are setting up a hotline, call Public Health if you were at the funeral, or you've been travelling or if you have any of these symptoms. And of course, there was a huge amount of media coverage the next day and our hotline was up and running and we got a lot of calls right away. One of the calls we got the next day was the family doctor who had seen the mother and now had the symptoms. And at the same time I was calling other directors to start to get staff in because obviously, it was Friday night, we had to get staff in for Saturday to set up a case management team hotline.

In the meantime, Public Health continued to try to identify contacts and follow up with each contact to determine if they were symptomatic.

The Commission commends Public Health officials for quickly notifying the public of the family cluster of illness. Despite the fact that much remained unknown, the communication with the public was an important step in the containment of the outbreak. As the number of contacts grew, a broad-based approach to contact tracing had to be utilized in conjunction with the ongoing efforts to identify and contact all individuals who might have been exposed to the disease.

It is particularly commendable that the T family put the health of others first, allowing Public Health officials to release their names to the public. Without this consent, the decision to release identifying information about the family would have been a much more difficult decision, as the legal power to do so was not entirely clear at the time.[125] Although it would appear that such a disclosure might be permitted today

125. For an analysis of this issue, see SARS Commission, second interim report, pp. 218-221.

under the *Personal Health Information Protection Act,*[126] the Commission recommended that the *Health Protection and Promotion Act* be amended to clarify the power of a Medical Officer of Health or Chief Medical Officer of Health to disclose personal health information where it is necessary to investigate or prevent the spread of a communicable disease, so as to ensure that there is no legal confusion or uncertainty about the power to disclose.[127] As noted by the Commission in its second interim report, during a health crisis there is little time to pause in the midst of the outbreak to debate points of law or statutory interpretation. Powers must be clear and unequivocal.

The Commission finds that the health system and public health authorities were woefully unprepared to respond to the communication needs that would arise during a health emergency due to the inability to communicate with all physicians in Ontario in a timely and effective manner. Without the assistance of the Ontario Medical Association, the Ministry of Health and Long-Term Care had no way to communicate with the physicians of this province. This is a problem that remains today and that must be addressed immediately. Local health units as well as provincial authorities must be able to communicate with Ontario's front-line health providers. The communication must be quick and clear and be able to stand out in the mass of day-to-day communications that physicians receive from so many other sources. It is not enough simply to write to physicians. Where information is of an urgent or important nature, it must be communicated in a way that forces people to take notice or else run the risk of getting lost in the noise of a busy medical practice.

Transmission from Mr. T

What no one knew was that, in the early days of the investigation before Mr. T and his family were isolated, they had spread the disease to other patients, visitors and

126. Subsection 40(1) permits disclosure if "the custodian believes on reasonable grounds that the disclosure is necessary for the purpose of eliminating or reducing a significant risk of serious bodily harm to a person or group of persons." Subsection 39(2)(b) permits disclosure of personal health information by a medical officer of health, that is established under the laws of Canada, some other province or territory, if the disclosure is made for a purpose that is substantially similar to the purpose of the *Health Protection and Promotion Act*. Section 2 of the *Health Protection and Promotion Act* includes the prevention of the spread of disease and the promotion and protection of the health of the people of Ontario. A medical officer of health is defined as a health information custodian under s. 3 of the *Personal Health Information Protection Act.*

127. SARS Commission, second interim report, p. 221.

health workers, and that some of those contacts were now spreading the disease to others. The outbreak had not been contained. Although they knew they were dealing with something new and unknown, no one could have predicted how far the disease had already spread or the outbreak that was to come.

Mr. T was in the emergency room for over 16 hours. As noted above, because doctors did not suspect that he had anything other than pneumonia, he was not isolated, and staff in contact with him did not use personal protective equipment. Two of the patients in the emergency department between Friday, March 7, and Saturday, March 8, who were exposed to SARS from their close proximity to Mr. T, would later go on to become ill and spread SARS to other patients, visitors and health workers. The story of two of these patients, Mr. H and Mr. M, is told in greater detail below.

The identification and monitoring of contacts was not catching all those persons who had been exposed to Mr. T while in emergency. SARS lurked undetected in the hospital, spreading among exposed staff, patients and visitors. But it had also returned to the hospital, brought back by patients and their families who had gone out of the hospital with undetected SARS and then returned to spread it further within the hospital. And so the chain of transmission continued undetected, in some cases through those who had slipped through the trailing net of a contact tracing system that fell behind the disease.

Although Public Health officials had identified approximately 500 potential contacts of Mr. T, they would soon learn that the number was much greater. As Dr. Henry told the Commission:

> And there likely was more, and as we found out later, there was way more. Because we looked at direct contact in the hospital, it came to light over time that there were more people infected than we realized, and it started a domino effect, of the people that he probably had been in contact with before he was isolated on the ward, in the emergency room, and all of the people there. We were trying to track them down and as we were doing this case finding we were finding cases, we were finding people who were ill and that expanded then where we need to look, the people who were in contact with those people.

One of the problems at this time was that infectious disease experts and Public Health officials were learning about the disease as time passed but much remained unknown. As noted above, during the first few weeks, they did not know how or when the disease was transmitted. As Dr. Henry told the Commission:

> Well, the issues were around trying to figure out who was getting sick, when did you transmit the disease, did you transmit it before you became ill, or was it only after you became ill. There's that sort of progression of illness, what were the initial symptoms for most people, because for most people early on we were catching them and they were really sick, and as we were realizing later they were spewing lots of virus and they were really sick, but that the early onset of the disease was often insidious and may have been a week ahead of time, and so people would feel unwell, had muscle aches, little bit of a headache, headache being a really common feature, but no respiratory symptoms, and then the respiratory symptoms would start probably in week two of the illness, and then in week three they either got better or they got worse. That was the critical time frame. So that was three weeks into the outbreak before we had an idea that this was actually a three-week disease, because we had to follow people and were realizing that the early symptoms were difficult to detect.

Compounding the problem of not knowing how the disease spread or how infectious it was, its symptoms and clinical manifestations were unclear and those symptoms that were known were not unique. Although some of the early cases like Mr. T and Mr. M were identified because of the severity of their illness and their known contact with another case, without severity of illness and a known contact, the disease became more difficult to identify. And there was no test to aid in identifying those who were ill with this new disease. As Dr. Finklestein told the Commission:

> …There were really no pathognomonic features. So, there were no unique features despite what some people wanted to believe. There were no unique features to SARS as it was unfolding at the time. There are unique features to it, of course, but we had no access to testing for those unique features. We had no access to testing of the virus at that time and the virus wasn't even known yet at that point …

Another key factor that was not clear at the outset was the need to protect staff from exposure to contacts and what infection control precautions were needed, including the amount and type of protective equipment that should be worn by staff.

The Commission finds that there was a systemic disregard for the importance of protecting health workers from occupational hazards such as exposure to an infectious disease. Rather than start with a high, broad-based approach to protection and scale back as the risk became clearer, the opposite occurred: Protection for health workers

increased as their risk became clearer. This meant that the learning about appropriate levels of protection came at a terribly high price, as precautions increased as health workers became ill.

Tracking Mr. T's Contacts

In the days that followed Mr. T's death on Thursday, March 13, infection control staff at the Scarborough Grace Hospital and Toronto Public Health focused on the task of identifying and contacting those patients, staff and visitors who were in contact with Mr. T prior to his isolation in the ICU. These early days were critical in the outbreak management. It was essential that potentially exposed individuals be contacted, monitored and, where necessary, isolated to prevent the spread of the disease.

But as each day passed, and the number of contacts grew, the identification of patients and tracing of contacts progressed slowly. One of the problems was early confusion over who was doing what in terms of contact tracing.

On Friday, March 14, the Toronto Public Health case file reports that a telephone call was received from the hospital, seeking clarification as to who was contacting patients and what they were being told:

> 10:50 am — [name] called from SGGH meeting with 2 items the hospital wanted clarification on at their meeting. Patients who had contact with [Mr. T] in Emerge., 4D and ICU, is TPH contacting them and what advice are we giving?

Later that day, Toronto Public Health obtained the timelines for Mr. T's admission to hospital from Scarborough Grace infection control. The timelines confirmed the following areas and times of possible exposure:

March 7	7:45 pm admission to emergency dept
March 8	12 pm (noon) to 3:00 pm on 4D
March 8	3:00 pm on ICU, isolated 6:45 pm
March 9	Intubated
March 13	Passed away

On Saturday, March 15, a family physician who had seen several of the T family members reported to the Toronto Public Health hotline that she was feeling unwell.

Toronto Public Health arranged for her to be seen at Mount Sinai Hospital, where she was handled with precautions and admitted into isolation.

But by Sunday, March 16, 2003, the followup with respect to hospital contacts and the message to patients and staff were still not clear.[128] The Toronto Public Health case file notes for March 16 provide:

> 8:30 am briefing with manager, [name provided]. Directed to follow-up with Scarb Grace hospital, [name provided – ICP]: Asking how are patients being followed-up. Paged [name provided – ICP]. She responded to page and stated that [name provided – SG employee] has compiled lists and that they will start following up on patients in-house and outside. Details to follow
>
> 11:20 am – [name provided – ICP] paged – identified 3 areas of contact concern, 4D, ICU, Emerge.
>
> 2:05pm. Paged by [name provided] from ScarbGrace, ICP, to call her through locating. Had 4 requests:
>
> – requesting TPH help, they currently had 3 in ICP position as well as pulling [name provided], ICP from ScarbGeneral
>
> – requesting direction on emerge patient follow-up time (4 hours before admission and after movement to other ward)?
>
> – What type of message should the hospital be advising staff and patients
>
> – Requesting forms for blood testing. Advised to contact the Phlab.
>
> Consulted with the manager and TPH physician. Clarify movement of patient in ER and at this point only follow those patients in the window period 4 hours prior to admission. Monitor closely the staff who are calling in sick and apply the case definition. Reassure those who are not yet symptomatic. Critical contact time-frame outlined as March 7, 15:45 to March 8, 16:00 hours.

128. Toronto Public Health case files and Toronto Public Health SARS I Chronology.

By the afternoon of March 16, 2003, it was apparent that the contact tracing was a significant task, with over 200 possible contacts identified in the emergency department alone. The following passage from the Toronto Public Health case file shows the dimensions of the task ahead:

> 2:55 pm – [Infection Control] called back with detailed movement of patient in ER. Mr. T, was triaged March 7 at 19:30; and admission was recorded as 19:45. He was placed into an 8 bed observation area, and was later moved to the 3 bed room known as the resuscitation room. He was moved to 4D on March 8th, and later to the ICU. They estimate the population at risk who were exposed in the ER were approximately 210.

But as March 16 progressed, there was a lack of clarity over who was doing what. As noted in the Toronto Public Health file for Mr. T:

> [Scarborough Grace ICP] and their infection control team were arranging a telephone group. They pulled 3 extra people in addition to existing team to make phone calls to their patients tonight. At my request she emailed me a copy of what they were planning to say (as a prompt) to their out-patients. TPH doctors would review and comment back asap. Email passed on via TPH manager [name provided] to our TPH doctor [name provided] for our input before hospital started calling. 1 hour later, relayed that email looked good and at that time [SG ICP] informed me that they had sent their extra staff home and they (hospital) would no longer be calling the out-patients. Supposedly a misunderstanding had taken place and [Scarb Grace ICP] was quite emphatic that they would not be calling. Advised manager and was advised that we would then have to obtain list for follow-up.

Dr. Henry was asked about the initial confusion over contact tracing and said that much of the initial delay was simply the result of the time it took to get lists. She said that although there was some initial confusion over who would do what, it was based on a good faith desire on the part of the hospital to try to contact patients and visitors themselves, a task that they quickly realized would be impossible with the resources available to the hospital. As she told the Commission:

Question: The other part of that is we do see in some TPH notes that it is showing that there seems to be some confusion about who is doing what in the same period. On the 14th of March, someone calling Scarborough Grace, there are two items the hospital wanted verification on: patients who had contact with Mr. T in Emerg, 4D and ICU, is TPH contacting them and what advice are you giving? And then falls through for a couple more days. How are patients being followed up, this is Scarborough Grace. So on the 16th, Scarborough Grace is still showing some uncertainty about what was happening in there?

Dr. Henry: So recognizing that that is early on, when we initially declared the outbreak was on the 14th, yes, it took some time to get lists from Scarborough Grace, for their IT system to be able to do that, and at different levels I think people had different understandings about who was doing what. Certainly, it was very clear between, for example, the infection control practitioner and [Dr.] Allison McGeer from Public Health and [Dr.] David Rose about who was doing what, but that may not have filtered down to everybody, and it took some time to sort that out. It took time to get lists …

Question: What can hospitals do from a public health standpoint to make sure something like that didn't happen again?

Dr. Henry: The key thing, I think, is having an IT system that you are able to access the information off of it. I personally believe we should all be connected, we should all be able to, the health care facilities, Public Health, we all need to have some common platform where we can exchange information in a timely way because I think one of the things that held us back, was they had to, one, search their new IT system which had gaps in how it was being used and then print it off and fax it to us, and that of course meant

that we had to even put it into any sort of electronic database, we would have had to redo data entry. There is a whole time thing with it, and to be able to even assign investigators to follow up with contacts, you had to either copy it multiple times and highlight who is going to do what, and it is not very efficient, and then there is a time frame to try, and the information that the hospital is able to give us was not in a fashion that made it easy to find people, to be able to find their telephone numbers, their home address. There was a lot of searching that had to go on. The other part of it that was difficult for us was that we were given the list of all of the patients and many of them lived in other regions so we then had to then cull out the people who were in York Region or in Durham or other places and give those lists to those public health people to follow up. So, it became complex. I think having a more streamlined system where we could at least communicate electronically, where we could pass information electronically between health units, would be really helpful. What we had to do was phone up, see if somebody was there, fax the the list, and then phone them again to make sure they got it. Just little inefficiencies really add up when you have a lot of volume.

Question: The best, in this kind of situation, where Grace says they're going to call the outpatients and Toronto Public Health understands, okay, you're going to call all the patients, that's fine. Then Grace calls back a couple of hours later and says, we're not going to do it, our staff is gone, you do it. Is that an IT problem or is that a preparedness problem?

Dr. Henry: No, it's not a preparedness problem. But my recollection of what happened is not quite that. It was that we had said, we have a responsibility, Toronto Public Health has the responsibility – when I say we, in this case I mean Toronto Public Health has the responsibility to contact anybody who is in the community.

But Grace initially said, that they are our patients, it is our community, we want to tell them ourselves what is going on and then when they sat back and looked at the volume and their staffing, they realized they could not do that, and they agreed to focus on their own staff who were still coming to work, and their in-patients. And the whole question of people being transferred to other facilities was a key one that we have talked about, that I had talked about with [Dr.] Allison McGeer, with the infection control team early on, as having to find those people. So the hospital, I think, realized the volume and weren't able to do that, but they wanted to for moral reasons, I guess more than anything. But there never was question that Toronto Public Health was not going to follow up with outpatients. That was always clearly our responsibility. Anybody who was no longer in that facility was ours.

Question: So, I am just trying to get a picture. At some moment in time, Toronto Public Health thinks that Grace is going to do something and then Grace says, no, we are not. Could that happen again?

Dr. Henry: Absolutely. I think that the relationship between Public Health and health care facilities, hospitals, is a tricky issue and always has happened, particularly in Ontario, perhaps less so in places that have regionalized, where Public Health and facilities are all under the same structure administratively, organizationally, but in Ontario and Toronto, hospitals are publicly funded and privately run and they believe themselves to be private entities and I think they have evolved to the point, and certainly prior to the SARS outbreak, our relationship, Public Health's relationship with health care facilities, was minimal and sometimes adversarial. The health care facilities that had infection control programs wanted nothing to do with us. Our authority ended at their front door. They are managed by the Ministry of Health provincially, they

> are funded provincially, we are a local municipal organization, the jurisdiction issues are difficult, and over time, I guess over the years, the funding of Public Health has been eroded so that we don't have the ability to have that relationship with hospitals.
>
> They have the expertise in infection control. Our infection control resources are directed towards the areas that don't, so community outbreaks, long-term care homes, much more involved in long-term care homes than infection control issues. So I think that was the whole situation at the time. I think most facilities in Toronto after this outbreak, recognized that having a collaborative relationship is really important and it was a give and take on both sides. I think Public Health is used to this sort of directive relationship that we have in long-term care homes, and it was difficult for staff to change their attitude to be consultative, which we are in hospitals, and hospitals don't like it when we are directive. They like us to be consultative and do what they want us to do …

Dr. Henry said that Public Health has a good working relationship with the Scarborough Hospital, a relationship that may not exist with all other hospitals:

> Question: If bird flu hit tomorrow, would you have a situation where Scarborough Grace would be saying, we are going to do it and then not do it, and quite apart from the overall relationships, is this still a problem?
>
> Dr. Henry: With Scarborough Grace, no; with some other hospitals in the city, yes.

On March 16 the Scarborough Grace Hospital faxed a list of the patients in the emergency department as well as contacts in 4D and the ICU to Toronto Public Health. Toronto Public Health officials scrambled their available resources and attempted to contact everyone on the list. A standard script was developed which read:

> Hello my name is _____
>
> Your name was provided to us by Scarborough Grace General Hospital. Their records indicate that you were in the Emergency Department[129] at the Scarborough Hospital Grace Division on March 7th or March 8th, 2003. As you may be aware, a patient was seen during the same time who experienced severe respiratory illness.
>
> We are working in co-operation with the Scarborough Hospital, Grace Division to contact all those seen in emergency during that period who may have been in contact with this patient.
>
> Since your visit to the Emergency department at the Scarborough Hospital, Grace Division on March 7th or 8th have you experienced any symptoms of respiratory illness. I will give you a list of the symptoms that we are looking for, please indicate 'yes' or 'no' when I list each symptom to indicate whether or not you have experienced them … [symptoms and instructions continued]

The list of symptoms included a sudden onset of fever (38°C), cough, shortness of breath, and difficulty breathing. Contacts had to be asymptomatic, have a sudden onset of fever (38°C) and one of cough, shortness of breath or difficulty breathing to meet definition.

If the contacted person did not have symptoms, they were provided the following advice:

> Thank you very much. According to the case definition being used for this illness as of March 18th,[130] the risk period for this illness will have ended. If you become ill before that with fever, cough, shortness of breath or difficulty breathing please call Toronto Public Health at [number provided].

If the person had symptoms they were to be referred to the Scarborough Grace emergency department and Toronto Public Health was to notify the emergency depart-

129. The script was modified depending on the location of the contact, whether it was the emergency department, the ICU, 4D, employment of Mr. T or Ms. T, funeral contacts or family physicians.
130. The case definition was as of March 16; the risk period was thought to have ended by March 18.

ment that this person was being referred to the hospital's emergency department. The sheet provided a place for the Toronto Public Health employee to record the name of the hospital employee to whom the notification of the referral was made.

The contact sheet also required that Public Health ask if the person had had anyone accompany them to the emergency department and, if so, obtain the person's name and contact information for further followup. Once that person was contacted, he or she were put through the same screening process. It is easy to see how this process, necessary as it was, became a bigger and bigger task, as the number of contacts could grow with each telephone call.

Recall that in addition to contacts resulting from Mr. T's hospitalization at the Scarborough Grace Hospital, the interview with Ms. T on March 14 by Dr. Bonnie Henry identified multiple other times and places of possible contact, including work contacts for Mr. T, travel contacts for Ms. T in the U.S. and on a returning flight from the U.S., contacts at Mrs. K's funeral and contacts during repeated visits to family clinics. Toronto Public Health had the challenging task of identifying all of the individual contacts, obtaining contact information and calling them to determine whether or not they were ill and to provide them with advice with respect to isolation and reporting of any onset of illness.

It quickly became apparent that resources were going to be an issue; as the number of cases grew and more and more information became known about the disease, the workload for Toronto Public Health grew by leaps and bounds. Toronto Public Health had little surge capacity and, due to limitations with the IT systems, was forced to manage the outbreak using paper files, resulting in massive amounts of paper and at times confusion. One of the challenges in the first few weeks of SARS was that in addition to trying to resource the investigation and outbreak response, Toronto Public Health was trying to learn about the disease, as so much remained unknown. As information changed, so too did the workload. As Dr. Henry told the Commission:

> Dr. Henry: … At the time it was trying, and we were having discussions, trying to get information on what was happening in other parts of the world as well, because around this time Hong Kong was starting to have outbreaks, particularly in the Prince of Wales Hospital, so we had some informal contacts through medical microbiologists here, because the medical microbiologist at that hospital had trained in Toronto

and had gone back to Hong Kong. So he was telling us what was going on there, we were trying to get information through Health Canada, who were suppose to be contacting the other countries and some of the information was coming back and we were hearing things like in Hong Kong they thought the incubation period was three days and then five days, then seven days, by the following week. So around the 19th, 20th, is when we realized there were outbreaks at that time in Vietnam, in Hong Kong, Singapore wasn't until a bit later, and that it probably was all around the same thing. We knew that there had been travel to Hong Kong from our patient, the Vietnam outbreak was likely started by somebody who had travelled to Hong Kong, although the whole picture of how that started wasn't put together for another few weeks. But the key thing for us was they were seeing onset of illness, longer periods of time than is usually seen with influenza, so we were adjusting our incubation period accordingly, which meant we had to go back farther and find more people, so as you can imagine, it was quite intense trying to keep up with this.

Question: Did you have enough personnel to handle this?

Dr. Henry: No, we called, we started calling in people from all parts of Toronto Public Health to try and set up. And how we had initially started it, was we had groups of people that needed to be followed up, so people who were contacts of Patient X, people who were in the emergency department during this period and that period, and we had to get lists of names from the hospital, with or without contact information; this is when we realized how poor the information was that we keep on visitors, on when people come into hospital, when they leave hospitals, when they come into a emergency department, it's hard to tell how long they are staying there. So we had a lot of discussion with our colleagues in the hospitals, particularly around

> what's a reasonable length of time, should we do from four hours after they were in, or six hours, or what was the usual wait time for these people, just to include in the contact list or not, and then there was hospital staff. Although from the very beginning we kind of broke it up into patients who are no longer in hospital and staff who are in home quarantine, under us, and then the hospitals themselves would follow staff who were on work quarantine or patients who were still in the hospital, so it was more of a collaborative, you do this part, we'll do that part. And yes, so we kept building the teams.

As Dr. Henry reported in her notes of the outbreak, at this time Public Health officials thought that the initial contacts of the T family had been identified, and they worked with the Scarborough Grace Hospital to identify all possible contacts and contact them. They did not know that some contacts had been missed, such as Mr. H, or that SARS had already spread to staff and other patients in Scarborough Grace Hospital:

> From the Toronto Public Health point of view it appeared that the contact of the initial family and the additional family physician as well as the second case had been well identified and were in quarantine. Toronto Public Health worked with the Scarborough Grace hospital to ensure that all of the people who had been in the hospital either discharged from the emergency room, discharged patients or patients in the ICU at the time that the case was there, were identified. Toronto Public Health took over the identification and contacting of patients outside of the hospital, while the hospital HR [human resources] department took charge of contacting all staff members and monitoring staff for illness.[131]

The Commission finds that once the task of identifying contacts and followup by Toronto Public Health began, Toronto Public Health did a remarkable job with the resources it had, contacting patients who had been in the emergency department, 4D and the ICU at the same time as Mr. T, on or about March 17 and 18. Secondary contacts such as those persons in the family clinics attended by Mr. T and his family were contacted on or about March 20.

131. Dr. Henry, Summary of SARS.

But the exposure to Mr. T occurred on March 7. By the time persons were called between March 17 and March 20, the incubation period, thought to be 10 days, was over. For those patients who were ill, approximately 10 days had passed between their exposure and contact from Public Health officials. During those 10 days, an ill contact might have exposed countless others to the disease.

The delay in contacting those persons who had been in contact with Mr. T underscores the importance of clarity around roles and responsibilities to ensure that contact tracing begins at the earliest possible time, without delay. It also underscores the importance of ensuring that hospitals, medical clinics and other health care providers have strong information technology systems and that they are able to identify very quickly and accurately who is where within an institution. Without this, the task of contact tracing will be flawed from the outset, as public health officials will risk missing a potentially ill contact.

The contact tracing process also reveals the importance of broad-based communication where necessary to address a public health risk. As noted above, Public Health officials released information to the media about the exposure at the Scarborough Grace Hospital, including the names of Mrs. K and Mr. T, on March 14. Communication of this nature is critical to attempt to reach contacts as quickly as possible until individual contact with each person can be made.

Communication in turn depends on knowledge. Public health officials can report a public health risk to the public only if they are aware of it. In the case of Mr. T, Dr. Finklestein reported his concerns to Toronto Public Health, enabling it to become actively involved in the investigation. Had Dr. Finklestein not suspected tuberculosis and had he not made the report, as required under the *Health Protection and Promotion Act*, by the time Public Health officials became aware of a problem, the disease could have spread much further. It underscores the importance of strong reporting obligations on doctors and hospitals and of establishing strong relationships between front line health providers and health care institutions and public health.

Few things are more important than the ability to investigate reports of an infectious disease immediately and timely contact tracing and communication with contacts. As will be seen below, one missed case has the potential to spread an infectious disease to many others, compounding the risk for further transmission.

Transporting Mr. M back to Hospital: One EMS Story

One of the patients who was exposed to SARS as a result of contact with Mr. T while in the emergency department at Scarborough Grace on Friday, March 7, and the morning of Saturday, March 8, 2003, was Mr. M, a 76-year-old man who presented at the Scarborough Grace emergency department on Friday, March 7, 2003, for a suspected heart attack. He spent approximately 12 hours in the observation room in the emergency department, in the bed next to Mr. T, during which time Mr. T was ill and infectious. Mr. M was treated at the hospital and discharged home on Saturday, March 9, 2003.

On Sunday, March 16, 2003, Mr. M returned to the Scarborough Grace Hospital via ambulance. He had respiratory symptoms and a fever. Although he had been identified as a contact of Mr. T, the paramedics who treated him and transported him to the Grace Hospital told the Commission that they were not notified of this possible exposure prior to attending the call. Paramedics said that although they were aware that cases of atypical pneumonia had been reported in Toronto, they did not know that Mr. M had been identified as a possible case.

It was their own perceptive response, combined with the information provided by Mrs. M, that guided them in their handling of Mr. M. Although they ultimately used respiratory precautions, they were unaware of the potential risk until after they had started to deal with Mr. M in his home and they had a period of unprotected exposure. One of the paramedics describes their initial response:

> It may have been the 16th or it may have been the 17th, but there was a memo circulated about atypical pneumonia. This memo had been circulated by Toronto EMS about atypical pneumonia. It outlined some of the symptoms and said if you come into contact with someone like this, put on an N95 respiratory mask, which I am sure you have heard of. It was a basic memo. On top of that, there had been some news stories. So I had some awareness of something going on in China and there were some people that had died in Toronto that were linked. Most of it was from the news media. So I go to this call of shortness of breath and we get an update on the way in about the memo. We are always paged; we carry pagers and we get updates. So it was shortness of breath, possible pneumonia, gives us the age of the man and stuff like that, so we respond to the call.

> We get there and we arrive at the call and there is a gentleman in the apartment sitting down who does not look well at all. The initial impression is very important in our business, and his wife is relaying to me a very good history, which is unique; we usually do not get good history, we usually have to dig for them. And we were told about our patient being in the hospital on March 7th for a heart problem and he was in bed next to [Mr. T] and she knew that this patient had died … So at that point, she has told us this story and right away some alarm bell goes off, that extra sense that there is something not right here. I did not have a mask on at that time and I said we need a mask. Everyone in this room needs a mask as soon as we can get one on. We masked our patient right away with an oxygen mask. This is all that we could give him because he needed oxygen therapy.

As one of the paramedics noted, they "went in blind to a very dangerous situation." After Mr. M's contact was identified to them by Mrs. M, they were able to take precautions and manage Mr. M in a way to try to minimize their exposure:

> We decided since the proximity of the hospital was very close, we would limit any invasive procedures because we are dealing with potential infectious agent and we thought that things should be carried out in an isolated environment. So the patient is on the stretcher, down to the vehicle, and we are on the way to the hospital. Short transfer to the hospital, really nothing eventful during the transport, we got our masks on at this point. I am in the back with the patient, my partner is in the front. He has done a couple of things on the way over. He has radioed Scarborough Grace Hospital to say we are on route with an infectious case of atypical pneumonia and you know be prepared for us and have an isolation room ready. He has also radioed for our supervisor to come there to deal with the infectious disease reports.

Because Mr. M had been identified as a contact of Mr. T while in the emergency department, Public Health officials understood the importance of protecting health workers who were in contact with him. Dr. Bonnie Henry said that Public Health officials did alert dispatch to the exposure to Mr. T and that it was the understanding of Toronto Public Health that these paramedics would be instructed to use protection:

> Question: The EMS who attended the [M.] call, they both got sick, and our understanding is that they were not noti-

fied about previous contact so they walked into the house without any masks.

Dr. Henry: That's not quite true, we talked to the dispatch desk.

Question: Who did you talk to?

Dr. Henry: The one desk, the dispatch desk, so EMS themselves were notified …

Question: But you don't know if dispatch notified those two?

Dr. Henry: No, that's their …

Question: Because they both said …

Dr. Henry: All of them, there was a notification that went out to everybody in EMS, prior to the, [EMS names] going to the [Ms'] house, about the …

Question: There was a specific connection, not identifying [Mr. M]?

Dr. Henry: But there was a general notice that went out to all paramedics about wearing masks. And when we heard about [Mr. M] we notified EMS specifically about picking him up, and he was brought in in precautions.

Despite Dr. Henry's understanding that they would be alerted, both paramedics told the Commission that they were not told prior to going into the M. home about Mr. M's exposure to Mr. T.

Both paramedics and a firefighter who attended the call became ill with SARS. One of the paramedics spent three days in the intensive care unit and was transferred to Mount Sinai Hospital, where he remained until April 10, 2003. As he spoke to the Commission he was thankful that his family did not become ill, and appreciative of the care he received at Mount Sinai and the support he received from his local public health unit and from his employer, EMS:

> No one in my family got ill and I was thankful because that was my number one concern during my stay at the hospital … The whole response from Mount Sinai [Hospital] and Simcoe Public Health was tremendous and in fact, I had tremendous support and my wife had tremendous support from the management staff at Toronto EMS as well too.

But the impact of SARS lingered after his health began to recover. As he told the Commission:

> I was having a lot of problems, basically the whole time in the hospital, I had a lot of time to think about how I got sick and realized my job almost killed me and trying to figure out how I balance my job's danger with keeping my family safe, so I really hated my job; I was mad at my job, I feared my job, I had a lot of emotions and those were things that were not going to go away. In fact on the night that I went back to light duties, I had nightmares about my youngest daughter dying.

The Commission accepts the evidence of the paramedics that they did not know prior to entering the home of Mr. and Mrs. M that they would be treating a patient who had been in contact with Mr. T, the first patient to die in hospital from atypical pneumonia, later known as SARS. The Commission also accepts Dr. Henry's evidence that Public Health officials tried to alert paramedics to the contact history and to the need to use personal protective equipment when dealing with Mr. M.

The story of the paramedics underscores the importance of ensuring that front-line health workers are notified of public health risks in a timely and effective way. There must be clear lines of communication and clear lines of accountability for transmitting important information to front-line staff. Otherwise, in the heat of the moment, in the chaos of a developing crisis, it is all too easy for things to be missed and for honest but unfortunate errors to occur. As we see time and again throughout SARS, the strongest protection for worker safety is a combination of a strong worker safety culture, including access to and training with respect to the use of personal protective equipment, with open, clear and timely communication.

Mr. M returns to the Grace – More Transmission in the Scarborough Grace Hospital

On Sunday, March 16, 2003, once Mr. M was admitted to the Grace Hospital, he was admitted into isolation and the staff who cared for him wore personal protective

equipment. However, not all staff who were working in the emergency department were aware of his exposure to Mr. T and of the need to use precautions when handling Mr. M. One nurse, who was working the night that he came into the emergency department, said that she did not know that Mr. M was a contact of Mr. T and that when he initially presented, not all staff used personal protective equipment. As she told the Commission:

> We weren't told this patient was coming, so the hospital was not prepared for this patient until he was actually in our emergency room. He was already being triaged by the nurse who was not protected … it wasn't until we found out who he was and where he was in the hospital prior, that the whole emergency department put masks on … I had contact with his wife and it was quite an extensive conversation, relatively close, not in a protected area, just out in the emergency area. I had no mask. I didn't know who she was. She wasn't identified. The ambulance attendants didn't say that family was coming, so I had no idea who this person was until after a 15 minute conversation with her.

Other emergency room nurses recalled wearing masks when Mr. M arrived and being alerted to who he was and to his connection to Mr. T. One nurse recalled the ambulance attendants warning them about his contact history:

> Question: And when he came in, did you know that he was likely SARS?[132]
>
> Answer: Yes, somebody, from the ambulance was already telling us this, could be SARS, because of the symptoms. But at the time we didn't even know exactly what SARS was, but because of all the rumours, I think we were not using gowns yet, but most of the time, we always use gloves but I don't remember us wearing gowns yet. I think we used masks, but not the N95, just the surgical mask.

As noted above, the ambulance personnel who transported Mr. M told the Commission that they did alert the emergency department that they were coming

132. Although the word "SARS" was used during these questions and answers to describe the events around Mr. M and his admission, at the time of Mr. M's admission the word SARS was not being used in communication about cases in Toronto.

with Mr. M and did provide information about his contact history. The absence of a clear system and path of notification makes it difficult in hindsight to determine where precisely the communication broke down. What is clear, though, is that again people were doing the right thing and trying to communicate but that the lines were not clear and there was no notification or warning system to ensure that important information was received and disseminated in a timely manner.

From emergency, Mr. M was admitted to the intensive care unit, where he remained in isolation and continued to be managed with precautions. But Mr. M's condition continued to deteriorate and on March 17, 2003, he required intubation. Although the staff present for the intubation took all precautions, it proved to be insufficient. As the Naylor Report observed, anxiety about the infectivity of SARS magnified when the physician who intubated Mr. M,[133] along with three nurses present at the intubation, became ill with SARS:

> … Anxieties about the infectivity of SARS were understandably magnified by this incident, especially when three nurses present at the intubation were also infected. Intubation procedures, a significant source of droplet production, would be a recurring cause of SARS transmission during the outbreak.[134]

The physician who intubated Mr. M recalled that although staff wore protective equipment, including a mask, gown and gloves, the mask was a regular procedure mask, not the fitted N95 respirator that later became the standard for SARS. He also recalled that he was not wearing goggles, but rather was wearing his own eyeglasses. As he noted, staff wore the equipment that was available at the time. Guidelines for high-risk procedures and the mandatory use of Stryker suits had not yet been developed, and the state of knowledge in respect of the risk posed during an intubation was not yet known. Unfortunately for those staff involved in the intubation of Mr. M, the lessons learned were costly, affecting their health and the health of their families. Not only did three nurses and the physician became ill but, in every health worker's worst nightmare, the physician who intubated Mr. M unknowingly passed SARS to his teenage daughter. Thankfully, all those who

133. Although post-SARS reports identify this intubation as the likely source of exposure for this physician, this physician told the Commission that he had began to feel unwell before the intubation and that his source of exposure may have been earlier, as he was frequently in the ICU, where we now know there were a number of staff exposed to SARS.

134. Naylor Report, p. 26.

became ill during the intubation, including the physician's daughter, recovered from SARS.

Although Mr. M had been identified, isolated and handled with precautions, no one focused on the possible exposure of his wife, Mrs. M. Consequently, while precautions were taken with her husband, they were not taken with her.

Emergency department staff interviewed by the Commission did not recall Mrs. M wearing a mask. One of the nurses who dealt with her in the emergency department recalled that Mrs. M was instructed to wear a mask when in the room with her husband but was not required to do so when outside his room.

Dr. Henry said that although Toronto Public Health had identified Mr. M as a contact before he went to hospital on March 16, no one knew his wife was ill as well:

> [Mr. M], it was very early on, so after we put out the press release that evening, his wife called us and we called her at the time that she was waiting for the ambulance to come because he was really sick, and so we notified EMS as well as the facility, and he was brought in in precautions. What we didn't realize is that she was ill. And I don't think anybody realized it, and she spent, I think it was 29 minutes in the emergency waiting area filling out the forms and sitting until they were ready for her to go into the room. And when she went into the room, not negative pressure but the one single room in the emergency department, the nurse who was in with Mr. M realized that she wasn't well and said, here, sit down, you better stay in here.

Between March 16, 2003, and March 21, 2003, Mrs. M and other M family members spent considerable time in the intensive care unit. While in the ICU, when not in her husband's room, she was not required to wear a mask. She and other family members moved freely about the unit, unmasked. One Scarborough Grace physician recalled being in the ICU during this period of time and seeing M family members:

> For a couple of nights I saw them, they were all clustered in the little waiting room outside the emergency, outside the intensive care unit. So I think several of them got sick … No one was wearing masks. There are all these people in the sitting area, they're all just there and it's very crowded. It's like a little it's like half the size of this room with a bunch of couches and then everyone with relatives in the ICU would sit there and

sometimes stay overnight … And no one wore masks then.

Neither the emergency room staff nor the ICU staff who dealt with Mrs. M wore any personal protective equipment. At this time the infection control practices had not been elevated to the level that all contacts were being quarantined and protective equipment was being used for all patients and visitors.

Dr. David Rose, the infectious disease specialist at the hospital, said that he did not recall requiring Mrs. M to wear a mask and that at that time it was their understanding that only those who were symptomatic were a risk for transmitting the disease. He said that they did not know at this time that Mrs. M was also ill. As he explained to the Commission:

Question: When [Mrs. M] in the ICU, was there discussion to have her use personal protection equipment when she was visiting?

Dr. Rose: When she was visiting in the ICU, you mean?

Question: Yes. Did you ever have a discussion with staff, or did anybody make that an issue?

Dr. Rose: I think it came up, I vaguely recall there was some discussion about it. At that point in time, again to the best of my recollection, [Mrs. M.] wasn't yet symptomatic herself. But I may be wrong about that, I clinically was never involved in evaluating [Mrs. M.] or her illness, or in evaluating [Mr. M], although I was involved with his illness. I don't know when she became symptomatic. And again, at that particular stage, I don't think we, as I recall from the transmissibility of it, it is not transmissible in the pre-symptomatic period anyway, as it turned out. So, I think there was some discussion about it but I think, first of all, at that time we still had a fairly full ICU and we were reluctant to single people out as visitors. Either we were going to take precautions with everybody, even those who had no connections, but there was some discussion about it and the decision at that time was it

> wasn't necessary. In fact, it would have been a smart thing to do. You know, not only to gown and mask for staff dealing with patients, but as it came to pass with staff dealing with staff at the nursing station and the cafeteria and everywhere in the building, and for visitors as well.
>
> We don't know how big a problem visitors to the hospitals are. We certainly learned from SARS that they can be a problem. There is no reason to think that, for example, a visitor with undiagnosed tuberculosis could spread tuberculosis to other patients and health care workers too. And tuberculosis is an illness that is often not much of an illness, that there are people who are not desperately ill, they can be very, very functional, going to work every day and looking after families, and highly transmissible, but well. But we still don't control for visitors or record who they are or what they are. That may be one of those fluky situations, where somebody acquires it from a visitor. How do you ever track that. It would be impossible.

While doctors and health workers struggled to save Mr. M no one knew the risk that Mrs. M might pose, despite her having clearly had contact with her husband. Even when Mrs. M was noted to be unwell, it was not initially suspected that she might be infected with the same disease that was making her husband so ill or that she posed a risk to other patients, visitors and staff. One ICU nurse recalled thinking that Mrs. M was simply tired because she had been up all night with her husband, worrying about him. One of the emergency room nurses recalled seeing Mrs. M in the emergency department and that at that time it was thought that she was simply overheated from wearing a gown and mask:

> On Wednesday [March 19], his wife was visiting him and had a fainting spell. So she came over to emergency, because we still weren't using masks or anything at this time. So I did a cardiogram on her just to make sure it wasn't her heart or anything that had made her faint. They basically just concluded that she just got overheated, because they put him on isolation, and they just figured she got overheated wearing the

gown and the mask and being in the small room, that she just got overheated and fainted.

Dr. Finklestein recalled Mrs. M being unwell. He said that he saw her twice, but he recalled that when he saw her she did not have a fever, which was thought to be one of the symptoms of SARS. As Dr. Finklestein told the Commission:

Dr. Finklestein: … [Mrs. M] I saw once or twice because she was just not looking well, out of courtesy to the family, and she had not yet developed a fever, and at some point we'll talk about the level of infection control practices as they go up … She did not develop a fever and I saw her a couple of times that week and I understand she got admitted to the hospital the day after her husband died, on the 22nd, and was transferred down to Mount Sinai, again no isolation beds. So she did come to see me as an outpatient and I would have seen her in the emergency room, so she would have been in the waiting room, which is where some spread happened.

Question: Waiting room for emergency?

Dr. Finklestein: She would have been waiting to see me, before she got into a room. And I said put her in room 5, I remember seeing her in room 5 a couple of times, probably twice.

Question: This is in ICU?

Dr. Finklestein: No this is while her husband is in ICU, I was trying to help her, over "you know, doc, I am feeling lousy," well, at that point the advice I had been given was, unless the chest x-ray is abnormal don't worry too much, I mean just keep them isolated at home, that's where we were at that time.

On Friday, March 21, 2003, Mr. M died. He was the third person in Ontario to die of SARS. One of the family members recalled that day and expressed thanks to one of the nurses who was particularly kind:

> The nurse who looked after Dad was amazing … She was amazing. She was, you know, always with an affectionate touch. We were there with Dad when he passed away. She helped us, and I am grateful for that opportunity.

In the face of fear and uncertainty about this new disease, ICU staff such as the nurse described above continued to provide constant, compassionate care. It is stories like these that emphasize that the true strength of our health system lies in our front-line health workers, whose dedication and care provide some measure of comfort in a family's darkest hours.

In the meantime, Mrs. M remained unwell and on Saturday, March 22, she was assessed for possible SARS. Although the initial emergency room physician did not diagnose SARS, she was later assessed by a Public Health physician, Dr. Henry, and by Dr. McGeer from Mount Sinai Hospital, who were on site at Scarborough Grace Hospital.

Dr. Henry said that after they spoke to the daughter and discovered that she too was unwell, she and Dr. McGeer arranged for the family to be admitted to Mount Sinai Hospital. As Dr. Henry told the Commission:

> … so I talked to her [Mrs. M's daughter], and Allison [Dr. McGeer] came up and we made arrangements. We said we are really concerned, we are not sure what's going on and this is what it is about, and she herself [Mrs. M's daughter] was not feeling well either, so we made arrangements for both of them to be admitted to [Mount] Sinai. They asked, and we said well where do you want to go, what hospital would you like to go to. They wanted to go to [Mount] Sinai, so we had them admitted to [Mount] Sinai.

Later that day, on March 22, 2003, Mrs. M and her daughter were both admitted to an isolation room at Mount Sinai Hospital.

Tragically, despite all treatment efforts, Mrs. M died on April 12, 2003.

Post-SARS, an article in the *Canadian Medical Association Journal* described the transmission of SARS on March 16 in the emergency department as follows:

> On Mar. 16, at least 16 people became ill after exposure to case B and his wife in the emergency department. Factors that may have contributed to the transmission include the proximity of the patients, the movement of the nursing staff among the patients and the movement of symptomatic family members within the emergency department. Although there may have been fomites and airborne spread the fact that all of the people who became ill were exposed when known symptomatic people were in the room makes this less likely.[135]

As the transmission report included earlier in this chapter showed, seven emergency room [ER] visitors, two ER patients, one hospital staff, three ER nurses, two ER clerks, and one housekeeper all contracted SARS through their exposure to Mrs. M. One of the visitors and one of the patients exposed to SARS while in the emergency department on March 16 later died of SARS. These health workers, visitors and patients went on to spread SARS to other household contacts and close contacts. And so the chain of transmission continued.

The impact of the failure to isolate Mrs. M had consequences beyond the exposure and infection of some 16 people. Many of the people infected through their contact with Mrs. M went on to expose others to the disease. One of these others, a member of a large religious group, contracted SARS and exposed hundreds of people to the disease, setting off what was to become one of the most significant transmission events during SARS: the exposure of the BLD group, described later in the report. And so the chain of transmission continued.

For the family, the impact of SARS was unimaginable. Mr. and Mrs. M's son and daughter both contracted SARS, although both survived their illness. They were left with the devastating loss of both parents within less than a month.

In hindsight, we now know that had Mrs. M been required to use protective equipment at all times while in the hospital, the spread of SARS to others through contact with her could have been prevented. Even after Mrs. M began to experience symp-

135. Varia et al., "Investigation of a nosocomical outbreak of SARS", p. 291.

toms, she was still allowed to visit the ICU and was in the emergency department without precautions.

The problem was not that doctors were ignoring the risk she posed; it was that they didn't know it. They did not realize that she too could be ill with this unknown disease and that even though she was not seriously ill at that point, she could be highly infectious. The importance of using protective equipment whenever in contact with a possible SARS contact had not been identified.[136] There were no clear directives for handling suspected patients and contacts, the infectivity of the disease was still unknown, and no one knew how vulnerable to exposure unprotected patients, visitors and health workers really were.

One health worker told the Commission how this missed case, which would become a major source of transmission, happened:

> I was angry about the M's. We already knew we had SARS. The family was allowed to visit more. She was upstairs. They allowed her to go home. She was visiting one day and she collapsed. We took her to emerg … We knew he had SARS but the family was allowed to visit more, even his extended family. We thought we had enough information, we were isolating him and doing the right things, so we let the family in a bit more and that is where we made a big boo boo. We just got a bit lax with the visitors … We knew [Mrs M] had been sitting with him whole time in emerg. We knew he had SARS. The likelihood of her having SARS was high. She was ill when she collapsed and was sent home. I think we missed her. We knew that she had never left her husband.

The Commission accepts that had Scarborough Grace fully known the risk Mrs. M posed to other patients, visitors and staff, the hospital would have taken steps to minimize that risk, through isolation and the use of personal protective equipment. The Commission accepts that the failure to isolate Mrs. M and to use protective equipment reflected a lack of knowledge on the part of everyone about SARS.

136. A March 18 letter from MOHLTC to physicians recommended the precautions to be used with suspect and probable patients.

But one of the problems seen time and again throughout SARS was not just a lack of awareness of this disease but a lack of preparedness for any new infectious disease. There was no plan in place to respond initially to the identification of a new infectious disease, which would include well-considered policies for the use of protective equipment for staff, visitors and other patients, visitation tracking or restrictions pending further investigation of a public health risk, and robust infection control practices with respect to all contacts of a potential case. Rather than a system, that had a clear and well-known plan to institute a high level of protection and to scale back as more became known about the disease, the opposite was in place. As the outbreak unfolded, as experts and public health officials learned about the disease, front-line health workers repeatedly had to adjust their level of protection in response to each transmission event.

And the lesson of the importance of limiting exposure through visitors, who themselves might be ill if they were contacts of a SARS case, although learned, was learned at a very high cost.

A Second Wave of Transmission in the Emergency Department

When Mrs. M was in the Scarborough Grace emergency department on Sunday, March 16, other patients and visitors were exposed to SARS. Among the seven visitors and one patient who were exposed to SARS and later became ill with SARS, two passed away.

One of the seven visitors who contracted SARS through exposure on March 16 in the emergency department was a 39-year-old man who was simply accompanying his daughter to hospital. Mr. K[137] became ill on March 18, 2003, and visited Sunnybrook Hospital on March 18 and 23. Unaware of his exposure to a SARS contact, he was sent home on both occasions. He returned to Sunnybrook Hospital on March 28, 2003, at which time he was admitted to the ICU. Staff remained unaware of his contact and previous visitation to the Grace Hospital. Consequently, he was admitted to Sunnybrook without precautions. His symptoms worsened and on March 31, 2003, he was transferred to the intensive care unit. He was put into precautions in the

137. This case is no relation to the case of Mrs. K, the index patient whose story is told earlier in the report. As noted earlier, the initials of patients have been changed (the initial "K" is not the actual initial of this patient).

ICU because of concerns about SARS and because of information, provided by his wife, that he had visited the Grace Hospital. Although his contacts were quarantined and no one else became ill, this case had the potential to spread the disease through Sunnybrook Hospital. Mr. K died on April 30, 2003.

A patient who contracted SARS on March 16 in the emergency department at Scarborough Grace was a 99-year-old woman, (referred to as Mrs. L) who arrived at the Grace emergency room on March 15, 2003. She remained in emergency until March 17, 2003, when she was discharged home. While at home, she was in contact with her family. Her family, many of whom had been at the Grace to visit while she was in the emergency department, continued to go about their daily lives, unaware of their own possible exposure or the exposure of their mother.

Mrs. L became ill and presented to Sunnybrook Hospital on March 23, 2003, with fever, cough and shortness of breath. She was admitted to Sunnybrook Hospital. But it was not until many days after her admission at Sunnybrook Hospital that her family received any contact from Public Health. In the meantime, her family learned about the need for them to enter a 10-day quarantine period from the news. Toronto Public Health reported to the Commission that she was not identified to them as a possible SARS case until after her death, on April 18, 2003. But this begs the question of why she was not identified as a SARS contact. The chronology shows that by April 18, almost a month after Mrs. M was identified as a SARS case, the overwhelmed and unprepared system had still not identified all of Mrs. M's contacts. This was not for lack of effort on the part of Toronto Public Health, but, as the number of cases multiplied daily, it became harder and harder to identify and follow up all contacts with the available resources.

Thankfully no other family members developed symptoms. But had they been ill and had not self-quarantined, they could have exposed countless others to the disease. As one family member told the Commission:

> We would all feel safer if there ever is another outbreak where there should be quarantine for any reason, if they would put it into play immediately and do it properly. Everyone would be very happy to know that, because there are a lot of risks that, thank goodness, didn't play out, but could play out.

Mrs. L remained at Sunnybrook Hospital until she died on April 17, 2003. Described by her family as "one of the nicest people you would want to know," she had 30 grandchildren and great-grandchildren. She died five weeks short of her 100th birthday.

Transmission in the CCU at Scarborough Grace and to York Central Hospital

When Mr. T and Mr. M were in the emergency department the night of March 7, 2003, so too was another patient, Mr. H, the second patient who contracted SARS through contact with Mr. T. As will be seen below, however, unlike Mr. M, Mr. H was not identified to staff as a contact of Mr. T. Before his contact was finally identified, 15[138] people were exposed to SARS at Scarborough Grace Hospital alone and SARS was spread through the transfer of Mr. H to York Central Hospital, where nine patients and staff were infected with SARS, resulting in the closure of York Central Hospital on March 28, 2003.

Mr. H went to the emergency department at the Scarborough Grace Hospital on March 7, 2003, for cardiac problems. He spent several hours in a bed across from Mr. T. He was admitted to the coronary care unit, 3D, from March 8 to 10, and then discharged home on March 10, 2003. But once home he continued to be ill and he returned to the Grace on March 13, 2003, at 11:00 p.m. He was admitted to the coronary care unit (CCU) of the Scarborough Grace Hospital with a diagnosis of acute coronary syndrome. CCU staff, unaware of his exposure to Mr. T, did not use any precautions when caring for Mr. H or while in his room. Although he was admitted to a private room, Mr. H was not isolated and was not placed in a negative pressure room.

On March 16, 2003, Mr. H was transferred to York Central Hospital for dialysis. No one at York Central Hospital was aware of his contact with the index case or that SARS was spreading through the Scarborough Grace Hospital.

As the days progressed, York Central was left unaware of the fact that it now had in its hospital a patient who had been in contact with the SARS index case at Scarborough Grace Hospital. One York Central official described the problem to the Commission:

> Scarborough Grace, or at least the City of Toronto health department, apparently had a press conference on the 14th of March. That was on a

138. The exact number of staff and patients who became ill and from whom is unclear as SARS was spreading throughout the Grace at this time and other patients and visitors were ill. For example, the transmission chart referenced earlier, shows the physician as contracting SARS from a CCU clerk, yet this physician also had unprotected contact with Mr. H.

> Friday; Mr. H was transferred to us … and there was never any warning. I mean, if you think through the steps, it would seem logical that on the 14th of March, when you become aware of the fact that you may have an outbreak of a threatening infection at Scarborough Grace, that at least an interim measure would be to say stop transferring patients out of this hospital. If you do not do that then the next step would be at least warn the hospitals who you are transferring to that there is a risk of a problem and they should keep this patient in isolation or they should at least keep an eye on them for that or, failing that, when Scarborough Grace was finally closed about a week later, I think the 23rd of March was the date they decided to close it, even if they could not logistically trace all of the patients who had been transferred out of Scarborough Grace, a simple warning to other hospitals in the GTA of if you have received a patient from Scarborough Grace on the 14th or whenever they thought was the outbreak to please check your transfer to see if you did receive a patient to please notify Public Health. If any of those things had happened starting obviously from the beginning on the 14th, if they had not transferred patients out, we would have been spared this entirely, so any of those seem to me as logical and straightforward steps to take. The impact to this hospital would have been greatly minimized.

One of the big questions that remains post-SARS is who knew what, when, about Mr. H? How could a contact of the first case at the hospital not be identified until almost three weeks after the initial contact between Mr. T and Mr. H?

As noted above, with the realization that Mr. T had been in the emergency department for over 16 hours before he was admitted to hospital, the next task was to identify those patients, staff and visitors who might have had unprotected exposure to Mr. T during the period between his entry to the hospital and his isolation, at approximately 6:45 p.m. on Saturday, March 8.

Between Friday, March 7, and Saturday, March 8, Dr. Finklestein said, infection control worked very hard to figure out which patient was where on the night of March 7, but it was not an easy task. While it was easy to say who had been in seen in the emergency department that night, recreating which patient was where and at which times, in a busy emergency department, was no small task. As he told the Commission:

> I recall at a certain point, and unfortunately I don't know when, [the infection control coordinator] telling me, we're trying to recreate the

emergency room at the time, who was where, when. It's easy to take a chart and say, you were here at this time. It is difficult to go back and recreate who was where, when. So I recall that they were trying to do that she did not have the resources to do what she had to do.

Although Mr. H was a contact of Mr. T in the emergency department, there was no system in place to flag Mr. T's contacts as they re-entered the hospital. Dr. David Rose explained how Mr. H was initially missed:

Question: When you identified a list of patients through Public Health who had contact with Mr. T in emergency, was there a process in place that allowed the hospital to identify those patients when they came back into the hospital? For example, you provide a list to Public Health and say, these patients were near Mr. T. What process was there to make sure none of those patients came back in?

Dr. Rose: Came back in to us, or came back in anywhere?

Question: Came back in to you.

Dr. Rose: … The answer to your question about tracking people for readmission is that it can be done, but I am not sure that it was necessarily automatically flagged. I don't know that there was or even is a simple system in our information system to identify an individual as having been readmitted. In other words, if you identify by some process, a contact, and I have to admit I am not, even years later, entirely familiar with the workings of the information system in terms of location of individuals within the hospital, that is something the infection control practitioners get very slick at, and I haven't had to do and haven't learned myself. I am not sure if they identified that you and I were in the emergency department on the same day and I went home and you were admitted and then I came back, that having identified that contact, that two weeks later it could identify that I was back in hospital one week after that contact. You follow me?

Question: Yes, but just from a simple system, let's take Mr. H for example, Mr. H is in the bed close to Mr. T. Sometime the week following, there is a list prepared for Public Health of Mr. T's contacts. Mr. H is on that list. Why, when Mr. H comes back to the hospital with febrile symptoms, why doesn't anything twig that he was with Mr. T in emergency? Where was the link there?

Dr. Rose: Well, I guess one of the issues with that particular scenario was timing, but it was very unfortunate timing. Mr. H was in emerg on the 7th and I think admitted and sent home on the 12th [Mr. H was sent home on the 10th]. I don't know if my dates are exactly accurate, but I think they are close. And then came back to emerg, the 13th or 14th. When the initial contact lists were being prepared they were contact lists for the 7th. So, who was Mr. T in contact with on the 7th in the emergency department and wherever Mr. T happened to travel, so he was the link. Who was in contact with him on that date and over the next 24 hours or so? One of those individuals was Mr. H. It is another sequential step to say, what had now happened to all of those individuals that Mr. T was in contact with. It's another level of investigation to see where all of those people have gone, who is at home, who is back in the hospital. We would only know if they were back in the hospital. And that, I don't know if that was done or when it was done. So, in truth [Mr. H] escaped that second level of contact tracing. Who was the contact in contact with, and where are they now?

What was missing was a system to go back into the hospital's patient records and check each patient who was identified as a contact of Mr. T to ensure that none of them had reentered the hospital and, if a patient was identified as re-entering the hospital, instituting isolation and precautions until the disease could be ruled out. Mr. H's case fell through the cracks in the system.

Because Mr. H's readmission to hospital was not linked to his previous contact with Mr. T, staff caring for Mr. H had no idea that he was exposed to the patient who had died from a new and serious illness in their hospital on March 13. The cardiologist who cared for Mr. H, who contracted SARS through his unprotected exposure to Mr. H, told the Commission that he had no knowledge of Mr. H's exposure to Mr. T and that his symptoms were thought to be the result of his underlying heart problems. This physician later learned that Mr. H had been exposed to Mr. T, but he did not know this critical piece of information until much later, some time after Mr. H was identified as SARS at York Central Hospital and after this physician himself was ill with SARS:

Question: It was a gentleman who was on the cardiology unit, admitted to hospital. Do you remember?

Answer: I remember that in retrospect, in looking back at the infection, this individual was in the emergency room at the time of the admission of, [Mr. T], the son of the lady who may have got infected in Hong Kong. My patient and this male patient were in the emergency department at the same time in adjoining cots, adjoining stretchers. The young man went on to be admitted to the intensive care unit and subsequently he died. My patient was discharged from the emergency room at that time. It was felt that his cardiac problem was not urgent. The patient then was readmitted to the emergency room five or six days later ill. The first impression was that he was ill because of a worsening of his cardiac problem and he was admitted to the cardiac care unit. He was not placed in isolation. Myself and several of the nurses in the cardiac care unit cared for him in a very close basis and I believe that was when I contracted SARS. That individual subsequently was transferred to another hospital and subsequently died.

Question: He went to York Central Hospital.

Answer: I believe that was where he went.

Question: And when did you become aware of the contact he'd had with the index patient in emergency? Is that something you learned after the illness or something you knew prior?

Answer: After the illness.

Question: Okay. So when you were caring for him when he was in the cardiac care unit, you didn't know at that point that he had been in emergency with someone who was previously …

Answer: That's correct. There were no infectious suspicions whatsoever. He was just treated as an individual who was in heart failure. I think that was the diagnosis that we had for him at the time. There was no indication to us that he had an infection and therefore there were no precautions taken.

Because the health workers on the coronary care unit did not know Mr. H's contact with Mr. T, none of them had any reason to think there was anything unusual about Mr. H. As one of the nurses said:

> I remember thinking he probably has pneumonia. But a patient in that condition having pneumonia is par for the course. It's very, very common so I never thought anything of it.

When Mr. H was transferred to York Central Hospital on March 16, 2003, staff had no reason to suspect that he was ill with an infectious disease and did not know that he had been in contact with Mr. T. Hence no warning was given to York Central Hospital. As Mr. H's doctor told the Commission:

Question: And he was transferred to York Central Hospital on March 16th. So would you have been involved in his care between the 13th and the 16th?

Answer: Yes. Yes, I would.

Question: And so when he's transferred to York Central, none of you are aware of his contact and he, at that point, isn't

showing signs other than what you believe to be a cardiac problem.

Answer: That's correct.

On March 18, 2003, Toronto Public Health staff attempted to contact Mr. H as part of the contact tracing. A Public Health employee phoned Mrs. H, who reported that her husband was in York Central Hospital. Recall that by March 16 Public Health had identified approximately 500 contacts of Mr. T. Dr. Henry told the Commission that at the time they were following up with contacts, they were trying to identify those people who were ill. Although it was identified at this time that Mr. H was back in hospital, there was nothing in the information from the H family that suggested that Mr. H or other family members were ill with an infectious disease:

Question: Mr. H comes back in and on the 18th it is learned that he is at York Central, back in hospital at York Central, and yet he doesn't get identified until late March. So there is a period of a couple of weeks, perhaps even though he is picked, he's right there in emerg with the index patient at the hospital and he's known as early as 16th, certainly by the 18th. What can you say about this? Is this a guy who did fall between the cracks? Is there any explanation that would explain this period from mid …

Dr. Henry: When was York Central closed? Yes, Friday night, the 28th. So this one that you have given me, the Toronto Public Health contact sheet was, as I mentioned earlier, we had a division of labour with the hospital, so people who were discharged from the hospital, Toronto Public Health followed up with. So we had this person on the discharge list, and we called him and found out, spoke with his wife on the 18th, and found out that he is actually in York Central Hospital due to kidney trouble. We asked the people that we followed up, if they had any of the complaints that were concerning to us about SARS.

That's the part on the bottom, and the answer was no to all of these.

Question: So for [Mr. H], the family is telling you he is at York Central and he's on oxygen due to kidney dialysis?

Dr. Henry: And that he was admitted to the ICU for kidney disease.

Question: Okay, this is on the 18th?

Dr. Henry: Right.

Question: And the reason why you are following is because you're following up on patients that were discharged?

Dr. Henry: So in most cases, those patients are at home, so we followed up with them. We called their homes to find out where they are. We find out when we call their homes that this man is in hospital for his kidney failure and we get this information as well for [Mrs. H, their son, and Mr. H], so we have the whole family we followed up with, because they were all presumably visiting [Mr. H] when he was in Scarborough Grace. And this was the type of followup that we did on all of the people who were contacts at the Scarborough Grace Hospital. And we found out that none of them were symptomatic at the time we talked to them. So we provided them with advice. What we were normally doing was providing them with advice. It depends when their contact was, whether it was past …

Question: When were they called?

Dr. Henry: The 18th, it looks like the 18th of March for all of them, actually. So they were on the list provided to us, we followed up with them to find out if anybody was ill. So depending on when he was in hospital, and I

believe it was greater than ten days, from the 18th of March, he had been in the hospital more than 10 days prior to that. So we were case finding. We were trying to find people who were sick. So many of these people were beyond the incubation period, so we wouldn't have been …

Question: He had been out more than 10 days before that, so you were looking for people who were sick?

Dr. Henry: Right, we were case finding at that time. If they had been within the incubation period, we would have put them in quarantine until the end of their incubation period, so they might have been in day eight and if they were well, we would have asked them to stay home for another few days and we would contact them. But if they were beyond the 10-day period and they weren't sick, then there was no further need to do anything. Now, the second thing that would have happened though with [Mr. H] is anybody who was sent directly from Scarborough Grace to another facility, which happens all the time because they need an ICU bed or they need a dialysis bed, which is why [Mr. H] ended up in York Central, I believe, because they don't have the capacity to do dialysis in Scarborough Grace. So if they were sent directly to another hospital, all of those people were followed up directly through infection control.

This call to the family was as far as the investigation went and all that was required by the systems that were in place. Toronto Public Health understood that Scarborough Grace Hospital would notify other hospitals of contacts who were transferred. And because the H family members reported they were well and because Mr. H was outside of the incubation period by March 18 and there was nothing to indicate that Mr. H and his contacts had developed SARS symptoms, when they were contacted by Public Health the question of whether his hospitalization might be related to his previous exposure to SARS did not get raised.

Because the connection between Mr. H's readmission and illness and his prior contact with Mr. T in the emergency department was not made by anyone at the time, Mr.

H's continuing presence in hospital failed to raise an alarm, and no one contacted his attending physician at either the Grace or at York Central Hospital to determine his condition and to alert them of his contact with Mr. T. Tracking of contacts re-entering hospital remained a problem, with no apparent system to click into gear to perform this vital function. The key pieces did not connect: Toronto Public Health and infection control were not, as in the case of Mr. M, alerted when Mr. H re-entered hospital at the Scarborough Grace within the incubation period. Those treating Mr. H knew he was febrile but did not know he was a contact with Mr. T, so they had no reason to suspect that he was ill with SARS.

Mr. H remained at York Central Hospital between March 16 and March 28, during which time no one knew he had SARS or that he had been a contact of Mr. T, the first SARS case at the Scarborough Grace Hospital. It was not until March 28, when York Central Hospital recognized febrile illness in several ICU staff members, that the connection to Mr. H and to the outbreak at Scarborough Grace Hospital was made and that York Central Hospital became aware that they had had unprotected SARS exposure in their hospital. Fifteen staff members at York Central Hospital became ill with SARS through their contact with Mr. H and his wife, who developed symptoms and was admitted to York Central on March 21.

The consequences of the failure to identify Mr. H's SARS contact were even more devastating at Scarborough Grace Hospital, as approximately 32 people were infected with SARS, through either direct or secondary contact with Mr. H. Health workers were the hardest hit, constituting 19 out of the 32 people infected with SARS through contact with the CCU.[139] In one of the worst imaginable outcomes, a health worker would go on to spread SARS to one of her parents, who later died from the disease. Before he died he infected a co-worker, who became very ill with SARS. One patient who was exposed to SARS in the CCU went on to spread SARS to six other family members, three of whom died. Their story is told below.

Mr. H died on March 29, while an inpatient at York Central Hospital. At the time of his death Mrs. H was also hospitalized for SARS, having contracted the illness from her husband.

The Commission finds no evidence that hospital officials or Public Health knew about the risk posed by Mr. H to hospital staff, patients and visitors. The Commission further finds that the Scarborough Hospital and Public Heath officials were unaware that they

139. Varia et al., "Investigation of a nosocomical outbreak of SARS."

had transferred a contact of Mr. T to York Central Hospital and that they were unaware of the risk he posed to staff, visitors and patients at York Central Hospital.

The Commission finds, however, that there was a systemic failure to identify Mr. H as a contact of Mr. T and to identify his readmission to hospital and his ongoing illness. There was no system in place that flagged contacts as they re-entered the Scarborough Grace Hospital, to monitor them for symptoms and to ensure that staff working with such a patient used appropriate protective equipment to protect themselves from exposure. There was also no system or process by which staff or physicians working in the Scarborough Grace Hospital could be aware of or check to determine if any of the patients under their care had been in contact with a SARS case.

The H case showed how easily an infectious disease can spread from one hospital to another and how one missed case can spread an infectious disease within a hospital and to other health care facilities. The H case showed the importance of getting ahead of an infectious outbreak at the very beginning, identifying contacts quickly, and identifying those contacts who have re-entered the health care system. It also underscored the importance of early notification to other health care facilities and clinics, to enable them to screen for patients entering their facility, either through the emergency department or through a transfer or other admission.

Protecting Staff

Until staff began to become ill in the ICU, and eventually the CCU, hospital officials believed that the possible spread had been limited to the emergency department, where Mr. T spent most of the time prior to being isolated in the ICU, on Saturday, March 8, 2003.

Dr. David Rose told the Commission that during the week of the 17th hospital officials were recommending the use of protective equipment with febrile patients, but they did not make recommendations with respect to contact with visitors or between staff. He said that at this time they did not realize that they had transmission throughout the hospital or that it included visitors and staff:

> Question: Since your return [from holidays], other patients or staff were reporting ill and there was concern that there was something going on. Were precautions stepped up in any way during that time?

Dr. Rose: Yes, yes, they were. During the week of the 17th we started recommending that contact with a febrile patient be done with masks and gloves and maybe with gowns, I can't remember, but certainly greater attention to barrier precautions and greater attention to hand washing. We didn't at that point make recommendations about contact with visitors, and we didn't make recommendations at that point, yet, about contact between staff. What we thought we were dealing with, in a limited way, of course, was a community-based outbreak in which people were sick enough to come to the hospital. And we hadn't yet perceived, through the first part of that week anyway, that we had staff-to-patient or staff-to-staff transmission, or visitor-to-staff and visitor-to-visitor and staff-to-visitor transmission. We were beginning to be aware of patient-to-staff transmission. We wanted to protect the staff, and we made recommendations around that area.

Prior to SARS, hospitals had never experienced a situation where there was a risk in the hospital and they could not identify the areas at risk or the staff, patients and visitors at risk. Never before had a hospital had to use personal protective equipment, in all areas of the hospital, at all times, to protect staff and patients. Prior to SARS, few hospitals regularly used N95 respirators. Staff had not been fit tested or taught how to properly use this type of equipment.

The physician who intubated Mr. M on Monday, March 17, recalled that at the time of the intubation he was using a standard procedure mask. He said that prior to SARS he had never used an N95 respirator and that before SARS there was not a lot of worry about contracting a disease from a patient:

Question: On Monday the 17th you'd been using the paper masks?

Answer: Yes.

Question: When did they introduce the N95?

Answer: First time I saw it was in emergency. Even the next couple of days in the OR [operating room] we just

assumed, oh, whatever this was it was all contained within the ICU and that emergency was using respiratory precautions. So in the general OR we still continued to use the standard rectangular paper masks.

Question: So the first time you used an N95 was that Sunday [the 23rd]?

Answer: Yes, that Sunday evening when they gave us these masks and it looked similar to one of those masks you can buy from the hardware store when you're doing a lot of sanding or sawing to prevent you breathing in dust.

Question: And had you had any professional medical experience with the N95 before?

Answer: No.

Question: No training or … ?

Answer: No. That was the first even I heard that term and, in general, we were most sort of worried … our biggest concerns since I was in medical school were things you could get from needle pricks, like HIV, hepatitis, various types of hepatitis, other sort of blood-borne and serum-borne infections and then secondarily surface pathogens. And sometimes we'd have these patients with some colonized, with some kind of an antibiotic-resistant germ that we'd have to take all sorts of elaborate surface precautions and stuff, but they were pretty lackadaisical until then about stuff you breathed and it was just assumed that following the brief exposure, you just got the tube in quickly, as long as you just wore some sort of mask and discarded everything at the doorway you'd be okay.

For those areas who had a patient who was known to have been in contact with Mr. T, the direction with respect to personal protective equipment was much more clear. As noted earlier, the hospital initially thought that any risk of transmission was limited to

the ER, 4D and ICU, areas where Mr. T had been prior to isolation. The hospital, unaware that there were other areas at risk, focused their efforts on those areas, and in particular the ICU, once Mr. M was admitted. One ICU nurse said that infection control were frequently on the unit, trying to help them with the patient, in the face of obvious competing demands for their time:

> I think [the infection control practitioner] was pulled and dragged everywhere at this stage. I mean, she was the only person. And I think she did the best of her ability …

On March 18, in a letter from the Ministry of Health and Long-Term Care, Public Health Branch, physicians were told that health workers with direct contact with a suspect or probable case were to observe the following precautions:

- Good hand hygiene before and after contact with the patient and after removing gloves
- Wear gloves, gowns for patient contact
- Wear an occlusive seal, high filtration mask (e.g. TB mask – N95)
- Wear eye protection if spraying or aerosolization of secretions is anticipated[140]

The letter also said that triage staff should ask about travel history or contact history for anyone complaining of a fever, cough or respiratory symptoms and, if the travel history or contact history was positive, immediately wear an N95 mask and make arrangements for prompt further assessment of the patient in a separate area, where feasible. Where there was no travel history or contact history, it recommended that the patient be triaged and cared for in the usual way.

Dr. Rose told the Commission that as things began to get worse, and when it became known during the week of March 20 that there was a bigger problem than anyone initially knew, they began to try to inform staff about the appropriate level of precautions to use, but that the full knowledge about the level of precautions was not yet identified. For example, staff were not told about using precautions when interacting with each other. As he explained:

140. Letter from Ministry of Health and Long-Term Care, Public Health Branch, to all physicians in Ontario, dated March 18, 2003, re: Surveillance of Severe Acute Respiratory Syndrome (SARS) in Ontario.

> During that week, I was actually out of the hospital also on the 20th of March, with one of my kids at a school event. But during that and on the way to the event and on the way back, I was mostly on the phone with the infection control practitioner, the one of the two and half full-time people that was based at the Grace campus. And by that time, later in the week, it was becoming more clear that there was a bigger problem. I don't remember at what point during the week we started giving advisories to staff about alterations in practice. But we did recommend hand washing, for one thing, which we always do, we recommended wearing masks when in contact with a febrile patient. We didn't recommend, at that point, yet, that staff take precautions when interacting with other staff. For example, at the nursing station, the cafeteria and so on. That came somewhat later. By the 21st, I was away on the 20th, but I was at the hospital on the 17th,18th, 19th and on the 21st there was a staff meeting at the hospital that day. Dr. McGeer was in attendance, Dr. Henry was in attendance and we repeated what we thought at that time were the appropriate recommendations. We said that we were dealing with something that we hadn't identified yet from a microbiological standpoint. That we were certainly aware that there were an increasing number of staff that were falling ill, that we felt were likely related to this event. And then by the end of that week and into the weekend of the 22nd things really escalated.

As things began to escalate and staff began to hear about illness among their colleagues, some nurses took matters into their own hands, wearing masks. As one emergency nurse told the Commission:

> Question: Other than when you were dealing with Mr. T or, I guess at this point he's the only SARS patient, or his family, on your day-to-day other dealings, you weren't wearing a mask.
>
> Answer: No.
>
> Question: Okay. And no one else was in emerg?
>
> Answer: No, not that I can recall. I think it [when they began wearing masks] was more after we starting hearing more confirmation that they believed that Mr. M actually did have this pneumonia, that we, in emerg, it

was probably at the end of the weekend, started wearing masks and on that weekend, I worked that last weekend before we closed, I guess it's the 22nd and 23rd, we did start wearing masks around the emerg. I remember I put one on when I was dealing with anybody that was, probably coughing, or anybody that came in short of breath, I was putting a mask on. The triage nurse put a mask on.

Question: And was that as a result of a directive from infection control or is that just something that you …

Answer: No, that was what the nurses decided to do. And I remember there was a police officer that came in with a patient and he said to me, why are you wearing a mask? And I said, well, you will too, we don't know what the heck's going on in this place, and nobody's telling us anything, so put a mask on, and he actually did, he put a mask on, the police officer. So he sat there for the whole three hours he was in emerg with this patient he had under arrest, the patient I think just came in for stitches or something, and he had a mask on the whole time he was in there.

The above-quoted nurse said that the information they received was that it was limited to the one family and that they did not have to wear a mask at all times:

> … we asked, shouldn't we all be wearing masks? We don't know what is going on, and they were saying, no, no, it's isolated to this one family, so it's not something that's out in the public, it's just this one family, so if you are dealing with the family, wear a mask, if you are not, then you don't have to.

It was not until March 25 that the hospital announced that all staff must use precautions in all areas of the hospital. Staff were limited to working one site only. In a memo sent out the evening of March 25, 2003, the hospital said:

> As public health officials learn more about this illness, they have now stated that they expect to see more suspected and probable cases of SARS over the next several days. At this time, the entire Grace Division is in

> respiratory isolation. **All Grace Division patients are being cared for in isolation precautions and all staff must take full precautionary measures.** ALL staff movement between the General Division and the Grace Division is now restricted [emphasis in original].[141]

As the hospital and Public Health struggled to respond to this new disease, there was confusion and uncertainty. Although precautions were used with patients like Mr. T and Mr. M, they were not used at all times in all areas until March 25th. Prior to this, because hospital and Public Health officials did not realize that SARS had spread in the hospital beyond Mr. T and Mr. M, it was not known that staff working in certain areas or with certain patients might be at risk. Unfortunately, by the time the scope of the outbreak was identified and the importance of protective equipment for all health workers was clearly communicated to staff and proper equipment was provided, staff were already ill.

Even after the use of protective equipment was identified to staff, staff reported that there was initially confusion about what exactly to wear and when. As one nurse said:

> There weren't any strict guidelines as to what we were supposed to do, or things were not definite right away. It was basically all you should be or shouldn't be. It wasn't, you have to do this. It wasn't until after that, you have to wear this and you have to wear that. And I think, before that people did not know what was going on, so they were just doing whatever.

Another nurse described how once the need to use protection was identified, the directives about what to use changed daily, as the hospital did its best to ensure that the staff kept up with the changing directives, and that as time passed things did get better:

> Putting it on and taking it off, that wasn't the problem because we had been trained from the beginning how to wear a mask, and so they made sure we had more training, and the infection control officers came around, the infectious disease doctors, and our managers, they assured us if we needed anything at all, they would provide it. But, it was an ongoing learning experience for everyone. Every day there would be new direc-

141. Memo to all staff, physicians and volunteers, evening, March 25, 2003, from Glenna Raymond, VP Patient Services and Dr. Atilla Turgay, Chief of Medical Staff.

> tions from the Ministry, from the hospital, saying you have to do this, we were doing that, we shouldn't do that, we should do this, and with a mask and gown, I think at one time we were wearing the occlusive gowns, which don't breathe, they don't allow air to pass through your inner garments, so they got the disposable gowns as well.
>
> And they tried to make it as comfortable as possible, but everyone was learning. We'd never encountered SARS before. They suspected that it's from inhaled germs, from contact, touching them, contact, breathing it in. So, they focused on making sure that we had the right masks, that we got better masks, and then the mask fitting came in so that they realized that individually you have to have people fitted for the mask, because everybody's face is different.

As noted above, the Commission finds that there was a system-wide lack of preparedness to respond to the identification of a new infectious disease; a lack of policies for the use of protective equipment for staff, visitor and other patients; a lack of visitation tracking or restrictions pending further investigation of a public health risk; and a lack of robust infection control practices with respect to all contacts of a potential case. What was missing was a clear, practical and well-known plan to institute a high level of protection and to scale back as more became known about the disease. Instead, as the outbreak unfolded, as experts and public health officials learned about the disease, front-line health workers had to repeatedly adjust their level of protection in response to each transmission event.

More will be said about the importance of worker safety, including regular training and education with respect to the use of personal protective equipment, later in the report.

Illness Among Staff

After March 14, when it became clear that Mr. T was associated with this atypical pneumonia that had been spreading in China and Hong Kong, no one knew how far the disease had spread. Initially, the areas of exposure were thought to be limited to the emergency department, 4D and the ICU. As a result, the hospital and occupational health tried to focus their efforts on monitoring staff working in these three areas.

On Monday March 17, 2003, Scarborough Grace Hospital sent a memo to all staff advising them that health officials had confirmed late on Friday, March 14, 2003, that the patient who had been admitted to the emergency department on March 7, 2003,

and had died in the ICU on March 13, 2003, was ill with travel-related atypical pneumonia. The hospital also advised staff that other family members were reported to be in good condition at other hospitals throughout the city. As for instructions to staff regarding possible exposure the hospital told the staff the following:

> We are continuing to work very closely with our health care partners and all government levels. Toronto Public Health is the lead health official on this situation and has established an information line at [number provided] the public has been asked to call if they have traveled to Asia recently, had close contact with someone who has traveled to Asia recently, and are experiencing symptoms including sudden high fever, cough, sore throat, and muscle ache.
>
> We have contacted our staff who may have had contact with the patient or his family members in Emergency, 4D Medicine or ICU from March 7-13. Our own Hospital hotline remains open for staff to provide you with information about contacting Occupational Health. The Hotline number is [number provided]. At this time, no staff or members of the community have been admitted to either the General or the Grace Division related to this outbreak but universal precautions remain in place. All units at both sites are open.[142]

On Wednesday, March 19, 2003, a memo to Scarborough Grace staff and physicians reported to staff the admission of a patient who was thought to have atypical pneumonia.

> On Monday, March 17th, the Scarborough Grace Hospital admitted in ICU at the Grace Division a patient suspected to have atypical pneumonia, along with other health problems. At this time, no staff or other members of the community have been admitted to either the Grace or General Division related to this outbreak.[143]

The patient identified in the memo was Mr. M. As noted above, because his contact with Mr. T was identified before he came back to hospital, when he was readmitted to

142. SGH Staff Memo, 17 March, 2003. Memo to all physicians, staff and volunteers, dated March 17th, 2003, from Glenna Raymond, VP Patient Services and Dr. Jack Stein, Deputy Cheif of Medicine.
143. Memo to all physicians, staff and volunteers, dated March 19th, 2003, from Glenna Raymond, VP Patient Services and Dr. Jack Stein, Deputy Chief of Medicine.

hospital he was handled in isolation in the ICU and handled with precautions.

In that same March 19th memo, the hospital conveyed information from external sources that the outbreak may be quieting down:

> External health officials are beginning to cautiously suggest that the outbreak is quieting down. However, Toronto Public Health continues as the lead health official, asking members of the public who have traveled to Asia recently, had close contact with someone who has traveled to Asia recently, and are experiencing symptoms including sudden high fever, cough, sore throat, and muscle ache to call the Toronto Public Health hotline at [number provided].[144]

Little did they know that the worst was yet to come.

Until staff began to develop symptoms, it was hoped that the disease had been confined to a very small number of people and that perhaps the worst was over. But as Public Health and hospital infection control tried to identify all Mr. T's contacts, one by one staff began to become ill.

By the week of March 18, health workers who had been exposed to Mr. or Mrs. M. and Mr. H began to fall ill. Within a span of one to two days, three staff members became ill from the ICU. Suddenly, it became clear that the emergency department was not the only source of exposure. Also that week, nurses who had worked with Mr. H in the coronary care unit fell ill, one by one. As one nurse described the situation:

> I knew things were, on the 16th of March, my manager was calling me in to work the 17th, 18th, 19th, they were extremely short-staffed and I knew at that time that there were other girls in the unit who were sick. We just thought we had the flu or a cold, we didn't really know what was going on. I know in retrospect now that they had caught SARS … The CCU manager was desperate for people to come in to work.

144. Memo to all staff, physicians and volunteers, March 19th, 2003, from Glenna Raymond, VP Patient Services and Dr. Jack Stein, Deputy Chief of Medical Staff.

Dr. Finklestein told the Commission that until staff began to get sick, no one anticipated that staff members were at risk or that they too would become ill with SARS:

Dr. Finklestein: … So Tuesday the 18th onwards, we knew we had something going on, but we thought it was limited to spread in the emergency room and we were taking what we considered at the time to be reasonable precautions.

Question: And no staff members?

Dr. Finklestein: And no staff members, until [names of three nurses] all within one to two days, the 20th and 21st, developed fevers, and [name of nurse] said, Sandy [Dr. Finklestein] I've got a fever, I remember clearly and I walked her over the emerg and I plunked her down . . .

Question: At that time was it, were you thinking . . .

Dr. Finklestein: We didn't know, we had trouble figuring out where it was. We clued in at some point though, … that it was due to the intubation. That might have had …

Question: When [name of nurse] said, Sandy [Dr. Finklestein], I have a fever, you thought, okay, we've got something going on here?

Dr. Finklestein: Oh yes, no question, the fever right away was thought to be related to whatever is going on, I mean there's stuff in the news now, I mean it's all common talk, and so this is two weeks after Mr. T came in so we are a little more sophisticated at this point. So the ICU nurses went first, the 3D and CCU nurses went the following week.

Question: CCU?

Dr. Finklestein: Coronary care unit

Question: They went first?

Dr. Finklestein: No ICU, intensive care unit nurses, they got sick between the 20th and 22nd, about four or five of them. And it wasn't, this is important, infection control procedures were [applied], when we knew we had an infection to deal with. When we were uncertain, it was those patients, those staff who got problems because we were not necessarily providing the correct infection control level. Is it good enough, I don't know, it can be any patient who walks in the street, which goes back to our first discussion about what's the right level, and you don't know, and I'll tell you, separating outbreak and non-outbreak conditions make sense. That is my opinion.

So the ICU nurses, when Dr. Don Low visited us at the hospital on the 20th or 21st, I don't remember, but it was the day [name of nurse] said she has a fever, I said, Don, give me a minute, I've got to go take care of [name of nurse], and I walked [name of nurse] over to the emergency room, put her in a room, x-rayed her, did some blood work, and she had a normal chest x-ray, so it was [name of nurse], go home, isolate yourself at home, mask whenever you have to leave your area, I don't know if it was an N95, I can't remember, and let me know if you change.

So a lot of the staff I saw twice, the first time when they just had a fever, we sent them home, and the second time when they started getting short of breath, and the x-rays, their chest x-rays where abnormal. And I saw half or two thirds of the initial staff and [Dr.] David Rose saw half of the other half, we shared the work of this tragedy. So then, as I mentioned the CCU, coronary care unit, and 3D, which is the cardiology regular ward, staff started getting sick, at which point we knew we had spread within the hospital.

Question: What date was that?

Dr. Finklestein: I don't remember when the first one was, but it was on or about the 23rd to the 25th I just cannot recall when. Then we, through the week of from about the 21st or 22nd until about the 1st, we saw about eight to 10 people a day become sick.

Question: Eight to 10 people …

Dr. Finklestein: Staff, becoming ill, either with fever or fever and shortness of breath. And at the initial time we were sending people home for isolation when they only had fever, and we realized soon after that, everyone with fever moves on to being short of breath, so we moved up our vigilance to the level of fever, and that, certainly at that point or at some point around that, fever screening occurred. We were taking temperatures of everyone and at some point we started taking our temperatures going in and out as we were going into the hospital.

As noted earlier, Dr. Rose agreed that around March 21, it was clear that there were problems with staff illness but that it was still not clear what they were dealing with.

But the problem was that in the early days, before the widespread illness among staff became clear, no one knew yet how infectious SARS could be, and the clinical progression remained unclear. This meant that even when staff became ill, the fact that they had SARS was not immediately identified. The result was that many were seen in hospital, sent home while still ill, and then a few days later called back to the hospital.

For example, one of the ICU nurses who became ill recalled going to a Toronto Hospital on March 20, after she developed symptoms. Although she reported her employment at the Grace and the fact that she had been in contact with a suspected SARS case, Mr. M, she was sent home when her chest x-ray was clear. Three days later she was admitted to West Park Hospital, where she was treated for SARS.

Another ICU nurse was seen in the emergency department at Scarborough Grace Hospital after she began to develop symptoms around March 19. She told the Commission that after she was examined she was sent home on isolation but was not given any specific instructions to stay away from her family while she was at home.

She said she did not leave her house but she did have contact with her family, as she did not know it was unsafe to do so. She said that she did not fault anyone for the lack of information, as it was new to everyone and they were learning as they went along:

Answer: … They got a mask for me to walk out of the hospital. They would not let me go back to the ICU, they went and got my purse for me. And they said, go home and stay there, basically. I said, okay, and I did.

Question:: Did they give you directions to isolate yourself from your family?

Answer: No. I mean, they sent me with a mask to walk out of the hospital but, it was so new then. Do you isolate? He may have said SARS. I don't know if anybody really did. But I don't think anybody did and so I came, and they just said don't go out, basically, stay home but there was no direction to stay out of your family. There's no masks sent home with me. And you're talking in the very infancy of this illness, you know. So I came home and …

Question: You don't fault them for not giving you better instructions at that point?

Answer: Do I? No, because, you know, it's so easy to have hindsight. Does she have SARS? Does she not have SARS? … And, if there's not a lot of knowledge being passed on to them, if they haven't been communicated, how can they tell you?

She recalled that Public Health officials came to the house to take test samples and that Dr. Finklestein continued to monitor her health and brought her back for a followup x-ray. On March 23, Dr. Finklestein called her to tell her that she was going to be admitted to West Park Hospital.

Another ICU nurse recalled that she went to the emergency department on March 20, after she became ill but she was sent home. Public Health came to her home on March 22 to take test samples and on March 23, she went back to the emergency and was later admitted to West Park Hospital. She told the Commission that although

she recalled seeing something that said to notify occupational health if she became ill, there were no specific instructions:

> All I saw was when I came in, I think that was March 19th, when I came in there was written information on the board, if you get sick call occupational health, something like that, or public health before. So I didn't pay much attention, you know. But nothing like somebody would call us and say, there is something going on that may potentially infect others and infect us, so just be prepared. I don't want you to be overly concerned, but at least take precautions, at least we will know.

As noted by one of the ICU nurses quoted above, it was not that doctors or hospital officials did not want to provide advice or better instruction, but that they still knew so little about the new disease and how it spread or the risk it posed to anyone exposed to it.

While the nurses were falling ill, hospital officials and public health officials were trying to figure out what was happening, as it was not known that there had been widespread exposure to SARS of the kind that we now know took place among staff, patients and visitors before March 20. Dr. Henry recalled being contacted by Dr. Rose on or about Thursday, March 20, because of concerns about ill staff:

Dr. Henry: The next things that happened is over the period from the 20th, 21st, so the next week, we are busy following all these people in the community, we start to hear reports from, and I have been in contact, quite regularly with [Dr.] Allison McGeer and [Dr.] David Rose, and David Rose is the infectious disease specialist at Scarborough Grace, and Allison is the consultant, infection control, as you know for Scarborough Grace, and [Dr.] Sandy Finklestein, who obviously was in charge of the initial case. So we were talking, and David called me, I think, somewhere around the Thursday, and definitely on the Friday, we started hearing …

Question: When was this?

Dr. Henry: The 20th, the 21st, around that time, David expressed concerns that there are staff off sick, at the hospital,

and they are from all over the place, there are people from the emergency department, there's people from the ICU, and Sandy [Dr. Finklestein] is concerned because there is a couple of nurses at the ICU who didn't come in. So this would be, probably late in the day on the Thursday, [March] 20th, and do you think there is something going on here, and it's influenza season, they're not really sick, they might have mild symptoms, a bit of a cough, not feeling well, headaches, myalgia, allergies, that sort of stuff. So on Friday the 21st, after discussion at Toronto Public Health about, there might be something else going on here, I went out with a field epidemiologist, and Allison [Dr. McGeer] and one of her residents, who was working with her, medical residents, we went to try and get a sense of what was happening at the hospitals.

We went over to the Grace, the Scarborough Grace, and met with [Dr.] Sandy Finklestein and with [Dr.] David Rose, and Glenna Raymond, who was the VP of medicine at the time. What they had done is talk to everybody, all the nursing leaders, and said we need a list of everyone who is off sick, and we need a sense of if they're off with a respiratory illness. So, by the time we got there that day, the field epidemiologist [name], she worked with me at Toronto Public Health, she was an employee of Health Canada, but she was assigned to [an onsite] supervisor, I had asked her to put together a quick questionnaire of some of the key things we needed to think through based on what was going on. So by the time we got out there in the afternoon, and as I recall they were having a staff meeting where they were talking about what was going on with this.

We had a list of I think of nine names, there was a respiratory tech, there was an x-ray tech, there were emerg nurses, ICU nurses, but the names kept coming in and over the next 24 hours went up to 13 to 15 to 19. We put together three teams of people. And on

the Saturday the 22nd, we were there until about 2:00 in the morning on the 21st, and on the 22nd we were back out first thing in the morning and we had these teams of people, epidemiologists from Toronto Public Health plus clinical nursing staff and some research people that worked with Allison, and they went out and interviewed the people that were on our list who were all at home. We gave them masks and gloves, and they took nasal swabs as well, to see if we could start getting a sense, and that night when they came back …

Question: Can I stop you there – what was the nasal swab?

Dr. Henry: Nasopharyngeal, to do some testing to see if we can identify the organism. Because at the time we were still asking is this an influenza strain, is it anything else? There was a whole bunch of laboratory testing happening, there was all kinds of things going on, but that's one: trying to isolate the organism, around the world. We were all trying to figure out what this was.

Dr. David Rose also recalled that the hospital, along with infection control and others, working with Toronto Public Health and Dr. McGeer, were trying hard to sort out what was happening as more and more staff became ill:

Question: I think by the 20th, there were 13 health care workers off sick with febrile illness, and that's in accordance with your recollection of what was going on that week?

Dr. Rose: Yes.

Question: And Toronto Public Health was investigating. Were you personally involved in any of the investigations that were going on?

Dr. Rose: What I was involved in, the 20th was the day that I was absent from the hospital and what I was involved with up until that Thursday, so the Monday, Tuesday and Wednesday was, first of all, I was back from holi-

day. We were becoming aware of patients and more health care workers becoming patients who were ill with a febrile illness. I also was still running, trying to run the rest of my practice, as I planned to even before the week of the 10th. But by the 20th and 21st what I was involved with was trying to, as people were reportedly falling ill, trying to assess their illness in the way that I just described, to try to categorize them as belonging to this group or not and trying to establish who was connected to who and whether the illness was sufficiently similar and without some alternative explanation, that we felt that some should be in the group and some should not. And that was a judgment at the point without very much to support it outside of the clinical decision.

Question: Now, were you working alone or with colleagues from the hospital or was Dr. Allison McGeer involved in that from Public Health?

Dr. Rose: Dr. McGeer was around the hospital a great deal. There was a staff meeting as I said earlier, on the afternoon of the 21st, I think it was in the early afternoon of the 21st, the Friday. And Dr. Henry was there, Dr. McGeer was there. It was very, very well attended in the old cafeteria at the Grace. There was a significant amount of concern and anxiety around a big unknown at that point. I was, besides attending that staff meeting, as I said, trying to get "hear and tell" of this sick person or that sick person. Some of them, I was speaking to over the phone, some of them I tried to have come into the emergency department, some of them were of course, patients that were already in the hospital and trying to figure out where the connections lay between each of these individuals. If they were health care workers, where they worked, whom had they been in contact with? And was their illness in broad terms, similar to what we were trying to characterize as typical of this febrile, respiratory illness.

Question: Who was the lead in the investigation into it, was it you, was it Toronto Public Health, Dr. Henry, Dr. McGeer, or was it just a collaborative effort?

Dr. Rose: I think it was a collaborative effort. I certainly wouldn't claim that I was in charge of the Toronto Public Health investigation at that point. I was not. I think there was a collaborative effort within the institution, but also involving Public Health, to try and sort out the pathway through which this had seemed to have spread over the preceding 14 days. At that exact point in time, I think that the infection control program and the Outbreak Team of the Infection Control Program at the hospital was in charge for the hospital, but that included a liaison with Toronto Public Health. I think we weren't, or at least I personally, wasn't involved in what was going on in Toronto Public Health's domain, except as best we could, we being the Infection Control Program, the people who are familiar with the information systems, trying to provide Toronto Public Health with contact lists of people who had been either in emerg on the 7th, or in contact with that group of people who we knew to have been sick or have gotten sick subsequently. But once those contact lists were drawn up and were sent off to Toronto Public Health, the work outside the hospital was not in our domain. And who was in charge outside of the hospital from Toronto Public Health's perspective, was Dr. Henry and the rest of the public health service.

By Sunday, March 23, 2003, it became clear that there was a big problem, as there was a realization that these staff probably had the same disease as Mr. T and that something had to be done about it. At this time, in consultation with the Ministry of Health and Long-Term Care, a decision was made to open a unit in West Park Hospital to care for ill staff from the Scarborough Grace Hospital. More will be said about this below and later in this report.

Dr. Henry said that they tried to make arrangements to bring those staff who were

suspected of being ill with SARS back to the hospital under precautions and that Dr. Finklestein even went to pick up some people and bring them in himself:

Question: And none of them would have been in any kind of precaution at this point?

Dr. Henry: No.

Question: Was there any concern then about families and how they'd get there, because some came in cabs?

Dr. Henry: Absolutely, we told them, we think you might have this disease, we don't know yet, and you're not to hug your kids, not to kiss you husband or your wife, but to go now and if you can go by yourself in a car or, actually, Sandy [Finklestein] went and picked some people up, or, take a cab, sit in the backseat, keep the window open, we made arrangements for them to go under certain precautions and we quarantined their families.

Question: Was there any thought at that point about before they, sent out into public, to mask or any other responses?

Dr. Henry: If they had masks, we said wear them. But most people at that time wouldn't have had masks at home.

Question: Right.

Dr. Henry: So we figured it would be probably safest to go in a private vehicle, and we told them don't take public transport, go in a private vehicle, sit in the back seat if somebody is driving you, keep the windows open. That seemed to be the most, the best we could do at the time. Some people did have masks and we asked them to wear them.

It is important to note that despite the problems identified by the ICU nurses, they expressed no blame against the doctors or others for not knowing what we now know in hindsight. One of the most noticeable features of the stories of the ICU nurses is the continued high regard they have for their manager, Ms. Wong, and for Dr.

Finklestein and Dr. Rose. More will be said below about the communication with front-line staff and of the strong and mutually respectful working relationship that emerges from the stories of the ICU staff.

Ms. Wong, the patient care manager in the ICU, described the early days, after they learned that staff had been exposed and could be ill as "chaos." She said that in the beginning it was confusing and very frightening for staff. She said that everyone was doing their best, but they were dealing with an unknown disease, and had not anticipated that staff might become ill. As she told the Commission:

Question: And as the manager of the unit, did anyone update you or tell you what they were doing to make sure that staff was being monitored?

Answer: I was in the meeting so I know. I don't think I need to get an update from people and I know, I was in, for sure, in some of the meetings. I probably would not be in all of the meetings. So I kept myself up to date of the problems. So I asked people. I think people did not probably necessarily come and talk to me about what is going on, but I asked.

Question: Okay. So is it fair to say at that point, in your mind, do you believe that occupational health was looking after it and you were satisfied that your staff was going to be followed? Is that fair?

Answer: Actually on the first day or on the first few days, everything is in chaos. I can't, I would not say they know what they are doing and I would not know that. My only goal is to keep informing the staff you need to be very careful, do everything you can to protect yourself.

Question: Okay, you said in those early days, it was chaos. Did you say "I would not say they know what they were doing"? Are you referring to occupational health?

Answer: I think occupational health would probably be one of them: infection control, clinicians, nurses, nobody

> knows what they are doing at the time. It's just very frightening, I guess. But it's lots of confusion, lots of uncertainty. Yes, for sure, and I know it's difficult at the time so I would not say that night there were very clear directions from anyone.

Ms. Wong was clear that she was not being critical of anyone or of the hospital's response. She simply noted that it was all very new and there was a lot of uncertainty. But as she told the Commission, whatever was not done right, it was not for lack of trying or for lack of doing their best, it was because they just did not know everything they needed to know at the time. As she told the Commission:

> Question: And what do you think went wrong?
>
> Answer: I couldn't say what went wrong. The problem, I think biggest, not problem but the biggest thing during the time is that we didn't know SARS. That was the first case in Toronto or even in Canada. Nobody had experience with that. Everyone is trying to do their best. Maybe we didn't do the right thing, but they don't know that that was not right at the time.

Although the ICU nurses were not admitted at the first sign of illness, they were contacted, tests were taken by Public Health and they were brought back to hospital when it became clear that illness among staff was a big problem and that they should be hospitalized.

In contrast, when the CCU nurses began to fall ill no one imagined it might be SARS because unlike the ICU, where there had been three known cases of the illness (Mr. T and Mr. M and Mrs. M), no one knew that the CCU nurses had also had contact with a SARS case, Mr. H, referred to above, who went to the CCU on March 14[145] and had been a contact of Mr. T, the index case at Scarborough Grace. Consequently, those CCU nurses interviewed by the Commission reported that as they phoned in sick, their reports of illness were dismissed as the flu and they were not given any advice with respect to isolating themselves. As they became ill, many questioned whether it could be the same illness they now knew was spreading at the hospital.

145. Mr. H returned to the Scarborough Grace Hospital on March 13 and was admitted to the CCU on March 14.

They were repeatedly told that it could not be SARS, because they had had no known contact with a SARS case. Unaware of their possible exposure, these nurses went about their normal lives in close contact with their families and going about in the community, even while ill.

One CCU nurse described the big difference in how the ICU staff and the CCU nurses were followed and communicated with:

> The ICU nurses, their story is so different from ours. They were the first group that were treated and investigated. It was such a different scenario. It was just the second group, our unit [the CCU], that have had this experience where we were not listened to or attended to or tested or anything until it got really bad … I think the ICU nurses perhaps will look at it differently because of the different way it was handled, because they had a known SARS patient in their unit, that they may have caught it. For CCU staff it was a whole different thing, because of the way the occupational health handled it. Because they told us, no, you haven't been exposed … It was a whole different impact for us, I think.

The above-quoted CCU nurse, who was later admitted to hospital and treated for SARS, told the Commission that when she first became ill she contacted the occupational health department on the 20th of March for advice but was assured not to worry as there were no SARS patients in the CCU:

> At that time I had heard the word SARS and occupational health told me not to worry, that we hadn't had any SARS patients in CCU. That this was probably just a coincidence, it was just viral, rest, fluids … yes, it was a good idea to see my family doctor, which I did the next day.

Another CCU nurse described the advice she received from the occupational health office on the same day, March 20.

> I dialed the number, called the occupational health department. When I called, there was a recording that said if you've been to Asia you are to call this number. And if you're experiencing a high temperature and shortness of breath and joint pain and all the symptoms that I seemed to be experiencing, I should contact them. I said, this is a fairly strange message. Anyway, I prompted and I ended up talking to the occupational health nurse and I said, what kind of message is that? And she did not respond … And I said, is there something that I need to know

> because the symptoms that you're describing on the recorder, I'm having those symptoms and I said, should I be told something? Is there something and she said, no. She said, matter of fact, you should be speaking to your manager.

But she was unable to learn anything further from speaking to her manager.

The problem was that the occupational health department and the nursing manager of the CCU were unaware that a contact of Mr. T had been in the CCU. So when staff began to call in sick, they were not suspected to have SARS and were not given the same attention as staff from areas where there was known exposure to SARS, such as the emergency department and the ICU. As one occupational health staff member told the Commission:

> I told our manager, I was just talking to [the CCU manager], she is really upset, all of her staff are sick, they all had worked this one particular weekend and I remember my manager saying to me, but they don't have an epilink, at the time.

The case definition of SARS, as of March 18, 2003, required that a patient meet the following criteria:

> Suspect case
> - Fever (>38 degree Celsius) and
> - One or more respiratory symptoms including cough, shortness of breath, difficulty breathing and
> - One or more of the following:
> - Close contact with a probable case
> - Recent history of travel (within 10 days) to Asia, especially in areas reporting cases of SARS (see above)

> And
> - No other known cause of illness

> Close contact means having cared for, lived with or had face-to-face (within one meter) contact with, or having had direct contact with respiratory secretions and/or body fluids of a person with SARS.

> Probable case
> - A person meeting the suspect case definition together with severe progressive respiratory illness suggestive of **atypical pneumonia or

> acute respiratory distress syndrome with no other known cause of current illness
>
> OR
>
> • A person with an unexplained acute respiratory illness resulting in death, with an autopsy examination demonstrating the pathology of acute respiratory distress syndrome with no other known cause.
>
> **atypical pneumonia: severe respiratory symptoms; respiratory distress with bilateral progressive infiltrates on chest x-ray (not due to microplasma, Chlamydia or legionella, if laboratory test results are available)[146]

In the early days of SARS, the case definition changed as more became known about the disease. But throughout SARS, the case definition focused strongly on the need for an epilink, which included contact with a known SARS case or travel to a SARS-affected area in Asia. Although mere travel to an affected part of Asia did qualify as a SARS epilink, presence in a hospital that had SARS cases did not. According to this limited case definition, the CCU nurses would not qualify as being at risk for being a suspect case of SARS without known contact with a probable SARS case or recent travel to Asia. Since simply being a health worker in a hospital that had SARS patients was not considered a link at this time and the connection between Mr. H and Mr. T and Mr. H's subsequent re-entry to hospital had not been identified, no one knew that staff on the CCU had been exposed to SARS. So when they became ill, SARS was not considered as a possible cause.

One occupational health nurse described the confusion:

> Part of the confusion for us was that people weren't having the same symptoms, and some of them we couldn't identify what the contacts were, so it wasn't making sense to us, so it was very, very confusing for us, we were trying to make sense of it, but it wasn't making sense, and was something we still don't really understand. I think we understand it better now, but at the time, one of the things with this virus is different people have different symptoms. We didn't know what the exposure was, it didn't make sense to us. We were trying to figure it out and it was just

146. Letter from Ministry of Health and Long-Term Care to all physicians in Ontario, dated March 18th, 2003, Re: Surveillance of Severe Acute Respiratory Syndrome (SARS) in Ontario.

getting really bad. Some people had, for example, fevers right away, that was their only symptom. Other people had headaches, other people, a whole group on one floor, started off with nausea. And they didn't seem to have any contact, and it actually turned out they had contact with the patient who was transferred to York Central, but it did not make sense at the time.

Also, at this time no one knew the importance of strong surveillance systems to detect clusters of illness among staff, a lesson that would become clear from SARS I and II. As Dr. Rose explained:

Question: Now, the staff who were calling in sick, were they calling in to occupational health or how did that information come in?

Dr. Rose: They would've called, the practice for sick staff was to call occupational health, and I think also to let their floor know that they weren't going to be there. In other words, they were going to miss a shift if they were scheduled to work and they were supposed to let occupational health know that they were ill. I am not sure that both phone calls always took place, but one way or the other there were people calling in sick and missing shifts.

Question: And that information, obviously significant information, how was that getting to you? Was it coming through part of a surveillance program or was it a …

Dr. Rose: It was really coming through more off-handedly. That this floor had a couple of people calling in sick and that floor had a couple of people calling in sick. But at that time we weren't doing organized, regular, febrile, respiratory illness surveillance. And in fact, it's a more organized system, or became a more organized system later and since and currently; up until that time it was still pretty much the same. If we became aware of, for example, a group of patients or staff with diarrhea illness, for example, through

> contact with their home base, nursing station and manager or through occupational health or both, then you know, our antenna went up and we were more alert to the possibility of something going on either in the community or in the hospital or transferring back and forth from one to the other.

Ms. Raymond, VP of Patient Services at the time, explained to the Commission that in the very early days after Mr. T's death, they focused their communication efforts on those areas where they believed there might have been exposure.

> Question: Now, we were aware that staff continued to get ill and the hospital closed at some point, but remarkably some staff who worked in the areas of exposure were still not hearing about it until even after the hospital closed or at the point in time the hospital closed. Was there a system in place then, and is there now, that will allow you to get in touch with staff outside of their shifts and perhaps even normal business hours, when you have an issue like that? Would it happen differently now if there was the same kind of concern about the possible indication of disease to the staff out of emerg or some other ward?
>
> Ms. Raymond: First of all I'd like to address your comment about staff not hearing about it. Staff across the entire organization may not have heard about it until we started doing daily SARS memos. Certainly the staff in the areas that had been affected by SARS began hearing about it because they were being contacted on the Thursday and Friday as part of the staff contact person tracing. And so I think we need to differentiate staff in an area that is directly involved or has had contact with the patient or where the patient was, as opposed to staff across the total organization. And so the system that was in place to communicate with staff in the areas where the patient was actually moving through the system, was going through occupational health and the contact

lists were developed. They would have received the contact and communication either from occupational health or from the manager or from both because both were working on it. And that occurred.

So that was through the manager and occupational health. We also had an email, electronic wide distribution mail, the first one of those went out, I believe it was Friday. Yes, the first one had gone out across the entire organization Friday. And so at that point anyone in the organization would have heard about it. The third way that we do have to communicate with people which is in place is our fan-out system. We chose not to use that backup that weekend either on the 13th or 15th. Because at that point, remember that we didn't understand the transmission. We didn't understand that, our focus in those few days was trying to communicate with people who had been in contact with the index patient, Mr. T. Not trying to communicate with everybody across the organization because we had no information from our infection control specialist … Had that been the case, we did have a fan-out system and could have put that into effect. There wasn't any reason to do that from what we were being told by infection control specialists and from Public Health about who it was that we had to reach. We had to reach the people who had been on the shift, in contact or in potential contact, with that particular patient.

Ms. Raymond said they were not aware that of the exposure of the nurses in the CCU, but that she understood that once the physician from the CCU phoned in sick, occupational health began to contact other staff from the CCU:

Question: Now, some of the CCU staff that became ill, they were quite traumatized by it obviously. They've expressed concerns that the notification system didn't give them enough information. They didn't know, for example, that other colleagues were ill with it. They remained at home, I guess with their families after a

point in time when others were already becoming ill. Is that an issue that in your mind is a legitimate one and secondly if it is, how do you deal with that in the future so that, I appreciate there's issues of confidentiality and whatnot but some of them were pretty concerned that they weren't aware how much was going on amongst their colleagues, how ill some of their colleagues were.

Ms. Raymond: I'm sure it was a very, very difficult time for those particular staff. Some of them I saw personally when they came back to work and they talked to me about their experiences. I think in particular it was very difficult for the CCU staff, the cardiac staff, to be as aware as the ICU staff of what was happening. Keep in mind that our focus of attention was on our index patient. That was the methodology of infection control and the tracking that was in place that we knew about, that we were being advised were the patients of concern. We didn't know that there had been transmission already occurred back on the 7th and the 8th in the emergency department and that one of those patients went to the CCU. It was an unknown disease and the threat of that was not known, and so the focus of the attention was on ICU as opposed to CCU. And when the first staff in CCU reported ill, because it is a small place, CCU and ICU staff intermingled to a certain extent to cover off for each other, to support each other. Again, through the outbreak team and through that work that both infection control and Public Health were doing, we were tying the transmission to that sharing of, there must have been some sharing of something in terms of sharing the staff, as opposed to realizing that there was a patient in CCU that was ill with this disease as well. And in an infection control outbreak hindsight is wonderful to look back and be able to pinpoint where and how the transmission occurred.

Back this weekend, our focus was on Mr. T and his family, and then the ICU staff, and then the CCU

> staff, because they worked with the ICU staff. And so I accept that it, in some respects, is human nature the CCU staff were feeling that they weren't as in front and centre, as involved or the focus of the activity. But certainly, as soon as we began the contact tracing, as soon as the manager in CCU alerted us that Dr. [CCU physician who became ill] had called in sick as well, we began to look at where it all might, how did that fit into the picture of transmission of the disease. The work that Public Health provided us in the epidemiology or the linking of cases were very helpful. The staff in CCU were on the same contact list, approached both by their manager and by occupational health, had access to the hotline, had access to the electronic mail. I note they received direct calls from the manager as well, had a considerable amount of outreach and support from the clinical director who herself was a cardiac nurse. But if that has left some staff feeling that they didn't know enough or weren't supported enough, I can understand how they probably felt.

Despite Ms. Raymond's understanding, those CCU nurses interviewed by the Commission reported that they were not contacted, followed and supported by anyone prior to their admission to hospital. This is not to suggest that the hospital knew about Mr. H. As noted below, the Commission accepts that the hospital did not know about Mr. H and the risk he faced to the CCU staff and nurses. But the fact that no one individual was at fault does not negate their pain and suffering or the need to fix the system-wide problems that let this happen.

The CCU nurses, sick with symptoms later diagnosed as SARS, were unaware of their danger. They remained at home, ill, exposing their families and others in the community. As one nurse told the Commission:

> I was not bedridden or anything. I continued to do my shopping. I would go to the gym. I would go to the market, whatever I had to do. I would just continue doing it.

Ontario had no system to ensure that the vital pieces of information already in the hospital's possession were properly analyzed and acted upon, such as the fact that a

patient who was in the emergency department, in the same room as Mr. T, had come back into hospital and had been cared for, without precautions, by staff in the coronary care unit. Without this knowledge, occupational health and management continued to send the message to staff that beyond Mr. T and Mr. M, there were no cases of SARS in the Grace Hospital.

On March 20, 2003, a memo to staff assured them:

> We have no other confirmed cases of SARS at this time [other than Mr. M whose case was updated in the memo].

The only mention of ill staff is one sentence:

> Occupational Health continues to follow staff members who have reported experiencing some symptoms.[147]

By March 21, Toronto Public Health was aware that a number of staff members had reported ill at the Grace Hospital. Toronto Public Health sent an epidemiological investigation team to Scarborough Grace Hospital, to assess how many health workers were off and why. But the only information provided to staff was that the hospital was:

> … continuing to follow staff members who have reported experiencing some symptoms.[148]

By Friday afternoon, March 21, it was known that 13 hospital workers were off work with febrile illness. An investigation was commenced. Toronto Public Health described the investigation that followed:

> An investigative team is formed as follows: one epidemiologist from TPH; one field epidemiologist from Health Canada; one communicable disease manager from TPH; three clinical personnel/laboratory staff from MSH [Mount Sinai Hospital]; Dr. Henry, Dr. Rose and Dr. McGeer. A questionnaire is developed and investigative teams of two are formed. Dr.

147. Memo to all physicians, staff and volunteers, dated March 20th, 2003, from Glenna Raymond, VP patient services and Dr. Jack Stein, Deputy Chief of Medical Staff.
148. Memo to all physicians, staff and volunteers, dated March 21st , 2003, from Glenna Raymond, VP patient services and Dr. Jack Stein, Deputy Chief of Medical Staff.

> Henry and Dr. McGeer start assessing and interviewing staff in hospital.
>
> The other investigative teams are sent out with N95 masks and gloves to interview the 13 hospital workers who are reported as being ill at home and to secure both blood and nasal-pharyngeal swabs to be sent to the National Microbiology Laboratory for testing. Dr. Henry also requests further epidemiological assistance from Health Canada. A second Health Canada field epidemiologist and a senior epidemiologist arrive on March 22, 2003.[149]

But this information was not conveyed to CCU staff at the Grace, many of whom remained at home ill, unaware of what was happening in the hospital and among their colleagues.

In the meantime, staff continued to fall ill. Those health workers who were not ill and were still able to work struggled to fill the gaps left open by their ill colleagues and questioned what was happening. One nurse described how staff shortages were making it difficult to meet the staffing needs of the hospital:

> I think by the Saturday night [March 22] I'd voiced to the manager that this hospital should be closed … 3D telemetry was very short-staffed, emerg was extremely short staffed and she'd asked us to pick up the six beds on the telemetry unit. We already had six CCU beds. I don't think we were full, I can't remember, to pick up more patients it's like we can maybe pick up two but this is the limit, we can't go any further than this, it's getting out of hand. And I know I voiced this place should be closed down. You can't run a place this short of staff.

By mid-morning Sunday, March 23, 2003, 21 staff members had reported illness. As the day unfolded, many of the ill staff began arriving at the Grace Emergency Room for assessment.

The CCU nurses, who had no idea they had been exposed to SARS, were shocked to learn they might have SARS. As one nurse told the Commission:

149. Toronto Public Health Chronology, SARS I.

> I don't remember that night [March 23]. You have to remember, I was kind of stunned, lying there, just trying to process all this information … I lay in bed there alone, quietly, tears running down my cheeks. I didn't even know I was crying but tears were running down my cheeks, trying to decipher all of this information.

The nightmarish experience of this nurse typified the agony of so many health workers during SARS who went about their jobs unsuspecting any danger, unwarned by their employers of any risk, and failed seriously by a system totally unprepared for such an infectious outbreak. One of the failures of SARS is that it took the unprepared system so long to learn how to protect health workers against SARS. To the question "how could it take so long to learn how to protect workers" there is no simple answer. Part of the answer discussed below is a lesson of SARS, a lesson still unlearned, that occupational safety received a dangerously low priority during SARS, and that occupational safety experts should have a central place at the table in any planning and response and decision making around our protection against infectious outbreaks. More will be said about the importance of worker safety and the role of occupational health later in this report.

Dr. David Rose described the events of March 23, as ill staff were coming to hospital for admission and it became apparent they could not provide care for all their own staff:

> Question: Now, around the 23rd there were discussions about closing the hospital. By that time, up to 21 staff members had reported ill and a number were arriving at the Grace emergency. So what was happening on those days, the following days?
>
> Dr. Rose: On the weekend of the 22nd and 23rd and Monday the 24th, the events as you described were unfolding. We were still hearing about more and more people becoming symptomatic, trying to sort out where they had been and what they had done and who they might have been in contact with. On the 22nd and 23rd, between Dr. McGeer and me and other colleagues in other hospitals, we were trying to find isolation facilities for patients, really disregarding the level of their illness, because we perceived that there was a significant risk of transmission of this, whatever it was, this pneumonia, from somebody ill to other contacts.

We didn't know how close or not close or intimate the degree of contact had to be and so we thought it was safer to have the individuals dealt with as an inpatient where precautions could be used rather than a household where it was going to obviously be very difficult to provide isolation and containment. There were some people who we left at home, if they lived alone. One nurse who I think worked for occupational health at the hospital who lived by herself and she promised not to go anywhere and she promised not to see anybody. And she stayed home but I think she was eventually hospitalized, I may be wrong in my recollection about her particular story. But by the morning of the 23rd, we were overwhelmed, we were short-taffed, obviously people didn't want to come to work and there were many that were sick.

We were having trouble functioning as an acute care facility both in the emergency department where there were many people who had fallen ill, and people still showing up with fevers and illnesses. Somewhere, somehow, somebody came up with an idea of commandeering space at West Park. And I first heard about that during a conference call at the hospital, we were in a boardroom at the Grace and I can't remember exactly who was present at the time. The Chief of Staff and, I think, the Chief Nursing Officer were present, and probably a few other people there and of course, there were people on the other end of the phone from the Ministry and this announcement was made that there would be space made available for inpatients at this commandeered facility at West Park. And I thought that was godsend because we thought it was crucial to get people admitted, we clearly had to be careful because the degree of illness couldn't be too intense because they had no kind of monitoring or critical care facilities, but for people with lesser degrees of illness, we felt fine, this is an inpatient facility, we can take people out of their homes, out of their houses, away from their partners and children and

families and provide some degree of isolation and containment.

Dr. Rose said that even when they were seeing staff becoming ill and the decision to open West Park was made, they still did not have any diagnostic tests and did not have a clear clinical syndrome or epidemiological trail. But because of the group of illness, it seemed logical that everyone had SARS and that is what was assumed:

Question: Were you seeing the staff who were coming in ill?

Dr. Rose: Many of them, yes, many of them I was seeing. I was asked to evaluate them, and at that point we were still operating under a presumptive, assumptive diagnosis but we had no diagnostic tests, we had only the barest bones of a clinical syndrome for that matter, and we had, in most cases, no real clue about epidemiology or individual link to other individuals. But it seemed like everybody coming down sick, it seemed logical and obvious to us, were part of this group. Some of them maybe weren't, but we had no way of differentiating, easily differentiating, those that probably were from those that probably weren't, and so we made the assumption that everybody had SARS at that point. It was fairly easy at that time because if you had a fever, you had been in the hospital, there was some connection even if it seemed tenuous, we felt that was SARS. So, West Park was opened.

Dr. Rose told the Commission that one of the challenges was communicating to staff what was happening, without them first hearing about it on the news or through another source:

> But during that teleconference [where the decision to open West Park was made], almost as though it was for public relations, the people at the Ministry wanted to make the announcement about this West Park facility at a media conference later that afternoon, about 4 o'clock that afternoon. And I said as much as I was able to and I have the right to do that, I told them I didn't want them to do that, I sort of forbade them to go on the television, the radio, and make this announcement because the people I had been in contact with by tele-

> phone mostly or that were already in the Grace or usually on a gurney in emerg, would find out by the radio or over the TV that that bed at West Park was going to be for them. And I said, there is no way they are finding this out over the radio, these are people I work with, some of them very close colleagues, not just physicians but nursing staff in the ICU who we were going to ship off to West Park. And I insisted that we would tell them ourselves. We would tell them where to go, if they were still at home we would get in touch with them, have them pack a bag and show up and give them instructions as to the logistics. And that is what we did over the rest of that afternoon. We got in touch with a dozen or so people who were eventually admitted to West Park. And over the next several hours they presented there or were transferred by ambulance to be admitted there, and that was on the 23rd.

By March 23, it was apparent that SARS had spread to many patients and staff members at the Grace. The hospital sent out a memo to staff, advising them of what was happening:

> As our work to track and investigate SARS continues, public health officials today confirmed that a number of our Grace Division staff are in the early stages of this illness. As a result of this new information, public health officials are currently assessing the isolation capacity of other hospitals in the GTA. We are also doing extensive tracking of the co-workers of these staff members in our continued diligent efforts to contain this illness.[150]

But this news was not shared with all those staff members who were at home ill, who did not have external access to hospital emails and correspondence. Still some of the CCU nurses remained ill at home, unaware of what was happening, potentially exposing their families and others.

150. Memo to all physicians, staff and volunteers, dated March 23, 2003, from Glenna Raymond, VP Patient Services and Dr. Jack Stein, Deputy Chief of Medical Staff.

One CCU nurse, home ill with what was later diagnosed as SARS, described her contact with the occupational health office on that Sunday, March 23:

> Occupational health did call me again the Sunday, around about the dinner hour, just to check up on how I was feeling. I told them I was starting to feel a little bit better, I still had a fever but I didn't have to take Tylenol as quickly. It was getting longer before my fever went up again. … SARS was definitely mentioned at that point, that what I had was not likely to be SARS, just to monitor it. They didn't tell me to isolate myself, they didn't tell me to stay away from my family. They didn't tell me that I should be getting a mask. They just basically said keep an eye on it.

The above-quoted CCU nurse was finally contacted on Tuesday, March 25, and told to come to be assessed at the hospital. She was admitted for treatment to Scarborough Grace hospital for SARS on March 26 and transferred to West Park Hospital later that day.

Another nurse became ill on March 18, while at work. She reported her illness to occupational health, who thought she might have the flu. She went home, where she remained ill, unable to work between March 19 to the 23. She told the Commission that during this time she received no contact from anyone at the hospital, other than a secretary who phoned to ask how she was feeling. During this time she lived with her family, without taking any precautions, including with her sister, who was in the final trimester of her pregnancy. On March 19, she visited her family doctor, who thought that she had a viral illness. But her condition continued to deteriorate. On March 23, she went to the hospital, at which time she was admitted. She recalled being told by Dr. Finklestein that she might have SARS and worrying that that meant she would die:

> Then around 1 p.m., Dr. Finklestein came to me, I know him very well, he had a mask and everything, and goggles. When I looked at him that is the time that it clicks in my mind. He said you won't like this, I think you have SARS. I started to cry right away because think of [Mr. T] who died. That is all I know about SARS … I thought I am going to die. I said don't tell me I am going to die.

Another CCU nurse, ill but not knowing it might be SARS, went out and about in the community that Sunday, March 23. She had been in contact with occupational health during her illness but no one had told her what was happening in the hospital and she did not know that a number of Grace staff had come down with SARS. She

remained at home, until finally, on Monday, the 24th of March, desperate for help and for answers, she contacted Public Health:

> Sunday, the 23rd, I woke up and I still felt quite ill. Took some Tylenol. I went off to church. Came back and went out, had dinner and stuff like that. I went to the gym. Went back to the sauna. This day, I thought, well this is a really bad flu and I'm not getting rid of it. So, Sunday night, again, things weren't looking good. I called the occupational health department again and I said, I'm not feeling well. My temperature is still high. I'm having even more trouble breathing. And she said to me, do not come to the Grace. Go to your nearest hospital.
>
> So, I couldn't figure out what to do by then. By then I started wondering about what I had. Where are my colleagues in all this? And nothing was being done and there is a pattern. There's a pattern but it wasn't being followed by the hospital. So, I took some more number 3 at that time. I went to bed. Slept. Monday morning [March 24], I thought, no, this just can't go on any longer. So I called the public health department. And at that time, I figured what I had probably was probably contagious. So I called the public health department. When I spoke with the occupational health department on Sunday night and I started asking questions about the testing and all that and I said, something's got to be done and she said, don't come to the hospital. I said, and how are we going to get it done? She said to me that the public health department can come into the home and do the testing … Sunday night we talked about it. She said public health department can come in because I continued to ask about testing since the Saturday, moving into Sunday, that we must be tested. And then she said something about calling the Public Health Department because they've been going into the homes and testing some other people. And then it started occurring to me that there are other people out here who are being tested. So I said, well, that's their number and she gave me a number.
>
> So I didn't call at that time. But Monday morning [March 24] when I woke up and I still wasn't feeling any better, I thought, okay. Let me call the public health department, which I did. A female answered the phone and I related to her where I worked, what was happening. She said to me, okay. Don't do anything. Stay put. Someone will get in touch with you shortly. And about 10 minutes after a male called me … he said I would like for you to get to the Grace immediately. And I said, really? And it

> sounded really urgent. It was a very frightening conversation we had.

One health worker said that the workload for occupational health and infection control was simply too great, and that the information was changing too frequently. As she told the Commission:

> There were too few people, not enough contact, not enough follow-up, different answers from Public Health. So, much confusion. Like, who do I follow? Do I follow Public Health, do I follow occupational health, what do you do? Nobody seemed to be giving me the same answer twice. We understand that the directives were changing on a daily basis. There was no question about that and the possibility of contacting all the staff within the hospital, it had to happen by word of mouth. It had to happen by when you came in, okay, this is what had changed. You know, there was no way that they could contact everybody, because there wasn't enough people to do it. So that was a huge issue. The department was way too small, not enough hands to do the work.

In the meantime, the CCU nurses, unaware of what was going on at the hospital and with Public Health, suffered at home, cared for by their families, exposing their families, oblivious to the danger posed by a potentially fatal disease. They were the lost victims of the first outbreak.

It is difficult to capture in words the anger, hurt and sense of betrayal that these nurses expressed in their interviews with the Commission. As one nurse told the Commission:

> They let us go a week with symptoms before they even reacted. I ended up going to my family doctor and exposing everyone in the doctor's office. My family were exposed for a week … It was the hospital not telling us what was going on, and who was giving occupational health the authority to tell us what to do? To me, they should have told us, we're not sure what is going on but you should isolate yourself even from your family until we know a little more of what's going on. But we were doing our routine, daily activities, and here my family was exposed the whole time, …

Another nurse questioned why they weren't given more information:

> … I found it really strange when they were calling every day to find out our temperature and I said, well, why are you calling to find out our temperature, to find out our symptoms, why were they following that close? We normally call in sick and you're left alone and you go back when you're well, unless it's a really extended period. But they were following us in a very discreet manner and not giving us any information … There were a lot of precautions in place from the occupational health department protecting themselves, and so why didn't they pass on that information to us so that we could probably wear a mask at home. Even if they had said, you know what, we don't know what's going on and something bad is happening, wear a mask in your home, stay home, lay low, don't go out in public until we find out further. We'll let you know.
>
> I could appreciate that, because I work in a hospital. It's not far-fetched for me to pick up a disease, that is a hazard at the job. And every single person who works in a hospital knows that. It's not like we were going to panic and do something crazy. I work in an intensive care unit, in the CCU, we cover codes in the hospital. We go to every code, just about, that is called in the hospital. So we're used to high-stress situations. We're used to crisis intervention. That is what we are trained to do. So it's not like we're a bunch of people who are going to freak out and do something really crazy at home. That's not the case.

Another nurse said that even if they didn't know what was going on, it would have been better to have told them they didn't know, and to give what little information they did have, which was that other staff were ill:

> … They know that people are getting infected, and for me to be sent back home and not be accommodated in the hospital, you know, they know that it's already spreading, why would they still send me back home? So in that case, they should at least be up front, be forthright with the staff, and say we don't know what's happening, what is going on, but there is something going on that may potentially affect you and until we guess what it is, be aware and at least you could protect yourself and your family.

Post-SARS, an investigation into the transmission of SARS at Scarborough Grace found that the highest attack rate of SARS occurred in the coronary care unit. The report noted that the cardiac care nurses had a much longer period of unprotected

exposure to all cases, including undetected SARS cases, than staff in other areas such as ICU or ER:

> The highest attack rate among the nursing staff occurred in the CCU (60.0%). This rate is likely due to the intense, close-contact care given the SARS cases in the CCU compared with the shorter contact with patients in the emergency department. In addition, CCU nurses worked more unprotected shifts than the 3 hours of unprotected exposure to a SARS case in the ICU. Although ICU staff provided more close-contact than emergency department staff, it is likely that the shorter period of unprotected exposure in the ICU resulted in a lower attack rate than the ICU nurses than among the emergency department staff.[151]

The CCU did not reopen until the fall of 2003, as too many of its staff had become ill and had not recovered from their illness and many were coping with long-term effects of SARS.

The Commission finds no evidence that anyone in the occupational health department, or any other part of the hospital, including hospital officials, deliberately misled or kept information from their ill colleagues. As noted above, the Commission accepts that hospital officials, occupational health and infection control were unaware of Mr. H's SARS exposure and of the risk he posed to CCU staff who were caring for him. The Commission accepts that the failure to earlier identify the cluster of SARS illness among CCU staff was partly the result of the case definition that required an epilink or contact and of the lack of knowledge that there had in fact been such contact. The underlying failure was the system-wide absence of a surveillance machinery to ensure that all early warning signs were picked up and investigated promptly.

It is critical, however, that the lessons learned at the expense of front-line health workers, such as those whose stories are told above, form the basis for future planning and future responses to infectious disease outbreaks or occupational risks for health workers. As we now know post-SARS, any cluster of illness among staff is cause for alarm, requiring immediate investigation, action and immediate and direct communication with front line workers. Communication must include not only those in the hospital but those at home. Health workers may not know the significance of their own illness if they do not know what is happening within the hospital, for example, a cluster of illness among their colleagues.

---

151. Vaira et al., "Investigation of a nosocomial outbreak of SARS", at p. 291.

Time and time again health workers told the Commission that what they wanted was more communication earlier, including communication with respect to what is happening in the hospital and information on how to best protect themselves and their families even when the risk is unclear.

What is terrifying is the prospect of what could have happened had SARS been a more contagious and efficient spreader. Had SARS been more easily transmitted, the CCU nurses and staff could have spread the much wider. The task of contact tracing, as difficult as it was, would have been enormous and quite likely impossible. As one nurse described the risk:

> Had this been a fast-spreading disease, the outcome might have been very different. I mean it had the potential to spread literally like wildfire because it wasn't contained. It could have been more contagious if it had been more easily caught in the community. If it had been more easily transmitted, this would have been horrific.

As tragic as they were, the consequences of SARS would have been infinitely more serious had SARS been more highly infectious. There is a deep lesson here for those charged with the responsibility of planning for future outbreaks.

Illness on the Front Lines

As more and more staff were identified as ill, they began to arrive at the Scarborough Grace Hospital for treatment. Sick health workers continued to arrive at the Grace. Soon there were not enough negative pressure isolation rooms to accommodate them. Such rooms at other hospitals were also filling up. This created a crisis as patients continued to present at Scarborough Grace Hospital, where there was no safe place to isolate them.[152] During a teleconference involving a number of individuals and the Ministry of Health and Long-Term Care, it was decided that West Park Hospital would open a SARS ward. The Naylor Report described the opening of West Park Hospital:

152. Toronto Public Health Chronology, SARS I.

> On March 23, 2003, officials recognized that the number of available negative pressure rooms in Toronto was being exhausted. In a four-hour period on the afternoon of March 23, 2003, staff at West Park Hospital, a chronic care facility in the city, re-commissioned 25 beds in an unused building formerly used to house patients with tuberculosis.[153]

For those who worked at West Park this assignment proved to be dangerous. One of the heroic nurses who went to work at West Park, Ms. Tecla Lin,[154] died of SARS contracted in the course of her work at West Park. More will be said below about the opening of West Park Hospital and the infection and death of Ms. Lin.

On March 23, the evening West Park, began to admit health workers from Scarborough Grace, nine health workers were admitted to a newly created ward at West Park Hospital. Sick, tired and terrified, these staff members were forced to confront their worst fear, dying of SARS. One nurse described how she felt:

> I remember I was quite upset. I didn't want to go there, because I knew West Park is a chronic care hospital. What I saw of SARS at that point is that you kind of get flu-like symptoms, you get problems breathing, you get intubated and you die. I thought that was my course. I thought I don't want to go over to West Park to die. I wanted to go back to Mount Sinai where I heard they were getting better … I thought I wasn't coming back home again. I had a diary that I had since a young girl and I ripped it up. I wasn't sure who was going to read it, because I didn't think I was coming back home.

As this nurse said:

> You don't realize how much you want to live until you think you're going to die.

Another nurse described the trip to West Park and the fear and uncertainty as they were taken to a strange hospital, to be treated for an unknown disease:

> So at two o'clock in the morning I was transferred via an ambulance bus to West Park along with three other staff members and another patient. I

153. Naylor Report, at p. 27.

154. Because the circumstances of Ms. Lin's illness and death were so highly publicized during and since SARS, she is referred to by name in this report.

> don't know who that patient was in a corner of the ambulance on a stretcher with a rebreather mask and I still have no idea who that patient was and what the diagnosis of that patient was. But four staff members from the Grace were transferred that night to West Park. And it was about 2 a.m. We arrived there at almost 3:00. I think the fellows missed their way a little bit and we got there pretty close to 3 a.m. It reminded me of those old movies from the wartime. You know, when people are bundled into a bus and carted off into isolation or into quarantine … Anyway, it just reminded me of those old movies and it was a horrible, horrible experience.
>
> The bus took me, three colleagues, and a patient, who was on a stretcher in a corner. I've no idea who she was but she looked very ill and she was on a rebreather mask meaning that she needed a lot of oxygen. A rebreather mask is a 100 per cent mask that is put on a patient and the patient will get pretty close to 100 per cent oxygen … And the three fellows that escorted us, they were dressed as though they were going to outer space, like from top to bottom the space suit, and it was just totally foreign.

Other staff, equally frightened, were transported to West Park Hospital by taxi, their only comfort each other:

> We wore masks [both patients and the taxi driver] and we were both in the back seat and it was a great comfort to have someone there, a colleague that I had worked with for several years, to be driven down in that taxi because that experience, being driven down to a part of Toronto that I don't know at all, late at night because by the time we were taken down it was around 11:00, close to midnight. And it's dark, we are both holding this drug in our hands because we had to take another dose of drug with us … So I am holding this vial of drug and thinking what is this drug, what are they giving me here, this is all so sinister. And in that area, being driven to a place that I had essentially no idea where I was going, I had no idea, no clue. It was surreal. I thought I was in another country, another time.

The ill staff were admitted to a previously closed wing of West Park Hospital whose staff were required suddenly without warning or preparation to treat patients suffering from a potentially fatal illness about which little was known.

They too were frightened, unsure of what was happening and the disease they were fighting, but they stayed and worked very hard to help those who were ill. As another nurse told the Commission, when asked how she felt about the care she received at West Park:

> I just wanted to say I am so thankful that anybody came … when you see that people get it so easily and didn't know what was happening … they didn't come in a whole lot but they came … if you needed them they were there and I appreciated that … I think they were very courageous.

In the days that followed as the Scarborough Hospital closed, as a provincial emergency was declared, and as the province fought to contain SARS, front-line health care workers who had become ill struggled to recover and to cope with the trauma of SARS. For those who were the first to become ill, the fear of dying was particularly real, as all they knew were the early cases of SARS, Mrs. K, Mr. T and Mr. and Mrs. M, all of whom had died from the illness. Their fears for themselves and for their families were magnified in their isolation, as they faced them alone and in silence.

One nurse described her isolation, her illness and her fear of dying:

> At the time I was already having all the side effects of the antibiotics. I cannot eat, I keep on throwing up, sometimes I can't go to sleep, and at the same time I was having the Gravol, so it makes me drowsy, and then when I wake up, I can't sleep at night and I'm just watching the clock to pass by. And I was sometimes even forced to go out of the room, because I'm just in that room with only a glass window that I can see, and there's nobody who comes there except my nurse, and the one who x-rayed me, and the one who takes my blood. That's the only person I see. I don't even see anything. And so it was really, really hard for me. And I'm just crying all the time and just thinking, what's going on, and at the same time, I was watching TV, so I could hear all the things that's going on outside, and all the people was dying, from China, Hong Kong, Toronto, everything like that.
>
> So, I just stayed there, and just cried. And I don't know when I realized that I didn't have a shower for 26 days. The room was only a washroom, there was no shower room … I was already thinking will I survive every day, if I'm still going to breathe or not tomorrow, or am I going to be like the same patient that is going to have a tracheostomy or something because I was there for a long time. Even my colleagues, when I told

> them, I can't go home because I still have fluid in the lungs, they're not telling me anything, but they're not telling me that, oh maybe they're going to put a chest tube on you or something. But on my mind is, oh my God, am I going to die now, or tomorrow, like the other people I hear? And I'm just going to be one of the statistics of the probable SARS.

Another nurse described the impact her illness had on her family, especially her children:

> My kids were real scared ... you know, Mom's in the hospital with SARS and you can't see her. I was gone for a week, it was very scary for all of them. And my husband, he was great. I mean, I would have been a basket case if it was reversed, but he was really good, he handled it really well, but it affected him, too. Because when you're upset and when the doctors came in and told me, well now it's on your lungs and you can only talk on the phone. You couldn't see anybody, it was hard because you're scared and you just want somebody to be there with you but you can't.

One nurse who passed SARS to her child described the unimaginable worry and sadness when she learned that her child was to be admitted to hospital and that she would not be able to be with her to comfort and support her because she was hospitalized at the time:

> Answer: So my husband drove her there, just dropped her off at the entrance, the nurse came down to pick her up and brought her to her room.
>
> Question: And once she was in there, were you still able to communicate with her by phone?
>
> Answer: Yes. I was crying so much. That was her hospitalization. There was nobody even to hold her hand and things like that. And she's alone, nobody can visit her. It's good for me, I had another nurse there in my room. But her, she would be just all alone.

Spread Throughout the Grace

As March progressed patients and health care workers moved throughout the Grace, ill with SARS but undetected. The disease spread beyond the initial localized "epicentres" of the Grace outbreak: the emergency department, the medical floor 4D and the ICU. Patients, visitors and staff throughout the hospital had the potential to be exposed to SARS.

Although the Commission is unable to tell the stories of all those infected with SARS during the first outbreak, the stories told below show how the course of the deadly and insidious disease ran ahead of efforts to contain it in a system unprepared for such an outbreak and overwhelmed when it hit.

Mrs. Z

One of the younger people to lose their life to SARS, Mrs. Z, was exposed to SARS through her regular visits with her mother, who was an inpatient in the Grace Hospital. Mrs. Z was a regular visitor from February 20 to March 16, visiting every day and at times spending the night. She began to feel ill on March 17. On March 21, she collapsed at home and was taken to the Grace Emergency by ambulance. She was discharged and sent home. On March 23, 2003, she again collapsed at home. She again returned to the Grace Hospital Emergency Department. Mrs. Z spent the night but was discharged the following day. Her condition continued to deteriorate and on March 26, 2003, she was taken via ambulance to Markham Stouffville Hospital. She was isolated on March 27, 2003, and reported to Toronto Public Health that same day. Mrs. Z died on April 2, 2003. She was 56 years of age.

Mrs. O

Another patient, Mrs. O, was admitted to the Grace Hospital on March 17, 2003, following a hip fracture. She had surgery to repair the hip on March 18, 2003. Between March 21 and March 26, she shared a room with Mrs. W,[155] a patient who had been admitted to the Grace on March 7, 2003, and had remained at the Grace since that time. On April 2, 2003, Mrs. O developed a fever. A chest x-ray on April 3,

155. Mrs. W was admitted to Scarborough Grace Hospital on March 7, 2003, following a fall at home. She developed symptoms on March 22, 2003. Her condition deteriorated and she died on April 26, 2003.

2003, showed infiltrates. She was identified as a possible SARS case and transferred to the SARS unit on April 3, 2003. However, she was not identified to Toronto Public Health until April 8, 2003. Her condition deteriorated and she died on April 11, 2003. She was 86 years of age.[156]

Mrs. U

Another patient, Mrs. U, came to the Scarborough Grace Hospital Emergency Department on March 13, 2003, with an acute myocardial infarct and congestive heart failure. She was admitted to the coronary care unit, where she remained until she was discharged from hospital on March 17. During this time, Mr. H, who had not been identified as a contact of Mr. T, was also an inpatient in the CCU. Mrs. U developed symptoms on March 19. She went to the Scarborough Grace Emergency Department on March 21 with fever, cough, shortness of breath and diarrea but was discharged home. On March 25 she was taken by ambulance to North York General Hospital. She was in critical condition and required resuscitation and intubation in the emergency department. She was transferred to University Health Network, Toronto Western Hospital the following day, March 26. But her condition continued to deteriorate and she died on April 1, 2003, at 78 years of age.[157]

Mr. F

Mr. F is one of the patients whose source of SARS remains to this day unknown. He visited the emergency room at the Grace on March 14. He was discharged home, and returned with a fever on March 17 and on the 19th. He was sent home on both dates. He returned to the Grace on March 20, 2003, at which time he was admitted. His case was not reported to Public Health until March 26, 2003. Although he remained in hospital, his condition deteriorated and he was transferred to the ICU. He died on April 30, 2003, at 73 years of age. Public health officials remain unable to identify the source of SARS transmission to him, whether it was through exposure at the Scarborough Grace emergency department or through his son, who had returned from Hong Kong on March 9, with a febrile illness.[158]

156. Toronto Public Health Case Review.
157. Toronto Public Health Case Review.
158. Toronto Public Health Case Review.

Mr. N

Mr. N was a 75-year-old man who attended the outpatient chiropody clinic at the Scarborough Grace Hospital on March 12, 2003. He developed symptoms on March 19 and was admitted to the Scarborough Grace Hospital on March 22, 2003. His condition deteriorated and he was moved to the ICU on March 23, 2003. When the Scarborough Grace Hospital began to shut down, Mr. N was transferred to Mount Sinai Hospital, leading to the spread of SARS in the ICU at Mount Sinai Hospital. The story of Mr. N's transfer to Mount Sinai Hospital and of the transmission of SARS at the hospital is told later in this report. Mr. N passed away on April 1, 2003. When he died, Mr. N's wife, daughter and son were all hospitalized, suffering from SARS, and were unable to be with him during his last moments. His daughter recalled receiving the devastating news and having to go with her brother to tell her mother of their loss. She recalled the pain of not seeing her father before he died, and the difficulty she had accepting that he was gone:

> It is just that my dad had been through so much and I had been with him night and day and he had to die alone. His funeral was just us, you're upset, you're hurt, you're angry … you have so many questions and you've got that void there, and then your dad dies alone. We couldn't even see him, the coffin was closed. It took me a long time to accept that my dad really passed away, because I did not see him.

Mr. I

While Mr. N was hospitalized, he was visited by a friend, referred to as Mr. I. Mr. I visited Mr. N at Scarborough Grace Hospital on March 22 and 23. He developed symptoms on March 26, and was seen at Markham Stouffville Hospital on March 27, 2003. He was sent home with antivirals and antibiotics and told to stay in isolation. His condition continued to deteriorate and he was admitted to Scarborough Hospital, General Division, on March 30. Mr. I was transferred to the intensive care unit at University Health Network, Western Division, on April 1, 2003. He died on April 5, 2003.[159]

D Family

One patient who was exposed to SARS through the CCU led to the spread of SARS among seven family members, three of whom died. The story of transmission began

159. Toronto Public Health Case Review.

with Mrs. D Sr., who was admitted to Scarborough Grace Hospital on March 12, 2003, after a stroke. Mrs. D Sr. was an inpatient in the Grace CCU from March 13, 2003, until March 16, 2003. While in the CCU she was visited by her husband, her two children, their spouses and her grandchildren. Her family continued to visit her unprotected until March 24. They took turns spending the night. On March 24, 2003, the family recalled, they were required for the first time to wear masks. It was apparent to the family that something was very wrong.

A few days earlier, on the Friday, March 21, Mr. D Sr. had begun to feel unwell. He had gone to see his family doctor and was given cough medicine to combat his cough. On March 23, 2003, ill but unaware he had been exposed to SARS, Mr. D Sr. visited his wife in the CCU at Scarborough Grace Hospital. Later that day, in a visit that was to have profound consequences, he also went to visit his sister at her home. By March 25, 2003, he remained ill. His son and daughter-in-law took him to North York General emergency department, where he remained until he was later transferred to Sunnybrook Hospital on March 26, 2003. He suffered a stroke while hospitalized.

By this time his son, Mr. D Jr., was also unwell. He and his family were put on home quarantine but Mr. D Jr. continued to be unwell. He was admitted to hospital on March 30, 2003. Although Mr. D Jr.'s wife was cleared to go home, as a result of her exposure she had to restart her quarantine.

At the same time that Mr. D Jr. and his family went into home quarantine, his sister also became ill and was admitted to hospital.

Also at this time, Mrs. D Sr.'s brother-in-law had begun to feel unwell. He was admitted to hospital on April 6, 2003. His wife, Mr. D Sr.'s sister, also became ill and was admitted to hospital on April 8, 2003. Their son also became ill and was also admitted to hospital.

In the end, Mr. D Sr.'s brother-in-law continued to deteriorate and he died on April 22, 2003. Mrs. D Sr. died on April 25, 2003. Mr. D Sr.'s sister died on May 12, 2003. Mr. D Sr., having suffered a massive stroke while in hospital battling SARS, was eventually discharged from hospital to a rehabilitation centre. He had suffered significant impairment and post-SARS required 24-hour care.

These cases show how one case, undetected, can spread throughout the hospital. Despite the hospital's and Public Health's belief that SARS had not gone beyond those areas of the hospital where Mr. T had been (ER, ICU and 4D), it had in fact spread further. Unknown to staff, they were caring for patients who had been exposed

to SARS and were ill with SARS and who were therefore treated without adequate safety precautions by hospital staff who themselves fell ill and continued the chain of transmission.

An investigation into the transmission of SARS at the Grace concluded:

> The findings from our investigation provide insight into the mode of transportation, period of infectivity, and the morbidity and mortality associated with SARS. We have demonstrated that transmission can easily go undetected and lead to a significant number of cases in a short period. Even a limited number of undetected cases has important implications for the health care system, as demonstrated by the large nosocomial cluster arising from the 1 index case in our investigation. It is imperative that we remain vigilant in our surveillance activities and maintain strict infection control precautions to contain this new disease[160].

These two obvious lessons from SARS, the need for better surveillance and for better infection control procedures, have been acknowledged by the system. Although some steps have been taken to plug the most obvious holes in our disease defence system, much remains to be learned and much remains to be done.

One of the fundamental remaining problems, discussed in greater detail below, is the failure of the health system to embrace occupational safety as a discipline to be applied at every level of decision making. Prior to SARS most health workers had never heard of an N95 respirator, much less used one. During the early part of SARS, the use of protective equipment was not applied broadly enough or strictly enough, and health workers were not protected. Although the Ministry of Labour has made great progress in occupational safety since SARS, it is still the poor cousin of the health system, still an outsider in the corridors of health power, and still regarded by many medical officials and experts as a source of external annoyance rather than a close and cherished ally in the fight against infectious disease.

160. Varia et al. "Investigation of a nosocomial outbreak of SARS", p. 291.

Closing the Grace Hospital

By March 23, it was clear that SARS had been transmitted to health workers at Scarborough Grace Hospital. At 6 p.m., on March 23, 2003, an outbreak investigation team meeting was held, at which "the conclusion amongst the field epidemiologists and the clinical experts is that some, but not all, of the ill hospital personnel had symptoms that could be consistent with the early onset of SARS."[161]

That evening, March 23, 2003, Dr. Henry advised the Scarborough Grace Vice-President, Glenna Raymond, that the hospital may be facing widespread transmission of SARS amongst hospital staff. She recommended that the hospital consider closing.

As more and more staff became ill, running the hospital became a challenge. Dr. David Rose recalled the crisis that led to the closing of the emergency department and the ICU:

> Over the next couple of days it became more and more difficult to run both the emergency department and the ICU, where there were other staff members ill. I don't think it was on the 23rd, but maybe the 25th or even the 26th, when we made it clear to the officials in the Ministry that we were having trouble staffing our ICU because of shortages of qualified people, it was then that we were told, you can't run your ICU you can't run your emergency department, you have got to close. That was really a terrible moment, because we knew bad things were happening but it was really, you are really in a crisis when you close the emergency department, especially for this kind of reason.

March 23 was an important day. So many things happened; so many pieces of evidence came together and made it apparent that SARS was racing out of control and that strong action was needed. It was now clear that SARS had spread throughout the Grace. Staff, visitors and patients were becoming ill. Later in the evening of Sunday March 23, 2003, in an effort to limit the number of patients and visitors at Scarborough Grace in order to prevent further spread of the illness, the Scarborough Grace Hospital, in consultation with the Ministry of Health and Long-Term Care, closed its emergency department to new admissions, and closed its ICU department with the exception of inpatient cardiac arrest cases.

161. Toronto Public Health Chronology, SARS I.

It had become clear that simply being at the Grace since the admission of Mr. T was a potential risk factor or link to SARS. On March 24, 2003, the Ministry of Health and Long-Term Care in a news release requested that Ontarians with symptoms or with concerns who had visited to the Grace Hospital between March 8 and March 24, 2003, contact public health officials.[162] The net had to widen in order to try to identify all possible SARS cases. But SARS had already spread beyond the Grace and this made case identification and contact tracing even more difficult. As the WHO noted in its travel alert issued against Toronto later in the outbreak, on April 23:

> The latest we tackle a disease, the more difficult it becomes to contain the chain of transmission.[163]

Nothing proves this better than the story of the outbreak at Scarborough Grace Hospital.

On March 24, 2003, not only were the Grace ICU and emergency department closed but the after-hours clinic and non-urgent surgeries were also cancelled. Clinic and outpatient services were deferred, relocated or cancelled. The Grace was closed to new admissions. General visitors were prohibited. Staff movement from unit to unit was to be limited.[164] On March 25, 2003, the Grace implemented restrictions on all clinical services. The Grace Hospital was closed.

No one could say who had been exposed or who was going to become ill. Keeping the hospital open posed too great a risk to the community, staff and patients. But closing a large urban hospital does not happen quickly. No one in Ontario had ever had to close an entire hospital as quickly as possible. Dr. Henry described for the Commission the challenges they faced in closing the hospital:

> Dr. Henry: We realized that we had no way of telling who in that hospital had been exposed, and who of them were incubating this disease, and who of them were going to get ill, and that we need to stop people coming in. And we needed to basically keep the sick people away

162. MOHLTC News Release Communique, March 24, 2003.
163. WHO Travel Alert, p. 4.
164. Memo to all staff, physicians and volunteers, March 24th, 2003, from Glenna Raymond, VP Patient Services and Dr. Atilla Turgay, Chief of Medical Staff.

from, keep everybody in that hospital away from each other, until people either got sick or didn't, over a period of time. So we came up with quarantine based on basically what I had done in Africa during the ebola outbreak, which was wearing masks and gloves and gowns. So Allison [Dr. McGeer] and myself and some of the people who were there came up with a list, these other things that you need to do, and here is how you are going to have to do them. And went to every ward and talked to every nursing group, we talked to the housekeepers, we talked to everybody in that hospital and there was four teams of us, two of us each and we wore masks and we went and we outlined and, it was really difficult, some of the nurses were extremely upset.

Question: Is this after the hospital closed?

Dr. Henry: This was during the period of time, the hospital didn't just close …

Question: It takes a while …

Dr. Henry: It takes a little while because …

Question: This was on the 24th?

Dr. Henry: On the 24th, yes. It was on the Sunday and the Monday that we had done this, because the shift changed, so we had stationed the security guards at the front doors, we locked all the doors, except one for staff, the emerg had stopped accepting patients, so the emerg was closed. We went through with every staff, you have to wear a mask at what times, you can't sit together at lunch, you can't eat together. Every patient we tried to discharge home into quarantine, anybody who could be. We kept anybody who couldn't be discharged home, and we tried as much as we could to get them into single rooms. They were all isolated. They all wore masks whenever a health care worker

was in the room, the health care workers wore masks, gloves and eye protection.

Question: Did you go through every patient in the hospital?

Dr. Henry: Every patient in the hospital, every health care worker, every staff member at the hospital.

Dr. Henry explained that the closure of the hospital was difficult for everyone involved and that the hospital, understandably, worried about the impact on the community:

Dr. Henry: My impression of what happened that Sunday [March 23], but I was actually at the hospital, although I was the one who said we need to do this, and I talked with Glenna Raymond and [the CEO], and Glenna, who is the Chief of the Medical Staff, she has a nursing background, she I think recognized immediately the dangers. The CEO was very, very reluctant, he was very concerned about what this would mean in terms of, not so much the reputation in community, but their ability to serve the community where are people going to go if they're sick if we close. And it took quite a lot of talking, and I had a long discussion with him, several discussions with him saying, this is a risk, anybody who comes into this building, we are now putting at risk, we have to do this, and he had a very hard time with it I think, he asked me what my authority was to do it.

Question: The Ministry was involved.

Dr. Henry: Absolutely, and although I may have suggested it initially, it was not without discussion with [Dr.] Barbara Yaffe and [Dr.] Sheela [Basrur] and the Ministry, who also, I mean the Public Health people immediately supported, they said if this is the situation, then yes, we will support that decision. It took a little while for the hospital people at the Ministry to grasp that this was a key, really, I mean, it was not

> done, ever, that I can think of, in a hospital, and certainly not in recent time. The impact of it, there were 3,000 people that worked at the hospital, and there were hundreds of patients, the impact of it, it was not without great thought that we did this, which is why it took several days to actually get it done.

Ms. Glenna Raymond, then Vice President, Patient Services, was asked to describe from the hospital's perspective the steps that had to be taken, the challenges faced when closing the hospital, and the impact of closing the hospital on staff, patients and the community:

> Well, let me talk first about the process and then share some comments about the impact. Again, through our work with Public Health and the infection control team, we gained an increasing sense towards the end of that week that there had been transmission. The epidemiology trail was still not able to be clear to us about why and where the connection and transmission occurred. We also had, during that week, increasing numbers of staff becoming ill, and therefore had two concerns leading up to the closure. One was to contain the illness and stop any further transmission, and the second was, did we have the resources and staff to provide care on an ongoing basis to new clients and to new admissions. And so the decision for closure was thoughtfully considered from both of those perspectives, And on the weekend, we had the intensive care unit closed to new admissions, and we had the emergency department on consideration for ambulance drop-offs, and so effectively had the emergency staff as well.
>
> We had discussions throughout Saturday with Ministry of Health personnel and Public Health. Again, then on the Sunday the 24th, we had discussions in teleconference with the Regional Office, Ministry of Health, with Toronto Public Health, with our infection control specialist, and recognized Sunday evening in that call that we would need to more publicly, in effect, close off to admissions. And so Sunday night, we began closing down the surgical programs, contacting patients and cancelling their elective surgical bookings. So it was really a phased approach to close off all new activity coming into the hospital. Monday, we met with all of the medical directors, clinical directors throughout the team that managed and met together Monday morning. Spoke to them about closing to any new activity and closing down all activity that

> we could and really minimizing the amount of activity that was going to be continued at the Grace. By closure, again, you have to remember that the hospital was completely closed, and throughout this we had patients who were seeking care. We had staff who were coming in dedicated to care for the patients that remained. That was really how the closure decision was made and how we did kind of a step-by-step fashion to close off these activities. All non-urgent activity, all personnel that were not needed to continue the activity and care for those few remaining patients, were sent home, and so effectively that was how we closed the hospital.
>
> The impact of the decision was, I believe, very thoughtfully deliberated because this is a hospital that has always had a tremendous mission and mandate to serve the community. We recognized that in closing, there would be a gap in care for other conditions, other illnesses, other health needs, that could not be met, and so we were very much aware that closure would have an impact on the community. We recognized as well it would have an impact on patients and their families and gave specific letters to patients and information to visitors about what was happening. We recognized also that it would have a very significant impact on our staff and our physicians, what it would mean to them in terms of their work, their employment, their income, what it would mean to them in terms of, were they at risk and their families. And so the efforts related to closure also included a number of communications sent to all of the various parties of interest.

As noted above, one of the challenges in closing the hospital was the need to continue to provide care for those patients still in hospital, while at the same time ensuring the safety of the community, which resulted in the creation of work quarantine. Work quarantine meant that a health worker was in quarantine but was permitted to come to work. Understandably, the whole idea of the possibility of exposure was a terrifying concept for health workers as they worried not only for their own well-being but for that of their families.

Dr. Henry described the early confusion around quarantine and the fear expressed by health workers. She said that one idea that was considered but rejected was the idea of putting health workers in a hotel or other location so they could continue to work but stay away from their families:

> Many of the nurses were upset, many of them were very upset, but I think it took enough time and I guess some of the confusion, the initial confusion about voluntary quarantine, and we had started this, we had come up with this idea of work quarantine, because we realized that if we sent all of the staff home, the patients were going to suffer and that we aren't going to be able to bring people in from elsewhere, so we created this work quarantine thing, which was the worst of every world, of course, for the staff. Many of them were frightened for their families, their thoughts were not of themselves, but what about my kids, what about my husband, what about my family. So we gave them instructions about what to do at home, what to do at the hospital, and if people weren't comfortable going home, or they couldn't isolate themselves adequately at home, the hospital provided places for them to stay within the facility, we talked about ideas of can we put them in a hotel, but then what about the hotel staff and how is that going to work? And they actually, the staff, through discussions with the senior management at the hospital, didn't want that. They wanted to be protected but they wanted to be able to live. They didn't want to feel confined, so, there was an idea, but they used it in China.

Even now, years after SARS, the illness of staff and the closure of the hospital bring back memories of an event in Ontario's health history that no one thought they would see: the closure of a major urban hospital. Dr. David Rose recalled for the Commission how he remembered the hospital, describing it as "eerie" in the days following its closure:

> … The emerg was closed, there were no admissions, many people, most of the hospital had been vacated, people had been transferred to long term care facilities that were hastily organized, people were discharged if they could be discharged. Many were transferred. Some had died. But there was no replenishing of the census at that point, and the hospital really became very eerie. In fact, I haven't thought of this in a long time either, the physician who I had mentioned earlier who had been looking after [Mr. H] in the CCU and was himself hospitalized for SARS … I went up to see him and I sent him home and he had been stuck in his room for a week, 10 days, during which time, around him, unbeknownst to him and unseen by him, the hospital had become a ghost town, perhaps a bad choice of words. And I said, I remember now, I hadn't thought of this since the day I

> sent him home, saying, "[name], you're going to walk out the door and you're not going to recognize this place." It's a place he worked in basically since the hospital opened. I said, there is nobody here. There might be three or four patients in rooms down the hall or you see a couple of nurses at the nursing station. But everybody is in masks and gowns and it's going to look strange. And he was glad for the warning, because it looked very different to us, it didn't look like a hospital anymore.

Ms. Raymond described the impact of closing the hospital and the uncertainty about what would happen once the hospital closed, and how and when it would reopen:

> For all of us who experienced the hospital closure it was distressing. Particularly in a site like ours, where we had for years been very vocal about the commitment to the community, the loyalty and the long service that our employees have, and there's a connection to the institution and to the community and the things that made us – at the beginning with the outbreak, that connection to the local community, sensitivity to families and those who care allowed us to continue it. Those were also the attributes of staff that made it very, very difficult to envision closing the hospital. What do you mean, closing it? We have to be here, this is who we are and what we do, we're here to serve the community. And so yes, I believe that was a shared experience for everyone. How can we close this? And walking through the halls of a closed hospital, where you're used to walking through a bustle of activity and lots of people coming and going. And personally, when I slept over at the hospital and walked through the corridors, it was quiet, and just the sheer reduction in the numbers of the people coming in and out of the hospital. For those who experienced that, the closure was distressing and I believe it was because, again, for years, you try and engender in the health care workers the commitment to service and the commitment to community, and now you're suddenly saying the complete opposite. And so it was difficult to help the staff understand that closure was the right decision. It was also difficult to help physicians understand that closure was necessary, because of the direction and advice from Public Health and infection control that this was a necessary containment. There was, I believe, part of that stress was for them, thinking, how would it reopen? How would we get back to where we were before? I also remember very clearly at one of the meetings

> where I was talking with staff about reopening and asking for commitment to reopen as to the services, the need to have that in a very slow and deliberate way. I think that was a time when some of the staff realized that yes, we would reopen, but back when the closure was announced there was that sense of complete doom: if we closed, would we ever reopen?

The Commission finds that the decision to close Scarborough Grace Hospital in the face of unknown and widespread exposure was the right course of action in the circumstances. In the face of unknown danger, a strong response such the closure at Scarborough Grace Hospital was necessary to stop the chain of transmission and to protect staff, visitors and patients.

It is a credit to all Public Health officials, the Ministry of Health and Long-Term Care, and all those at Scarborough Grace Hospital that they managed to close the hospital despite not having had the experience of and knowledge from doing so before. This was uncharted territory for everyone involved, and there is no doubt that the task of shutting down the hospital and notifying staff was a huge one.

SARS showed us that the health care system as a whole was unprepared in the event that it became necessary to close a hospital in the face of an infectious disease outbreak.

Communication at the Scarborough Grace Hospital

Prior to March 13, tuberculosis was being investigated for all the T family members. But those staff working on the ICU, seeing the severity of Mr. T's illness, worried that it might be something else. When the second tuberculosis test came back negative on March 13, and it was ruled out, it looked like that they were dealing with something new and unknown, likely an atypical pneumonia imported from Hong Kong.

After March 13, news of Mr. T's death ran through the hospital, as staff talked about the man with the mysterious illness in the ICU. As one health worker told the Commission:

> We were hearing this little buzz around the hospital that this patient passed away with this disease that they didn't know very much about.

She described the information as:

> … just hearsay, around colleagues, nothing official, nothing from the infection control nurse.

On March 14, 2003, the Scarborough Hospital issued a memo to its employees. The memo, from the Vice-President, Patient Services, Ms. Glenna Raymond, and the Deputy Chief of Medical Staff, Dr. Jack Stein, advised staff about Mr. T and the unidentified illness:

> On Friday, March 7th, 2003, a 43-year-old male was admitted to our Emergency Department, Grace Division. He was later admitted to ICU. He died on Thursday, March 13, 2003. This patient was ill with an acute respiratory illness of unknown cause. An autopsy will be done.
>
> The patient's mother died suddenly last week at home with respiratory symptoms. Other family members were admitted to Mount Sinai Hospital, Sunnybrook and Women's College Hospital, and The Hospital for Sick Children and are receiving care and observation in isolation.
>
> At this time, we do not know the source of the illness, but infection control measures are being taken as a precaution.

The memo told staff that the hospital was working closely with Public Health and with local, provincial, federal, and other infectious disease experts. It also contained the following information and instructions, for those staff who had contact with Mr. T:

> Managers of all staff who may have had contact with this patient are advising their staff to report directly to Occupational Health if they or their families are experiencing fever, muscle ache and/or respiratory symptoms.
>
> A Hospital Hotline has been established for staff to give them information about contacting Occupational Health and to allow them to leave voice mails after hours [hotline number provided in memo].[165]

On March 17, the hospital confirmed for staff that Mr. T was ill with travel-related pneumonia and updated staff on the progress of the other family members:

---

165. Memo to all physicians, staff and volunteers, dated March 14, 2003, from Glenna Raymond, VP Patient Services and Dr. Jack Setein, Deputy Chief of Medical Staff.

> We would like to update you on the situation at The Scarborough Hospital, Grace Division.
>
> Health officials confirmed at a news conference late on Friday, March 14, that a patient who was admitted to our Emergency Department, Grace Division on March 7, and died in ICU on March 13, was ill with a travel-related pneumonia. **Other family members are reported to be in good condition at Mount Sinai Hospital, Sunnybrook and Women's College Hospital, and the Hospital for Sick Children.** Our deepest compassion goes out to the family involved. [emphasis in original]

In the same update, the hospital relayed to staff information about the ongoing work of Public Health and the hospital:

> We are continuing to work very closely with our health care partners and all government levels. Toronto Public Health is the lead health official on this situation and has established an information line at [number provided] – the public has been asked to call if they have traveled to Asia recently, had close contact with someone who has traveled to Asia recently, and are experiencing symptoms including sudden high fever, cough, sore throat, and muscle ache.
>
> We have contacted our staff who may have had contact with the patient or his family members in Emergency, 4D Medicine or ICU from March 7-13. Our own Hospital Hotline remains open for staff to provide you with information about contacting Occupational Health. The Hotline Number is [number provided]. At this time, no staff or members of the community have been admitted to either the General or Grace Division related to this outbreak but universal precautions remain in place. All units at both sites are open.[166]

This report came three days after Toronto Public Health officials and Ministry of Health and Long-Term Care officials announced the outbreak, including taking the unusual step of naming the index case. On March 16, media reports had put the total number of Canadian cases at 10, with a new case under investigation in York Region.

166. Memo to all physicians, staff and volunteers, dated March 17, 2003, from Glenna Raymond, VP Patient Services and Dr. Jack Setein, Deputy Chief of Medical Staff. The memo continues to discuss media contacts and provides website information for Toronto Public Health and Health Canada.

In the March 16 media report, the term SARS is used, and the report says that "The World Health Organization issued an alert on the weekend that said the outbreak "is now a worldwide health threat.' "[167]

On March 16 Mr. M was brought to hospital via ambulance. Because his contact history with Mr. T was identified, he was isolated and handled with precautions, both in the emergency department and while in the ICU. It was no secret among staff that they had another case in the hospital. On March 17, Mr. M was intubated and remained critically ill.

On March 18, the Ministry of Health and Long-Term Care sent a letter to all physicians in Ontario, providing information about SARS, including case definitions, symptoms and recommendations for triage and evaluation of cases and isolation procedures and use of protective equipment.

On March 19, the Hospital provided its third memo to staff, since the first memo issued on March 14. In the March 19 memo, the hospital reported the admission of Mr. M, who had come to the emergency department 3 days earlier:

> On Monday, March 17, The Scarborough Hospital admitted into the ICU at the Grace Division a patient suspected to have atypical pneumonia, along with other health problems. At this time, no staff or other members of the community have been admitted to either the Grace or the General Division related to this outbreak. Both Emergency Departments are busy but all units at both sites remain open with universal precautions still in place. We continue to monitor staff and patients who may have had contact with the original patient or his family members.[168]

In the same memo, the hospital repeated that it continued to work with outside agencies and explained that information is constantly changing:

> Our Infection Control team has been meeting daily since March 12 regarding this situation. Since then, we have also been in daily contact with the other affected hospitals and local, provincial and federal healthcare officials. Due to the number of agencies involved and the nature of

167. CBC News, "Ontario reports new case of severe respiratory illness", 16 March, 2003.
168. Memo to all physicians, staff and volunteers, dated March 19, 2003, from Glenna Raymond, VP Patient Services and Dr. Jack Setein, Deputy Chief of Medical Staff.

> this outbreak, information about its cause, and about the number of people affected and their condition, is constantly changing. We are committed to providing you with the most accurate information as soon as it becomes available to us through organization-wide emails and regular updates to managers.[169]

This memo reported to staff that some of their colleagues were experiencing symptoms but then went on to add that information from external sources suggests the outbreak may be quieting down:

> We would like to remind you that our Hospital Hotline remains open if you need information about contacting Occupational Health. The Hotline Number is [number provided]. A few staff members have reported experiencing some symptoms and they are being followed closely by Occupational Health.
>
> External health officials are beginning to cautiously suggest that the outbreak is quieting down. However, Toronto Public Health continues as the lead health official, asking members of the public who have traveled to Asia recently, had close contact with someone who has traveled to Asia recently, and are experiencing symptoms including sudden high fever, cough, sore throat, and muscle ache to call the Toronto Public Health hotline at [number provided].[170]

The March 19 memo did not provide any information with respect to case definitions or recommended isolation procedures and precautions for staff. It did not provide any details with respect to ongoing efforts at contact tracing and how, and by whom, potentially exposed staff were being tracked and monitored. The word "SARS" was not used and no definition of the word or any explanation about the illness, its source, clinical presentation, or possible treatments, was reported.

In contrast, media reports over the previous few days were growing in number and content, as international and national attention to the crisis grew. The word "SARS" was being reported in the press, as media stories attempted to report whatever infor-

169. Memo to all physicians, staff and volunteers, dated March 19, 2003, from Glenna Raymond, VP Patient Services and Dr. Jack Setein, Deputy Chief of Medical Staff.

170. Memo to all physicians, staff and volunteers, dated March 19, 2003, from Glenna Raymond, VP Patient Services and Dr. Jack Setein, Deputy Chief of Medical Staff.

mation was available about the illness and its origins. Based on media reports, the problem seemed to be getting worse, not better. For example, on March 17, the *Globe and Mail* reported that many reported cases occurred in health workers:

> The WHO said the disease is spread from person to person, but only through close contact. Many of the reported cases have occurred in health workers involved in the direct care of others who may have had the disease, or in people who have had close contact with cases, such as family members.[171]

A March 18 news article reported that the number of cases were growing, including those in Ontario, as it reported that the disease had spread to the doctor who saw the T family, but that the cause of SARS was not known:

> Public health workers around the world are on alert as they try to come to grips with a severe new form of pneumonia.
>
> It's called severe acute respiratory syndrome or SARS and so far it's killed at least nine people, including two Canadians. The problems is no one knows what's causing the illness.
>
> The World Health Organization says SARS is a global health threat that is affecting more than 150 people. Most of the cases are in Hong Kong, China and Vietnam. However, eight of them are in Canada. In Toronto, a woman with the illness passed it on to her husband and three adult children. She and one son have since died. The doctor the family consulted also became ill.[172]

Another news report issued on March 18 reported that "internationally, 90 per cent of the people who've contracted SARS are health care workers."[173]

On March 19, Health Canada reported Mr. M's case, noting that the case had moved from suspect to probable SARS:

171. The *Globe and Mail*, Labs race to identify mystery illness, by Allison Lawlor, March 17th, 2003.
172. Globe and Mail Update, Health experts search for cause of severe pneumonia outbreak**,** 18 Mar 2003.
173. Globe and Mail Update, Mystery lung illness likely viral: health experts**,** 18 Mar 2003 11:06:22

> Dr. Gully announced the number of probable SARS cases in this country has risen to nine. One patient in Ontario who had been categorized as a suspected case has been shifted into the probable column.
>
> The man became infected after spending 12 hours in an emergency department room near a patient who later died of SARS. He is in stable condition in hospital.[174]

The news report reported that the number of cases in Canada continued to rise:

> That brings the total number of probable and suspected Canadian cases to 12. There are eight probable (including two deaths) and one suspected case in Ontario, two suspected cases in Alberta and one probable case in British Columbia.[175]

By March 19, the hospital had issued three memos to staff, each containing relatively limited information. The word "SARS" was not used until March 20, and even then did not include a clear description of the symptoms and case categories as they were known at the time.[176] The reports made no reference to the potential risk of exposure posed to staff, did not detail recommended procedures for contact with suspected cases, and did not convey in any detail the ongoing steps by Public Health and the hospital to identify sources of infection and track down patients, visitors and staff. Based on the memos to staff, the outbreak seemed relatively confined. It is easy to see why many staff reported that their main source of information was the media and the internet in the early days of SARS. As one nurse said:

> The Scarborough Grace Hospital had a system of email to give us information but the information given was generic. All the information I obtained I got from TV and radio.

174. *Globe and Mail*, "Health Canada issues travel warning", 19 March, 2003.
175. *Globe and Mail*, "Health Canada issues travel warning", 19 March, 2003.
176. Although the clinical symptoms and case definition were constantly changing, health officials had defined the categories of suspect and probable and had identified symptoms associated with the illness. As noted above, a March 18th memo to physicians in Ontario provided information about the case definitions and symptoms, as well as recommendations for triage, material disposal, isolation and personal protective equipment for staff.

One nurse recalled raising the issue to hospital officials after the outbreak was over:

> When we met a few months later, I said, I have a concern with the dissemination of information at our hospital because whenever there is an influenza, whenever there is some sort of outbreak in the nursing homes or other hospitals, we have little memos printed up on our desk and sometimes quite a few, to alert us to the fact that there is something going on in the community. And I said there was absolutely nothing about SARS. We didn't even know the symptoms of SARS. We knew nothing about SARS. We just knew that it was some sort of contagious disease.

Another problem was that hospital staff did not have access from home or anywhere outside the hospital to internal hospital emails and correspondence. This meant that staff who were not working, in particular those staff who were at home ill in March before the illness among staff was identified, were unaware of what was happening inside the hospital. Their source of information was the media and the Internet.

This is not to suggest that the hospital was deliberately hiding information or deliberately failing to report information to staff. This period of time was, without a doubt, marked by confusion and uncertainty. Information constantly changed and there were many unknowns. And hospital officials, including infection control and occupational health, were working very hard to try to understand what was happening and to identify the contacts of Mr. T. As one nurse said, the information was coming from all directions:

> I think they [the hospital] were extremely bombarded, I can only imagine how difficult this would have been to set up. I think they did the best with what they had. I think it was pretty good, but I think when the information was dwindling down to the front line, to the front-line staff nurse level, I think that could have been better.

The problem was that for those front line staff not in the meetings and at teleconferences and briefings, the main source of information was what the hospital or the press told them. As each day passed, more and more information was being disseminated publicly. When compared to hospital memos, the media reports provided more information and presented the problem in a more serious light. As hospital officials attempted to understand the outbreak and to clarify the unknowns, staff were learning about SARS through the press. Staff repeatedly told the Commission that they wanted to know what was happening, even if it meant telling them that something was not known.

An example of effective communication during SARS can be seen in the leadership of Ms. Wong. As the Commission interviewed staff involved in SARS, one of the things that emerged from the story of the Scarborough Grace Hospital was the consistent praise and regard for Ms. Agnes Wong. Even those nurses who became ill with SARS conveyed their respect and admiration for their manager and spoke of her leadership and support during SARS. Nurses said that she did everything she could to make sure they were informed, even if the answers were not always known.

Ms. Wong is most known for her role of reporting events in Hong Kong and China to infection control and physicians involved in the care of Mr. T, the index case at Scarborough Grace Hospital. But she was also commended to the Commission by staff time and again for her excellent communication and leadership during SARS. As one nurse told the Commission:

> I think without her it would have been a disaster, worse disaster.

When asked what about Ms. Wong's management could serve as a lesson to others, this nurse said:

> You have to meet her. She's very quiet and very unassuming. And she's got a lot of knowledge, but she doesn't push. If you're an experienced nurse, she'll take what you say. And she had read up enough about it. And she communicates well. She's very shy. She's not a real big people person, but what she comes out with, she will have a meeting and within 20 minutes she'll have that meeting on the books. She's just very organized.

Another nurse described the constant communication provided by Ms. Wong:

> She was educating us on what was going on, because there were so many different meetings that were occurring downstairs in the boardroom and we didn't know what was going on, and she was updating us. I knew she had spent hours and hours in meetings. She was great. If she wasn't there to keep it together for us I don't know what would have happened. She would never lie to us. She would tell us how things are as far as she knew. She would just come back from one of those meetings, it was with several different hospitals and Public Health and whatnot and she would come directly from that meeting to talk to us about everything that was discussed. And she is still our manager. Thank God.

Another ICU nurse described the communication as follows:

> Agnes was absolutely excellent and she couldn't have been better, I don't think. She kept us very informed. Every day they had a meeting and every day she would come back and inform us of what little, or even if she had no information, she would come back and she was very communicative with us.

This is not to detract from the hard work and efforts of other managers at the Grace. But the accounts of health workers in the ICU reveal that the difference between effective and ineffective communication may be found in the frequency and the amount of information provided. As the ICU nurses pointed out, they never felt that something was not told to them, and they felt that if something happened, whether it was clear or unclear, they would know about it. The trust and open communication meant the difference between lingering anger and questions about whether they were being told what was really happening.

The problems with communication continued to grow, as staff became ill and the crisis became more serious.

As noted above, on March 19, the hospital reported to staff that there were some staff members who had reported experiencing symptoms of atypical pneumonia. On March 20, the hospital reported: "Occupational Health continues to follow staff members who have reported experiencing some symptoms."[177] On March 21, the hospital reported to staff:

> We are continuing to follow staff members who have reported experiencing some symptoms. We would like to remind you that the confidentiality of our patients is critical and we have a responsibility to respect and protect their privacy. To that end, it is very important that we do not release any information about patients or coworkers who may be experiencing symptoms.[178]

A March 22 memo repeated the earlier messages, that staff were reporting experiencing symptoms but that they were being followed:

177. Memo to all physicians, staff and volunteers, dated March 20, 2003, from Glenna Raymond, VP Patient Services and Dr. Jack Setein, Deputy Chief of Medical Staff.
178. Memo to all physicians, staff and volunteers, dated March 21, 2003, from Glenna Raymond, VP Patient Services and Dr. Jack Setein, Deputy Chief of Medical Staff.

> Occupational Health continues to actively follow staff who have reported experiencing some symptoms, particularly those who are contacts or have been in areas that are more impacted by this illness. The Hospital Hotline remains open at [number provided] for anyone who would like more information. Specifically, we would like to remind anyone experiencing a fever to contact Occupational Health as soon as possible.[179]

What staff did not know was that on March 20, an investigation team was coming to the hospital to investigate reports of staff illness. As of that evening, there were 13 staff members who had reported ill. By March 22, 16 staff members had reported ill. Dr. Henry's notes of that day provide a glimpse into what was happening at that time:

> Saturday morning we also had an increasing number of staff members who reported ill and by the end of the day Saturday, the count was at 16. It took us much of the day Saturday to obtain information about the clinical status of the cases and to obtain the blood samples and nasal farangeal swabs requested. We had a team meeting approximately 6 pm that evening and reviewed all of the reports that we had. It became clear between the two field epidemiologists, three clinical people Dr. David Rose, Dr. Allison McGeer and myself that some people clearly had an illness that could be early onset of SARS while other had other upper respiratory tract infections that included such things as nasal congestion and a cold or other illnesses such as a tooth absess in one case.[180]

On March 23, the hospital reported to staff that it had been confirmed that a number of staff were in the early stages of SARS:

> As our work to track and investigate SARS continues, public health officials today confirmed that a number of our Grace Division staff are in the early stages of this illness. As a result of this new information, public health officials are currently assessing the isolation capacity of other hospitals in the GTA. We are also doing extensive tracking of coworkers

179. Memo to all physicians, staff and volunteers, dated March 22, 2003, from Glenna Raymond, VP Patient Services and Dr. Jack Setein, Deputy Chief of Medical Staff.

180. Summary of the Events of the SARS Outbreak on April 11th, 2003, by Dr. Bonnie Henry, Associate Medical Officer of Health, Toronto Public Health.

> of these staff members in our continued diligent efforts to contain this illness.

The hospital also reported to staff that the ICU was closing as well as the emergency department. What was not clearly communicated to staff was the fact that there was widespread transmission throughout between staff at the hospital and that there were more ill staff than the hospital could accommodate. The situation was dire.

By this time staff working in the Grace knew that things were serious. They knew colleagues who were ill, had seen some of them come into the emergency department, and they knew that the number of sick staff was growing. But they had no idea how many staff were sick, from what areas, what exactly was done to protect those who were ill and those who were still working. At this point there was no reference to precautions in the updates. The use of precautions in all areas, with all patients, would not start until March 25. In the meantime, as noted earlier in this report, staff were confused about the level of protection they should be using and when they should be using protection.

One nurse who worked in the emergency department during this time period said that as staff were coming in sick, they had no idea how bad the problem was or how many were sick. This nurse was shocked to report for work on May 23 and learn that six colleagues were ill:

> We're still just hearing rumours. We didn't know what was going on. We decided on our own to wear masks. We didn't know what was going on. And the next thing I remember is I showed up for work on that Sunday morning [the 23rd] the day we closed … we had I think a few sick calls, people that obviously were coming down with SARS and we didn't know it, and we were always a bit short-staffed, but that was an unbelievable, to be six nurses short, we've never been like that.

The above-quoted nurse said that the information came from rumours and guessing and that they had no idea what was going on.

Many staff interviewed by the Commission reported that even when the hospital closed, they were not notified of what was happening and learned about events through the news. For example, one nurse recalled working on Monday, March 24, and being at home off work during that week, unaware that her colleagues were ill. She said that although there was a fan-out system in the hospital, no one contacted her:

> No one from management had told us that our fellow colleagues were getting ill? I went home on the Monday morning … I never once received any information from management during that time, from the Monday to the Wednesday. I heard everything on the news. Not once did they initiate, we have a thing called a fan-out program, so if there's a crisis, say there's a plane crash or something major, major, they initiate a fan-out and the fan-out says, okay, person closest will be called first, they then call the next person and it goes down the list so that you can get all the staff into the hospital that can come to deal with that crisis. They didn't even issue that. They could have had the unit clerk or management could have initiated the fan-out to say something like, please listen to the news, we have no further information, any shifts that you are booked to come in for you are to come in for. They didn't do any of that.

As the hospital struggled to respond to the outbreak, the communication demands could not keep up with the changing environment and all the unknowns. The problem was that information was being reported in the public domain and, whether it was right or wrong, it became the source of information for health workers. The hospital, through its desire to understand what was happening and to report what was known, often lagged behind the press reports or the rumour mill in the hospital. Rather than constant communication, telling staff very clearly what was known, what was unknown, and what exactly was happening, the memos in the early days of SARS did not convey the efforts, concerns and hard work on the part of Public Health and hospital officials as they attempted to better understand the illness. Although privacy concerns were important, staff had no idea how many sick colleagues there were, where they were, and how they were doing. They did not know what precautions were being taken in what areas, and what was being done to ensure that they were safe. Although safety of staff and patients was clearly a priority for the hospital, this was not conveyed to staff through detailed accounts of what was happening.

This is not to suggest that another hospital could have done better or that all the lessons of SARS, including the lessons for future communications, should have been clear at the time. It is easy to look back and pick apart communication and suggest ways for improvement, particularly at a time when the day-to-day crisis has passed. The Commission is mindful of the fact that more so than any other hospital, Scarborough Grace was learning as it went, and struggling to respond and adapt as information changed daily and at times hourly.

Between March 14 and March 31, 2003, it issued 14 emails, updating physicians and staff as events progressed. Despite the criticisms of some about the insufficiency of

the content or the amount of information they received, the hospital did try to keep staff informed and it cannot be said that the hospital did not attempt to communicate with their staff or that they remained silent.

But as will be seen time and again throughout SARS, the lesson from SARS is that communication with staff is key. Staff want to be informed of what is happening, even if the answers are unknown or unclear. Staff must have access to information whether they are at work or at home.

Fear, Uncertainty and Courage

One of the obvious strengths of the SARS response, seen time and again through the story of SARS, was the fact that health workers continued to come to work, even in the face of uncertainty and fear. It is difficult to imagine the impact of SARS on the front-line health workers at the Scarborough Hospital during the early part of SARS. Imagine the fear and uncertainty of going to work every day, worrying you might get sick from an infectious disease and, worse, you might bring it home to your family; of going to work every day as precautions and policies constantly evolved, leaving many to wonder if they were safe and if the experts making these decisions really knew what they were doing; of going to work every day and wondering if there was something new and horrible about SARS that was not yet known.

One of the ICU nurses who contracted SARS said she could not imagine how difficult it must have been for those nurses and other health workers who had to stay behind and work with SARS patients:

> Not that I was glad that I was sick, but I can't imagine how the nurses that worked there after, because, not that we were lucky to be sick in the beginning, but how it must have been so taxing on them to know you can get it so easily and then you're home with your family and stuff and just to be wondering every day, are you going to get it? Not that we're glad we got it early, but to know that you can get it so easily and to be working in that stress on a continuous daily basis, and they had to wear those masks. I heard during break they'd sit as far apart from each other, and always wearing their masks, and that must have been a real bad ordeal for them. It took a toll on everybody, I guess.

One emergency room nurse who worked the week of the 24th described seeing all the sick staff try to do the necessary work while wearing precautions:

> We were calling people in, seven people at a time, so that's what the secretary was doing. We'd get a fax up from occupational health saying these are the next seven people that have called us. So we would call them and they would all come in. We had seven rooms, only one of them was negative pressure. They were just seven private rooms. And we put them all in the rooms. Basically, there was four of us, two of us started at room one, two of us started at room seven, and we just worked towards the middle. One person was inside the room, called the dirty nurse, they were in there with the patient, and the other nurse was the clean nurse, on the outside. We were wearing goggles at that point. We now had the goggles and the hairnets and the gowns and the gloves and the masks. And then the one nurse inside did all the blood work and the IV and handed everything to the other nurse on the outside that sent everything to Public Health. I remember it was a lot of blood work because we had to take blood samples for, I think it was Atlanta needed some, Winnipeg needed some, and Public Health needed some, so we were taking about 10 vials of blood from these people.

She said that during this time infection control was doing their best to try to educate them and ensure they were protected:

> Our infection control nurse had been showing us to make sure that you pinch the nose [of the N95 respirator]. I think we were all fairly aware of our infection control procedures, and how to take off the mask and how to take off the gloves. They actually went over that with us when we first came in, when was it back on that Tuesday [the 25th], Wednesday [26th], Thursday [27th] … When I came in on the Tuesday [25th], we were given a piece of paper, the infection control nurse was there and she was reminding us all on how to put the mask on properly, how to take them off properly, in what order to do it, when you take the gloves off, when you take the masks off, and how to wash your hands, we did a hand-washing thing as well. She was around to remind us of the proper isolation techniques.

Another emergency room nurse described the fear of going into the room of a SARS patient and the unbearable conditions that came from wearing the mask for long periods of time:

> It was extremely fretful and frightening. The patient that I personally looked after was my assigned patient who had SARS. Going into her room was very frightening. My heart was pounding. My respirations were increased, sweating. The gown was hot, and I remember when the specialist was done, she had already been on life support, but we needed to place a new line, intravenous line, central lines, and once the lines are placed you have to stay in the room to reconnect the intravenous lines to the new line, and then you'd have to stay there and wait for the x-ray to be done to make sure the line was in the right place. And then you have to tidy up the patient, and you'd have to make sure she was turned every two or three hours, and you had to go in to give medications, and give her treatment, and make her comfortable. And I remember with this patient, myself and another colleague, it took us hours just to look after her, and then we'd take turns going in, and when we put the lines in the first time I remember we were in the room for more than an hour and a half trying to get her sorted out.
>
> And at one stage we couldn't see. I'm sure we were hypoxic because we were breathing the same air through the mask, and we had to stop and come out, and go outside to take some fresh air, and come back in again while someone watched her. So it was very awesome, awesome in the sense of frightening, and you know, a lot of apprehension and anxiety. I had a lot of headaches, and I remember I had marks on my nose, like a sore, from the mask because we were wearing, by this time we were wearing masks all the time. We couldn't be within each other's vicinity, we had to be so many metres away from each other, we couldn't sit at the same area at the desk, the staff. And we were always wearing the mask, and I ended up having a lot of migraine headaches.

She said that they found support in each other, but constantly worried they would become ill like so many of their colleagues:

> At times we felt claustrophobic, so you knew your limitation, and so you would just come out, take a break, and tell our colleagues what's happening so that we could cover each other. We were very supportive of each other. We had to be, and you know, understanding was very evident at that time, and that helped a lot each other knowing that we knew what the dangers we were in, and we just prayed to God that if we took precautions that the hospital provided, and that we used them every moment that we were there, it would protect us from getting sick

> ourselves, because we had friends, colleagues, in the unit who were all sick, and they were sick from SARS.

When the hospital closed, staff were required to isolate themselves from their families, until they had passed their 10-day incubation period. The above-quoted nurse described the hardship of isolation:

> And then we were told that we had to be isolated at home from our families, for 10 days, because by then we had SARS thing in the hospital, and so they were concerned that we didn't bring anything home to our families … So I spent ten days away from my husband and my children, and I couldn't sit with them and watch TV, or do anything together; so that was also very distressing.

She said that they felt isolated and alone, as they had to avoid family and friends and sensed mistrust and suspicion from others:

> We felt that we were not cared for enough from the public, and people were mistrustful of us, and I remember the vice-principal at my youngest child's school called one day to say was it safe for my son to come to school, because they knew that I was a nurse. And some people were suspicious of us, and didn't want to have anything to do with us, and I didn't allow any of my friends or my children's friends to come to our house, and I didn't allow them to go to their friends' house, and there was minimal contact with anyone. We felt alone, in general, because of this experience. I didn't want to endanger anyone else's life, so we kept to ourselves for a long time, until the thing was less rampant. It was difficult, the loneliness, and isolation, and the uncertainty also, and wondering whether you'd get it because you had been in the thick of things, and if you would bring it home to your family.

One emergency room nurse who cared for ill staff as they came in for assessment the night of the 23rd and in the days that followed, tried to convey the agony of seeing ill colleagues and the uncertainty of what would happen:

> To watch this unfold, I don't have vocabulary to express it. Just thinking about it has been difficult. I think you can't comprehend, especially SARS I, how scary it was at that time because we had no idea. As we were shipping these people out to West Park and we are gloved, gowned and masked and you are reaching to touch these people not knowing if you

> will ever see them again, helping them get onto the bus, all we knew in the media was that people were dying. They probably had no idea what they were facing either. In my nursing career I have never faced anything so frightening. Looking back, I think at the time because we were tired and we were working, because it was so surreal you didn't have the opportunity to absorb it. That's when the nightmares came. The going in circles, the questioning, did we do it right, could we have done it better?

The above-quoted nurse told the Commission that they had to care for colleagues with whom they had worked only days earlier, all the while wondering if they would be next:

> Some of the people ill were people I worked with … so I had to go in and treat and care for them and keep their spirits up when I had no idea if I would be the next patient.

Another nurse who worked in the emergency department and worked with SARS patients said that all the unknowns made working scary:

> It's scary because you hear a lot of news going on. You don't know what's happening, you don't know what kind of illness. You don't even know if the treatment is right.

Dr. Sandy Finklestein, when asked what went right at the Scarborough Grace Hospital during SARS, said one thing that went right was that staff continued to come to work, even though no one had all the answers:

> The staff only because of the type of work we do, providing care, came to work for the most part, and continued to provide care for as long as they were able. I believe very few staff just didn't show up, I know a few who did not, but the vast majority just came to work. They were scared, they were worried about what was going to happen to them and to their family, and because of the lack of information we were getting, it was impossible to answer questions in the hallway. I couldn't walk 20 feet in the hallway because, I'd hear there are more people sick, is it spreading here, what do we need to do, what should I tell my family? All the impossible-to-answer questions.

One of the above-quoted emergency room nurses, who later worked at the Scarborough General site, described the challenge of working in full precautions as the weather began to grow warmer:

> The problem with working at the General is they didn't have air conditioning and May was very hot, and at one point we had to double everything, we had to, when you were in emerg, you had to wear your gown, you had boots on your shoes, you had to wear your gown, your gloves, your mask, your goggles and your hair hat; every time you dealt with a person, you had to put another layer on, you had to put another gown, another gloves and the visor on over top of what you were wearing, so you had to do double protection for people. It was very uncomfortable. I remember we had a cardiac arrest and I ended up being the one that was doing the chest compressions and I had never been so hot in my entire life, thinking, how did I manage to get this job? I want to be the recording nurse that has to stand there and write, not the compression nurse. You're just sweating buckets, it was unbelievable.

One Scarborough General nurse who cared for patients during SARS kept a journal of her experiences. One journal entry, recorded towards the end of the SARS outbreak, provided:

> I went to a code blue on a SARS unit and I had to wear the full spacesuit and face mask and shield. Very scary. And the impact has hit the city hard. Tourism has suffered. The world has become a very small place. We knew that disease was only an airplane flight away. I'm writing at work, my mask is very hot and it's itchy and it's 1:45 a.m.

The front-line health workers who came to work every day in the face of fear, uncertainty and confusion displayed a courage and dedication to helping others that is humbling to all Ontarians. We owe them a debt of gratitude and must ensure that they are never put in the same position again and that the system is better prepared to respond to the next infectious disease outbreak or health emergency.

Supporting the Ill

As health workers became ill and were hospitalized throughout the GTA, they were isolated, scared and alone. Some health workers post-SARS said that they felt a lack of support while hospitalized. Some health workers reported that they did not receive

any contact while hospitalized, and that their only source of support was each other and their families, with whom they could only communicate by telephone. And, while this was not the experience of all those who became ill, it is important to acknowledge those who felt lost and alone, isolated from their families, friends and colleagues.

One nurse described her experience to the Commission:

> No, I don't think I heard anything from anybody from work, and actually when I came back to work, people were saying that they were having a hard time getting in contact with me, kind of thing, just because of confidentiality. I didn't know my name was blocked from the hospital so the only people that knew my phone number in the room was my parents. They were the only people that I called. Some of the nurses were saying they were trying to call or they weren't allowed to talk to me.

A universal theme among health workers interviewed by the Commission, among both those who became ill and those who remained well, was that they were worried not only for their own well-being but for their colleagues'. Those nurses and other health workers interviewed by the Commission said that they desperately wanted information about how their friends and co-workers were doing. But they were not told how many were sick, who was sick, where they were and how they were doing.

As one nurse who was hospitalized for SARS told the Commission:

> There was so much confidentiality that nobody knew unless one of my friends told them and staff didn't know and there were people that we worked with at the Grace who didn't even know I was off because they all were in quarantine and they didn't even know that I was off or that I had it or anything. They were really upset by that. Some of them found out ages later, phoning, profusely apologizing for not at least calling me and saying hello while I was in hospital, but they didn't know I was off with it. And I don't think that's the right way. I mean, I understand some people maybe didn't want other people to know but I haven't got that feedback from anybody who that actually had it [SARS]. Word of mouth was that we all felt very isolated because of that.

Much like communication, a feeling of being cared about and supported during their illness had a huge impact on the way ill health workers looked back on their experiences during SARS.

For those health workers who were ill, any support that was given was greatly appreciated. Many health workers cited the Chaplain at The Scarborough Grace Hospital as someone who provided much-needed support and comfort during their hospitalization and after:

> I think the one person that really stood out as being so supportive was our chaplain, Jim Ellis … He was just phenomenal. He would call us even when we're in hospital and just say, are you having a good day, bad day? How are you? And he would try, with other people's permission to talk about how our co-workers were doing. He would say, do you mind if I … he would share information so that we had a sense of community and he just really kept us updated on what was happening within the hospital. He was a real, tremendous support. If anybody deserves a badge in all of this, it's him and his wife.

The ICU nurses expressed gratitude that Dr. Finklestein and Dr. Rose came to see them. And some health workers from the Scarborough Hospital volunteered to work at West Park, to help care for their own. Information about how colleagues were doing was passed back and forth through these informal, but important channels. As one nurse said:

> Some of our colleagues, I know, from day surgery and the outpatient department had gone to help out as well. And I know some of our doctors, Dr. Rose had gone to visit the girls, and he updated us as to what was going on as well.

A nurse who was hospitalized at Ajax Pickering spoke of the kindness and caring shown to her by the nursing staff:

> The nurses at Ajax Pickering who came in in the morning and helped me wash and brushed my hair and sat with me and talked with me until my breakfast arrived. Made sure I was okay and then they'd go off. Then if they had a break, would come in and sit and do the crossword puzzle with me. You just absolutely never felt bad when you were there.

While hospital concerns about privacy and confidentiality were important and cannot be minimized, thought must be given to how to support staff in future outbreaks, in the event some should become ill or need to be quarantined. While there were clearly restrictions on access to health workers who were ill, for legitimate and appropriate reasons, people like the chaplain managed to find ways to navigate within the bound-

aries of privacy and confidentiality and yet provide support and communication. Identifying and implementing ways to network staff and to link up those staff who want to be in touch with others, ensuring there are regular calls from management, even if there is nothing new to say, even if the call is simply to ask how someone is doing, cards, letters and other messages, all mean so much to someone who is isolated. One of the lessons of SARS is the importance of ongoing contact and support, so that health workers who have sacrificed so much are not left feeling alone, isolated and forgotten.

Contact Tracing and Losing the Epilink

Even with the closure of Scarborough Grace Hospital on March 25, 2003, public health officials still worried about where else the disease might be. They knew there were thousands of contacts and they did not have the resources to track every one down and to contact everyone immediately. They knew that patients and ill contacts may have entered other hospitals, either through transfers or admissions. The net had to widen beyond the Scarborough Grace Hospital, since no one knew how far SARS had spread. As Dr. Henry told the Commission:

> I think we considered it officially closed on the 25th. The 25th is when all staff had been notified, but it was a process over time. And we had put in place a whole bunch of measures that we thought would stop this disease, no matter what, whether it was airborne, or droplet, no matter what it was. And we were really criticized for being too draconian, for putting in too much, for making people do things that were too, you know, changing your masks and gloves and gowns between every patient, was too onerous, it couldn't be done, so it took a lot of hand holding to get people through that. And we didn't know at that point, it was basically you put in everything that you think is going to help, and then you wait the incubation period and you see what happens. So that was what we were doing.
>
> Having said that, at the same time, people are still starting to get sick, people are getting sick from the whole incubation period, were starting to get more and more and more people who were ill. If we looked back on it, the number of people who were actually ill that we hadn't found yet would be several hundred, by the time we actually put in place the control measures. The other difficult thing was the division of labour. Who was going to follow the people who are on work quarantine, which

> the hospital was going to do, and Toronto Public Health was going to follow people who were on home quarantine and all of the people who had been anywhere near that hospital for the 10 days before the 25th. It was in the thousands, we had about 5,000 people that we needed to follow up with. So that was a huge burden in what we were doing in Public Health.
>
> After that time, there were a couple of things, so around the 25th, it was clear to me that there was a huge number of people, in the thousands, who had been exposed at some point, during either contact with the family, or contact with the hospital. And they were going into emergency rooms all over the region, they were going into North York, they were going into some of the hospitals in York Region, they were going into hospitals in Durham, they were going into Scarborough General, they were going into the downtown hospitals, and that was, on the 26th I think, it was, when Ernie Eves made the public announcement that he was declaring an emergency …

The reality is that by March 26, 2003, Public Health officials could not identify all possible SARS contacts and no one knew how many SARS cases had yet to be identified. SARS was running ahead of the attempts to control it.

Dr. Bonnie Henry's notes of the outbreak convey how the crisis was growing each day and revealed the need for a strong response:

> On Wednesday, March 27 I returned to TPH to help establish our system for contact follow-up and case management that cases were increasing in number at approximately 8-10 per day. During that period of time a number of other emergency departments across the city, particularly North York General, Markham Stouffville Hospital and Mt. Sinai hospital and Sunnybrook hospital were being flooded with emergency patients that may have symptoms of SARS, particularly health care workers from Scarborough Grace or people who had been at the Scarborough Grace during the risk period. In addition, Scarborough General the other Scarborough hospital had received a number of Scarborough Grace patients with symptoms of SARS that had overwhelmed their Emergency Department. During that day as well we strongly encouraged the provincial government to declare a public health emergency as it was becoming clearer to Toronto Public Health and myself in particular that this was spread beyond the borders of the City of

> Toronto and would quickly overwhelm our system if we did not put in severe control measures very quickly.[181]

On March 26, the Premier declared a provincial emergency. More will be said about the declaration of emergency below. SARS was moving beyond a local outbreak and it was outside the capacity of an individual health unit to manage.

Also on March 26, 2003, the Provincial Operations Centre issued a directive to all acute care hospitals in the Greater Toronto Area. The directive set out the precautions that had to be taken for staff and patients, as well as restrictions on visitors, volunteers, and the transfer of patients. The directives also required that each hospital establish a SARS-specific isolation unit. The implementation of precautions and strict infection control proved to be the most effective tool against SARS: as precautions went up, SARS cases went down. Again and again during SARS this proved to be true. We will see, tragically the converse was also true; when precautions were relaxed in early May, SARS sprung up at North York General Hospital.

After the emergency was declared, the discovery of an unrecognized case of SARS at York Central Hospital and at Mount Sinai Hospital would further stretch public health capacity and increase the number of potential contacts. As Dr. Henry's notes show, things were getting worse before they got better:

> Over the next week resources were brought into the Provincial Operations Centre to help oversee the outbreak at the TPH level. The number of cases that were occurring again was at approximately 10 per day and the case management and the contact management was becoming extremely difficult and new resources were sought from within TPH. This unrecognized case of SARS who was on retrospect febrile in the cardiac care unit at Scarborough Grace hospital accounted for transmission to 50% of the CCU staff as well as a number of other patients on both 3D and the CCU. A third patient was identified in the ICU of Mt. Sinai hospital. This person had only casual contact with the Scarborough Grace hospital where he had been at a chiropody clinic the week before. He was assessed by clinicians including Dr. Rose and Dr. McGeer at Scarborough Grace and was not felt to be a SARS patient and was thus transferred to the ICU at Mt. Sinai without precautions.

181. Dr. Henry's Summary of SARS.

> This person accounted for transmission to at least 4 staff members at Mt. Sinai hospital.[182]

As the number of possible contacts grew, the problem of losing the epilink or being unable to trace back all of the contacts would plague public health officials in both SARS I and SARS II. As noted above, many contacts were never identified or contacted by Public Health prior to becoming ill. For example, by April 1, 2003, there were 124 SARS cases identified in Toronto. But full contact information had been gathered on only 60 per cent of the cases.[183] The April 2, 2003, minutes of the SARS Science Committee revealed that they knew that all contacts might not have been discovered and that the absence of a contact history or travel did not necessarily rule out SARS if a patient presented with SARS symptoms:

> Given that a) there may now be spread into the community and that there may be no contact history, b) that appropriate barriers should always be used for respiratory cases and that c) physicians are potentially "frontline" for detection of new community cases – we do not agree that "without contact history or travel exposure the likelihood of SARS is negligible…"[184]

This was one of many thoughtful observations made by members of the Science Committee during the course of the outbreak about the problematic nature of the case definition, particularly the requirement that before a patient with SARS symptoms could be diagnosed with SARS there must be an epilink such as known contact with a known SARS patient or travel to a known SARS risk area such as Hong Kong.[185] In hindsight such observations leap off the page and compel the obvious question whether the epilink was too narrowly defined. Common sense might suggest that a patient with SARS symptoms in a hospital with SARS cases was at least as likely to have SARS as someone who had just returned from Hong Kong. But being a worker or patient in a SARS hospital did not meet the rigid epilink requirement for a SARS classification.

---

182. Dr. Henry, Summary of SARS.
183. April 2nd Minutes of Epi and Science Group.
184. April 2nd Minute of Epi and Science Group.
185. An even earlier recognition of this problem appears in the prescient diary note made by a member of the Science Committee as early as March 30, 2003:

> Problem of case definition: are we missing things because we insist on travel or contact; What about syndromic surveillance? . . .

But if presence in a SARS hospital had been recognized as an epilink, or even if there was some commonsense leeway to permit a SARS diagnosis by an experienced clinician, it is obvious that alarm bells would have gone off much sooner at crucial times, particularly in the lead-up to the belated discovery in late May that SARS had been spreading undetected at North York General Hospital.

All those unaware that they had contact with SARS, some of them ill and contagious but without direction to quarantine themselves continued about their daily lives, exposing their families, friends and other members of the community. Some, like Mr. H, returned to hospital and were admitted, exposing entire units of health workers to SARS. And as officials would soon realize, some exposed and ill patients had been transferred out of the Grace to other hospitals, where they spread the outbreak even further.

The Struggle to Contain the Outbreak

By the end of March it was clear that SARS had spread into Toronto hospitals. But no one was certain where it was or how many people had been exposed to it. A March 29, 2003, news release from the Ministry of Health and Long-Term Care offered this cautionary advice to hospitals:

> All GTA and Simcoe County hospitals must assume the possible presence of SARS within the hospital and take necessary precautions.

As April unfolded, health workers valiantly battled the disease on the front lines. Infectious disease experts and other medical experts attempted to provide science-based advice to those working on the front lines, on a wide variety of topics including infection control, isolation techniques, protective equipment, diagnostic criteria, incubation periods, screening protocols, discharging patients and high-risk procedures. At the same time, medical officers of health and public health staff tried to trace and quarantine contacts, monitor those under quarantine, follow those discharged from hospital and, where necessary, provide advice and direction to hospitals and other health care providers.

On March 26, 2003, the first SARS Assessment Clinic was opened at Women's College campus of Sunnybrook and Women's College Hospital. These clinics screened those persons who reported experiencing SARS symptoms and/or those who reported having had contact with a SARS case, so they could be screened with-

out having to enter a hospital. More assessment clinics were established in April.[186] This marked a coordinated, broad-based effort to identify SARS cases prior to them entering hospital. It also meant more people could be screened faster, without tying up resources of emergency departments.

Notwithstanding all the unknowns about SARS,[187] many of the lessons from Scarborough Grace and other incidents of transmission were being learned by the Science Committee. The work of this remarkable group of experts was invaluable to the containment of SARS. For example, contrast the handling in April of the Centenary Hospital transmission and closure with what was done in the early days of SARS. On April 5, 2003, following the identification of the unprotected exposure of Mr. S, Mrs. S and the other S son at the Centenary Hospital, the Science Committee identified the following necessary steps to be taken:

- Centenary Hospital is functionally a Category three hospital and is closed immediately;
- All transfers and discharges from the time of initial admission (March 26th subject to verification) must be traced as the number one priority. Emergency, the floors that they were admitted to and Diagnostic areas (including pathology) will be the focus of the initial circle of tracing. [Name provided] will work on tracking transfers and discharges.
- Staff should not cross-over.
- The hospital needs to survey their patients for SARS symptoms on a ward-by-ward basis immediately.
- The staff is on working quarantine as per policies developed for York and SG
- Diagnostic films from March 26th should be reviewed for pulmonary infiltrates as the initial stages of syndromic surveillance.
- A SARS Response Team must be brought in immediately (see attached Recommendations for the development of an Outbreak

186. April 1, 2003, Markham-Stouffville; April 2, 2003 Lakeridge Health Centre in Oshawa; April 3, 2003, Trillium Health Centre in Etobicoke.

187. For example, April 4th Minutes of Science, Epidemiology and Executive Meeting note "Pressure points for the Science Group still remain and further investigating the unknown cases (i.e. no known risk factor as yet), the incubation periods, case definition refinement and linking the epi data with the laboratory data. Transmission in hospital and in home are priority studies as this information is needed for immediate policy development and resource planning."

Control Response Team). [Name provided] role will be to act as the medical coordinator for all the hospitals' response teams.
- The ambulance workers involved in the transports need to be contacted as soon as possible and assessed for symptoms.[188]

What is troubling, however, is that response plans and outbreak management teams and policies had to be developed on the fly, as things developed. Ontario's health care system had been caught unprepared. As the Commission noted in its first and second interim reports, Ontario did not have a pandemic plan. The Science Committee had to make it up as they went along, with some help from the British Columbia Pandemic Plan.

In addition to responding to immediate day-to-day needs and crises as they developed, those working in the Science Committee had the difficult task of focusing longer-term needs as well as considering worst case scenarios. Minutes of the Science Committee from the first few days in April identified these tasks:

JY sees three main tasks for the committee:
- quick opinion on policies as the need arises
- protocols and policy development for the "longer" term …[189]
- planning for future scenarios (blue sky) – this planning should be done relative to where we are now and relative to the capacity of the health-care system. The most immediate planning should be for expansion into the community.

As part of the "blue sky" thinking, the Committee had to identify possible scenarios. Among them, they identified not only the risk of spread in the community, but also the possibility of "widespread community spread with significant morbidity and mortality."[190] In the latter scenario, they concluded: "the GTA and/or Ontario would act as the world epicenter potentially."[191] The scenarios included the following terrifying possibility: "Must consider the possibility that this is not controllable – that there will be an endemic event and herd immunity would eventually

188. April 5, 2003, notes of the Ontario Scientific Advisory Committee.
189. This is an excerpt from the minutes. The full bullet goes on to detail how JY will translate directives and route they take through gvt. The latter portion reads "JY then translates for the gvt, keeping in mind available resources and current public policy. In other words, he acts as the 'filter'. Where there is disagreement, he had agreed to inform us as to the rationale. In addition, the final policy that goes out will then be brought back to the group to maintain confidentiality".
190. Blue Sky Continued: Scenarios for the Community (document of the OSAC)
191. Blue Sky Continued: Scenarios for the Community (document of the OSAC)

develop."[192] This statement reflected the uncertainty the experts faced, in respect of where the outbreak was going and whether it could be contained.

By April 7, 2003, the Science Committee noted that there had been no known transmission at the Grace Hospital since detailed infection control procedures had been put in place.[193] While there had been secondary contacts in hospital workers developing SARS, there were no new cases in the hospital itself.[194]

By April 8, 2003, many hospitals were off Code Orange status and surgeries had resumed[195]. In Greater Toronto Area hospitals, volunteers were back and visitors were permitted (one per patient)[196]. The goal was to move towards hospitals in the Greater Toronto Area resuming elective admission and surgeries.[197]

In the days that followed, the outbreak appeared to be coming under control, and the science committee was able to focus less on immediate outbreak management and move towards refining policies and addressing outstanding issues.[198] It appeared that the immediate fires had been put out. Little did anyone know that it would soon rekindle, but this time the epicentre would be North York General.

Recovery and Reopening

The impact of SARS on the Scarborough Hospital, particularly the Grace Division, was immense. The hospital remained closed for almost three months. The emergency department opened on June 5, 2003. On July 18, 2003, the hospital moved to a Level 0 status, which meant it had no cases of SARS and could return to normal activity.

Ms. Raymond told the Commission that reopening was even more difficult than closing and that it had to be done in a very careful and gradual manner:

192. Blue Sky Continued: Scenarios for the Community (document of the OSAC)
193. April 7th Minutes of the Ontario Scientific Advisory Committee.
194. April 7th Minutes of the Ontario Scientific Advisory Committee.
195. April 8th Minutes of the Ontario Scientific Advisory Committee.
196. April 8th Minutes of the Ontario Scientific Advisory Committee.
197. April 8th Minutes of the Ontario Scientific Advisory Committee.
198. April 8th Minutes of the Ontario Scientific Advisory Committee.

> Reopening was actually harder than closing. You might not have thought so but again, during reopening, I was very conscious that we wanted to be sure that we were reopening with the utmost attention to vigilance and also the utmost attention to the level of service that we were going to provide. I was aware that we had had an extended period of limited resources, that our staff were tired; some were ill and not back to work. So we wanted to be sure that we reopened in a very gradual, phased-in way. We had several discussions with the focus on the level of service that needed to be provided around infection control and treating individuals. We had several discussions about the patient experience, and we were aware that we had to rebuild community trust in the institution and wanted to be sure that patients felt comfortable coming back, were well received, were well cared for, but with attention to what we were terming now the new normal, and to be sure that we weren't just introducing services or reopening services the way they were before, that we were also adding in that extra attention to infection control and screening. So we had a general reopening.
>
> We had an external audit. We first did an internal audit, to make sure ourselves that we believed we were ready to reopen, and then we had an external audit to verify from an independent, external expert – actually, it was a team of three people who came to review our practices – things we had in readiness to verify that we were ready to reopen. We went through that process before we reopened anything and then once we passed that audit we knew then that we were meeting 100 per cent standards that were expected at the time from the advisory group on infection control, and had reintroduced first outpatient activity and then slowly new admissions, so we would be back up to full program … [It took] several weeks. The final outpatient activity opened first. We did not want to reopen the emergency department until the physical facility changes had also been made. We also had several weeks before we were able to open intensive care because of the staff impact, and so for a period of time we reopened ICU and CCU as a combined critical care, and we were not up to full complement until several weeks after the reopening. Some programs that had been combined during the outbreak, maternal child care and mental health, both were on a different timetable for reopening than other programs … Mental health was also delayed by several weeks.

Staff who had become ill struggled to recover from SARS. Many returned to work but some were unable to go back and even today, three years later, have lingering

health problems as a result of their illness. And for many of those who were ill, even years after SARS is over, the memories of SARS bring back a time of fear and uncertainty. One nurse who contracted SARS described the long-term impact of SARS:

> Because what I went through with SARS, and what my family went through, was devastating. I had no idea that I was going to experience all the after-effects from SARS that I did. I had no idea what I was in for when I was being discharged. Everyone thinks you're discharged, you're well, you go home. But, there's a second hurdle that you have to face, and that I was not prepared for that at all. When I came home and I looked at the faces of my husband and my two daughters, I realized what they went through in the two weeks that I was hospitalized. They were drawn and gaunt and pale and worried, and my husband sits at the edge of my bed and he says, you know, I thought you might die. I said, you honestly thought I might die? He said, yes, I thought you might die. And that really grieved me. That hurt my heart, that my family went through that.

Post-SARS, many nurses say that the experience of SARS, terrible as it was, brought them closer together and that it strengthened the relationships between doctors and health workers. As one health worker said:

> I think given, the information we were not given, the circumstances we were put in and what we had to work with, I think that the nurses went well beyond any expectations of trying to cope. Physicians as well, especially the early physicians who came to emerg. Dr. Finklestein recognizing and getting that patient isolated started the ball rolling. There's a cohesiveness between the physicians and the nurses over this too, there's a change in the relationship there, as well. I think, the 20 per cent that never got what we do, are getting it now. The majority do get it. The majority know which side the bread's buttered on. The majority know they're only there for 30 seconds, I'm there for 12 hours. If you want to know what's happening with a patient, ask me. So there's a change in that relationship, again for the better. I think we see their perspective better and they definitely see ours better. The team effort, going from site to site. We've only been amalgamated as a facility for four years and there was still all that "we and they" and all that kind of stuff. SARS has brought us closer together. We're working more as a team we're actually the Scarborough Hospital, not just the General or the Grace. We're actually coming together.

One nurse said that she hoped that everyone learned lessons from SARS and move forward better prepared for the next health emergency or infectious disease outbreak:

> I think we're hoping that there will be something good come out of it. We don't want blame. I don't think anybody wants blame, because nobody really knew at the Grace what was happening. And I think a lot of information didn't get passed on because people were just hoping that it was only the Grace that was affected at the time. I just think we need to know that if it ever happens again there's going to be some kind of help.

Vancouver: A Tale of Two Cities

Introduction

On Friday March 7, 2003, within a three-hour period, two middle-aged men with undiagnosed SARS, one in Vancouver and the other in Toronto, were admitted to hospital. Though outwardly similar events, the outcomes were poles apart.

At 4:55 p.m. (eastern time), Mr. C, a 55-year-old who had just returned from an Asian trip, was taken by ambulance to Vancouver General Hospital, the province's largest and a major teaching institution. No SARS outbreak resulted. B.C. would have just four probable cases: Mr. C, two other Vancouver residents who had been exposed to SARS in Hong Kong, and a nurse who was the only case of local transmission. No other nurse, physician, respiratory therapist, cleaner or other B.C. health worker caught the disease. Nor were there any deaths. B.C. did have 46 suspect cases, but they were of a different magnitude than Ontario's 128 suspect cases.[199]

199. Suspect cases in B.C. had generally been to countries with SARS, had respiratory symptoms, and were treated as having SARS as a precaution. None was exposed to SARS in B.C.; none transmitted the virus.

Dr. David Patrick of the B.C. CDC told the Commission:

> It's an interesting thing that case definition, as it evolved and that's the case almost with any epidemiological investigation of an unknown thing that you remember that suspect cases were people who had specific symptoms who had either been a contact with somebody who is, you know a probable SARS case, or somebody who was coming in from a place where SARS was known to be transmitted at a relatively high level, now back to probabilities, if you have a suspect case who's been in contact with somebody who actually has the virus, well they have a reasonable probability of, of coming down with it, that was a large proportion of the suspect cases in Toronto, they'd been around, around a case and maybe they had a little bit of fever, or something like that, and they could well have come down with a, with the full thing. Almost all the suspect cases in B.C. were people who had simply come from south China or somewhere in the vicinity, and within a specific timeframe developed fever or other non-specific symptoms, and of course people are going to do that, but when you think about it, there's orders of magnitude difference in the probability than actually having, having SARS. That was a lesson for us in terms of, you know, how we categorize suspect cases, because we, we saw you know, a newspaper article saying, now Vancouver has 60 cases of SARS where they are just adding up suspect and cases under investigation and, and the few real cases that we had, so we had an economic whack, more out of communications then anything else.

Almost three hours later, about 4,500 kilometers to the east, a vastly different set of events was set in motion. As noted earlier in this report, at 7:45 p.m. (eastern time), Mr. T, a 43-year-old who had been looking after his dying mother, presented to the ER at Scarborough Grace. The ensuing public health crisis brought Ontario to its knees. The province ended up with 247 probable cases. Almost half were nurses, physicians, respiratory therapists, cleaners or other health workers. There were 44 deaths, including two nurses and a doctor.[200]

Vancouver is a useful point of reference for Toronto's response to SARS.

While many of the circumstances in Toronto and Vancouver were different, they also faced strikingly similar challenges, challenges that confronted them at virtually the same time. Like Toronto, Vancouver tackled SARS in the beginning when experts had far more questions than answers. This was before the disease was identified, before it was named and before anyone knew whether it might spark a pandemic.

Despite similar challenges, the outcomes in Toronto and Vancouver were vastly different.

How could the experiences of the two cities be so unlike? Was it luck? Better planning? Better safety culture? Better public health? Better communication? Better systems? Better surveillance?

This chapter will tell the story of how Vancouver contained SARS and Toronto did not.

By providing a contemporaneous comparison, this story will extend beyond this chapter and resonate throughout this report. As the historian Jan T. Gross has said:

> The best sources for a historian are those that provide a contemporaneous account of the events under scrutiny.[201]

200. Dr. Colin D'Cunha, presentation to the SARS Commission, SARS Commission Public Hearings, September. 29, 2003.

201. Jan. T. Gross, *Neighbours: The Destruction of the Jewish Community in Jedwabne, Poland* (Princeton, NJ: Princeton University Press, 2001).

The Events of February 2003

In the months leading up to SARS, some members of the Chinese community in Vancouver had begun hearing about a mysterious disease outbreak in Guangdong, and had started buying surgical masks.

> Some of my customers were asking me if I can get the masks for them to send overseas for the family who live there, a Vancouver pharmacist [told the CBC].[202]

Health workers in Vancouver with ties to China had also heard of worrying events in the Far East. Dr. Tom Lee, then medical director of the emergency department at Vancouver General, said:

> Actually I was there [in Hong Kong] at Christmas for a visit and reading in the Chinese newspaper there's all sorts of activity in southern China that were being reported.

Health officials in B.C., meanwhile, were systematically monitoring developments in China. They had long been preparing for the possibility of an influenza pandemic. In 1999, mindful of the outbreak of H5N1 avian flu in Hong Kong in 1997, British Columbia set up a pandemic influenza advisory committee. On the eve of SARS, in February 2003, the committee's work culminated in the release of B.C.'s pandemic plan. At the time, Ontario did not have a pandemic plan, and the federal plan was still in draft form.[203]

Dr. Danuta Skowronski, an epidemiologist at the B.C. Centre for Disease Control (BC CDC), told the Commission:

> We began working on the plan through our BC Pandemic Influenza Advisory Committee in 1999 and I distributed it in February 2003, soon after it had been approved provincially, because of the reports I was hearing coming from south-east Asia about a cluster of severe respiratory illness in China and resurgence of H5N1 in Hong Kong. It turned out

202. "Behind the mask,"CBC News Online, November 19, 2003.
203. SARS Commission, first interim report, pp. 39-40.

> that the cluster in China was not influenza (it was SARS) but when we heard about simultaneous resurgence of H5N1 and cluster of severe respiratory illness in China, we didn't want to take any chances. We alerted the health care system through electronic bulletins and distributed our pandemic plan – recognizing it would be an evergreen work in progress and it was best to get it out sooner than later.
>
> We wanted the field to have a plan, defining roles and responsibilities during a pandemic, just in case. At the time, we didn't know what it was, but we believed that, either way, a plan outlining what to do in the event of widespread community outbreaks of severe respiratory illness due to a novel virus, was needed and the framework for pandemic influenza planning would serve as a useful guide.

While pandemic influenza is different from SARS, Ontario learned first hand that a pandemic plan can be a useful tool when combatting a new disease. As noted in the Commission's first interim report, B.C.'s plan played an important role in the early days of SARS to prepare contingencies in case SARS spread widely in the community.[204]

Unlike Ontario, where the system for communicating threats to the health system was fragmented, B.C. had an effective means of alerting its health system:

---

204. See SARS Commission, first interim report, pp. 39-40:

> . . . Dr. Young met with the Science Committee, a quickly assembled ad hoc committee of experts, on the morning of April 2, 2003, and asked Committee members to prepare scenarios for the possible expansion of SARS into the community. The minutes reflected Dr. Young's concern about the possibility of community spread and his request for the committee to plan quickly for such an occurrence:
>
> > Planning for future scenarios (blue sky) – the planning should be done relative to where we are now and relative to the capacity of the health care system. The most immediate planning should be for expansion into the community.
>
> One British Columbia member of the Science Committee suggested to fellow Committee members that Ontario's pandemic flu plan be used for this and other purposes, and was more than surprised to learn that Ontario did not have a pandemic flu plan:
>
> > I was shocked. In fact, I said well let's just use the pandemic flu plan and everybody looked at me and there was no pandemic flu plan. And so . . . I just got somebody to e-mail the B.C. pandemic flu plan over.

> An electronic distribution system was established to regularly disseminate communicable disease bulletins to healthcare facilities across the province.[205]

Alarmed about reports from China, the BC CDC used that electronic distribution system to issue its first alert on February 20, 2003, requesting,

> … enhanced vigilance for severe influenza like illness in returning travelers from mainland China or Hong Kong or among their close contacts.[206]

One expert at the B.C. Centre for Disease Control told the Commission:

> … we were fairly predisposed to react to an emerging respiratory threat out of Southeast Asia. And when we heard of this avian influenza identification in Hong Kong in early 2003, February 2003, we were predisposed to respond. And we were fairly twitchy about that. That avian influenza first emerged in 1997 and it was, in our minds, the next pandemic candidate or threat.

Alerts were repeated on February 24 and February 28.

A medical study said these alerts,

> … noted both avian influenza and a mysterious outbreak of atypical pneumonia in Guangdong Province in southern China. These alerts for BC clinicians, infection control practitioners and public health authorities called for enhanced surveillance and for infection control measures with respect to patients presenting with unusual influenza-like illness after returning from Hong Kong or China.[207]

---

205. D.M. Skowronski, M. Petric, P. Daly, R.A. Parker, E. Bryce, P.W. Doyle, et al., "Coordinated response to SARS, Vancouver, Canada," *Emerging Infectious Diseases* (January 2006). Available from http://www.cdc.gov/ncidod/EID/vol12no01/05-0327.htm (Skowronski et al., "Coordinated response to SARS).
206. Skowronski et al., "Coordinated response to SARS."
207. Dr. David Patrick, "The race to outpace severe acute respiratory syndrome (SARS)," *Canadian Medical Association Journal* (April 17, 2003).

The Events of March 7, 2003

While the BC CDC was closely monitoring developments in China and issuing its first alerts, Mr. C and his 54-year-old wife were in Hong Kong. They stayed on the ninth floor of the Metropole Hotel during the pivotal third week of February, 2003. The physician who unwittingly carried SARS from Guangdong was also there at the same time. So was Mr. T's mother. From Hong Kong, Mr. T's mother returned to Toronto, where she became ill and passed the disease on to her son.

Mr. and Mrs. C, on the other hand, left the Metropole to visit Bali in Indonesia, where they each developed a fever and were seen by a physician. When they returned home to Vancouver on March 7, 2003, Mrs. C appeared to be on the mend. But her husband was so ill they went directly from the airport to their family physician. The physician sent him by ambulance to the emergency room of Vancouver General. He also called ahead to alert staff that a very sick patient would be arriving.

Mr. C, who was "at the cusp of his peak infectious period," [208] presented at Vancouver General's emergency department at 4:55 p.m. (eastern time).

Unlike at the Scarborough Grace Hospital, opportunities for spread were quickly limited even though Vancouver's emergency department, like Scarborough Grace's, was busy that Friday afternoon. Dr. Lee, an emergency department physician at the Vancouver General, recalled:

> The Emergency Department was very full. A lot of admitted patients in the department and quite a number of patients wait out at triage.

Within five minutes, Mr. C was isolated in a single bed in a curtained examination cubicle, where beds are 2.5 metres from each other.[209]

Dr. David Patrick, Director, Communicable Disease Epidemiology, B.C. Centre for Disease Control in Vancouver, told the SARS Commission:

> The early exposures that had occurred in Toronto were essentially headed off by that single act of an emergency room physician.

208. Skowronski et al., "Coordinated response to SARS."
209. Chronology provided by Division of Medical Microbiology and Infection Control, Vancouver General Hospital.

The difference between how the index cases at the Vancouver General and at the Grace were handled does not reflect negatively on the physicians, nurses and other health workers at the Grace. Rather, as will be outlined in this chapter, the physicians and nurses at Vancouver General benefited from a number of systemic advantages that their colleagues at the Grace did not have.

While Grace physicians and nurses had no warning about events in China, emergency room staff at Vancouver General were fully aware of the BC CDC alerts, and were actively looking for unexplained fevers and respiratory ailments in patients who had been in Asia.

The Naylor Report credited the BC CDC alerts with helping to prevent further spread:

> … the BC CDC's dissemination of that information was probably responsible for the prompt isolation of the first SARS case in Vancouver. Alerts were also issued by local and provincial public health officials in Ontario, but uptake was apparently inconsistent.[210]

Recalling the events of March 7, 2003, Dr. Lee said:

> I actually started my shift at 3:00 p.m. [6 p.m. eastern time] that day. My colleague … was on duty in the day time and first thing she talked to me about was that we have this Asian man just got off the plane from Hong Kong with a high fever and a cough. And we were watching for actual avian flu, believe it or not. It was a number of years ago because there was some circular from B.C. Centre of Disease Control, I believe in February, saying there are some cases of atypical type activity flu and so we were on the watch out for it. And [she] assessed this patient with high fever and respiratory symptoms and findings on X-rays just so, bilateral changes so it's not a typical pneumonitis. So she was concerned that it could be possible avian flu.

At about 5:10 p.m., or roughly 15 minutes after he was admitted, Mr. C was placed on "full respiratory precautions."

210. The Naylor Report, p. 93.

Dr. Elizabeth Bryce, head of Infection Control at Vancouver General Hospital, said:

> Respiratory precautions meant the use of an N95 respirator until the clinical condition was clearer.

N95 respirators were not standard respiratory protection at the Grace, and were not used by staff who treated Mr. T.

This was a significant systemic advantage for Vancouver General. Its emergency department staff were already protected by the kinds of respirators that would not become standard protective equipment in Ontario until weeks later. The ICU at Vancouver General had used N95 respirators for a few years. Fortuitously, the emergency department also began using them some months before SARS hit.

Dr. Bryce said:

> We had used N95 respirators in our ICU for quite a few years, probably starting about 2001 and, in fact, that was the only respirator or mask available to them. We just recognized that we were a high-risk hospital for TB and we had just had too many inadvertent exposures. So that was in use regularly and then [in ER] … we switched over to the same thing about five, six months before SARS.

What also helped to prevent further spread was Vancouver General's robust infection control and worker safety culture and systems based on a precautionary approach.[211]

---

211. Mr. Justice Horace Krever has said:

> Where there is reasonable evidence of an impending threat to public health, it is inappropriate to require proof of causation beyond a reasonable doubt before taking steps to avert the threat. As an editorial in the *American Journal of Public Health* in May 1984 put it:
>
> > The incomplete state of our knowledge must not serve as an excuse for failure to take prudent action. Public health has never clung to the principle that complete knowledge about a potential health hazard is a pre-requisite for action. Quite the contrary, the historical record shows that public health's finest hours often occurred when vigorous preventative action preceded the crossing of every scientific "t" and the dotting of every epidemiological "i".

Address by the Honourable Horace Krever, International Joint Commission, Great Lakes Science Advisory Board Workshop, Methodologies for Community Health Assessment in Areas of Concern, Windsor, Ontario, October 4, 2000.

When dealing with an undiagnosed respiratory illness, health workers at Vancouver General automatically go the highest level of protection and then scale down as the situation is clarified.

This approach was based on a view of how respiratory illnesses spread that was regarded as unorthodox by some in 2003, but has gained currency since SARS.[212]

As one expert at Vancouver General told the SARS Commission: "We're the heretics."

The more orthodox view on how respiratory illnesses spread revolves around the so-called one metre rule. According to its proponents, there is clear distinction between diseases spread by large droplets, which they contend travel not more than about one metre from the infected person, and those transmitted by tinier airborne particles which can travel much farther. If a disease is droplet spread, health workers were advised to use a surgical mask within about a metre of the infected person, which some refer to as droplet precautions. If, on the other hand, the disease is spread by airborne particles, then they were told to use airborne precautions involving the use of an N95 respirator.

Worker safety experts suggest that it is rare for a disease to be spread purely by droplet alone.[213]

---

212. See Dr. Annalee Yassi and Dr. Elizabeth Bryce, "Protecting the faces of healthcare workers: knowledge gaps and research priorities for effective protection against occupationally-acquired respiratory infectious diseases" (Occupational Health and Safety Agency for Healthcare in BC; April 30, 2004); A. Yassi et al., "Research gaps in protecting healthcare workers from SARS," *Journal of Occupational and Environmental Medicine* 47 (2005): 41-50; J.L. Derrick et al., "Protecting healthcare staff from severe acute respiratory syndrome: filtration capacity of multiple surgical masks," *Journal of Hospital Infection* 59(2005): 365-8; National Academy of Sciences, *Reusability of Face Masks during an Influenza Pandemic* (Washington, DC: National Academy of Sciences, April 2006); I.T.S. Yu, Y. Li, T.W. Wong, et al., "Evidence of airborne transmission of the severe acute respiratory syndrome," *New England Journal of Medicine* 350 (2004): 1731-9; Chad J. Roy and Donald K. Milton, "Airborne transmission of communicable infection — the elusive pathway," *New England Journal of Medicine* 350 (April 22, 2004); T.F. Booth et al., "Detection of airborne severe acute respiratory syndrome (SARS) coronavirus and environmental contamination in SARS outbreak units," *Journal of Infectious Diseases* 191 (2005): 1472; Tommy R. Tong, "Airborne severe acute respiratory syndrome coronavirus and its implications," *Journal of Infectious Diseases* 191 (2005):1472.

213. See Bob Janssen, MSc, ROH, Senior Policy Analyst: Policy & Research Division, WorkSafeBC, "A Scientific Review – the Influenza Pandemic: Airborne vs. Non-Airborne Transmission and Considerations for Respiratory Protection" (WorkSafeBC: December 2005) (Janssen, "A Scientific Review").

Dr. Annalee Yassi, who heads the provincial Occupational Health and Safety Agency,[214] told the Commission:

> When people are coughing or sneezing, it is always never purely droplet spread. It is droplet spread that is at least aerosolized in certain circumstances, and if health care workers feel more protected wearing an N95 when someone is coughing and sneezing, then why not.

Dr. Bryce said:

> We feel it is very difficult to tell at the beginning in some illnesses, in some cases, exactly what the person has and we feel that droplets can be aerosolized and there is a gradation of risks and where that stops.

As a result, said an expert at Vancouver General,

> … we always start with the highest level of precaution … we don't use droplet precautions in our hospital, never have because we've always believed that droplets have been aerosolized so we only have one category, that's airborne, and you always start with the highest level of precautions and then as the clinical situation becomes clearer, you step

214. See http://www.ohsah.bc.ca/321:

> The Occupational Health and Safety Agency for Healthcare in BC (OHSAH) was conceived in early 1998 in an Accord between management and union representatives. The Accord resulted in the creation of OHSAH, an agency with the goal of reducing workplace injuries and illness in healthcare workers and returning injured workers back to the job quickly and safely.
>
> OHSAH was created in response to high rates of workplace injury, illness, and time loss in the healthcare industry. At the time that OHSAH was created, workers in the healthcare industry accounted for 10.5% of all time loss claims accepted by the WCB and 11% of all days lost due to injury in BC. The injury rate in healthcare was 54% higher than the rate for all other workers in the province. It was clear that a new approach was necessary to address these concerns.
>
> OHSAH represents an innovative approach to improving workplace health and safety in the healthcare sector. The Agency is jointly governed by employers and unions. Its Board of Directors consists of four members chosen by the Health Employers Association of BC (HEABC), and one each from the Hospital Employees' Union (HEU), Health Sciences Association of British Columbia (HSA), British Columbia Nurses' Union (BCNU), and BC Government and Service Employees' Union (BCGEU).

> back on your precautions. And we have found that is the easiest for workers to understand rather to try to figure out when to wear a surgical, when to wear an N95, how close am I to the patient, do I need to put on a mask? Its just simpler for them to remember that if the patient's got respiratory symptoms, yes, put on an N95, do the appropriate precautions.

Worker safety experts question the basis for the one metre rule,[215] which was considered so impractical by some at Vancouver General that it became the subject of a joke:

> There was a sort of a little joke circulating during SARS that the tiles that we have here on the floor are approximately one metre, so that's how much distance we should keep from everybody.

Dr. Diane Roscoe, Division Head of Medical Microbiology and Infection Control, said:

> It is not an easy thing for health care workers to remember. This is a 3-metre or this is a one-metre thing, and this is not. And what am I supposed to do?

---

215. See Janssen, "A Scientific Review":

> … one should be aware of the effects of droplet evaporation and the resultant diminution in size of ejected droplets. A 30 μm droplet dries to a 5 μm droplet within seconds under normal indoor air conditions. This means that a large droplet, as it evaporates, will not settle to the ground but become a free-floating entity. This has implications for the 3 foot rule, the basis for infection control precautionary measures, since it is commonly believed that large droplets ejected upon sneezing or coughing will follow Stoke's Law and fall to ground within a 3 foot distance from the person's face. It is evident that it is commonly believed that the 3 foot rule is a division between an unsafe and safe distance.
>
> There is no indication that the 3 foot rule takes into consideration the evaporation factor and the drift factor of airborne droplets, as discussed above. No scientific evidence is offered by WHO, DHHS-CDC, PCAH, or other medical authorities in explaining the rule. If large droplets quickly evaporate to free-floating small droplets, then the 3 foot rule applies only to droplets greater than about 50 – 100 μm in diameter for which there is insufficient time chance for evaporation to take effect before they fall to the ground from a height of 5 – 6 feet. Free floating small droplets readily go beyond the 3 foot radius. Therefore, if the majority of ejected droplets following a sneeze are evaporated to a size that is free-floating after only seconds in air, the 3 foot rule becomes illogical and not particularly helpful from a disease transmission perspective.

Dr. Bryce said:

> And how can the health care worker make the determination what the illness is and whether they should use droplet and airborne? I mean it is kind of expecting them to have a whole level of expertise which they shouldn't be expected to have … Even if you did determine it like poof, you know you are at this distance, you put on a mask and presto and you step back a foot and you no longer need a mask … they are moving in and out of the "danger zone" for droplets. They are in and out when they are in a room. And it is just simply easier for everyone and safer for them to put on some sort of respiratory protection when they step into the room … You've got the patients moving around and the staff moving around. It is very hard to keep the spatial separation and we just feel it is safer too.

Vancouver General's emergency department was also more attuned to the hospital's precautionary approach because, not long before SARS, it had undergone an infection control audit.

Dr. Roscoe told the Commission the audit provided an opportunity to review the hospital's precautionary approach with staff:

> We have a protocol, which had just been reviewed with the physicians and staff in the emergency room, that people with undiagnosed respiratory illness should be managed with respiratory precautions until their course or the etiology of their illness is more determined.

Dr. Bryce said Vancouver General had been doing these audits since 1995:

> We reviewed the physical layout and environment, policies and procedures. We review infection control knowledge and its application and then we do a series of visits that actually audit what we see occurring in the division … And so it occurs over several months, these audits, and we have feedback from the healthcare workers as well. We make a number of recommendations and we have time lines and people are responsible for the action plans. So just prior to SARS, a few months prior, an audit had been done ... And we did tee up some of the things that we saw about respiratory protection, particularly the expediency of triaging people who have respiratory illnesses and not to leave them sitting in the waiting room and that came out of a case of influenza that had sat in the waiting

> room during that audit period that we didn't think was the ideal thing. So I think that was very fortuitous that the others had been done prior to SARS.

A medical study said:

> Before [Mr. C's] arrival, the emergency room at [Vancouver General] also participated in an infection control audit that emphasized that barrier precautions should be applied with all acute-onset respiratory infections.[216]

Aware of the BC CDC's alerts and of Mr. C's travel history, employing Vancouver General's precautionary approach, and worried about Mr. C's condition and symptoms, emergency room physicians consulted with an infectious disease specialist and a respirologist.

Dr. Lee said the two specialists quickly:

> reviewed the situation and thought, well the situation suggests that we probably should isolate this man. He was out in the open area in cubicle 6 so we just pulled someone out of the isolation room. I still remember distinctly talking to our charge nurse … So we shuffled the patient around and put him in the isolation room shortly after I got there.

At about 7:40 p.m. (eastern time), about two and a half hours after arriving at Vancouver General and just before Mr. T arrived at the Grace, Mr. C had been isolated, examined by specialists, treated by health workers wearing full respiratory protections, and moved into a negative-pressure isolation room.

In contrast, Mr. T would not be isolated for nearly 21 hours[217].

---

216. Skowronski et al., "Coordinated response to SARS."

217. As noted earlier, time estimates between his admission to hospital and his isolation vary. Mr. T was triaged in the emergency department at 7:00 pm, and admitted to the emergency department at 7:45 pm, on March 7th, 2003. Mr. T was moved to a medical floor, 4D, at approximately 12:00 noon on March 8th. He was transferred to the ICU at approximately 3 pm on March 8th. Dr. Finklestein, the physician who isolated Mr. T, recalled that at approximately 4:00 – 4:45 pm, he saw Mr. T and that initial steps were taken to isolate him. Public Health records report that Mr. T was moved to a negative pressure room at 6:45 pm on March 8th, 2003. It is the approximately 21 hours, between 7:45 pm on Friday, March 7th and 4:00 pm on Saturday, March 8th, when initial isolation steps were taken, that the Commission uses in this report.

Mr. C is Intubated

At about 4 a.m. on March 8, Mr. C suffered an arrest and had to be intubated, a procedure in which a tube is placed into the windpipe,

> to open the airway to administer oxygen, medication, or anesthesia.[218]

This is risky because it creates "very small droplets of moisture that may carry microorganisms," a process known as aerosolization.[219]

> The aerosolized droplets may be light enough to remain suspended in the air for short periods of time, allowing inhalation of the microorganisms.[220]

A worker safety expert said:

> When you put a tube down the throat and then in essence it almost becomes like a mucus gun … an awful lot of material comes out.

First on the scene were a medical resident and a respiratory therapist both of whom did not wear N95 respirators for the first minute or so. This was a potentially dangerous incident. Dr. Bryce said:

> They did describe him in the notes as frothing in the mouth, so obviously the potential for aerosols were also there.

However, there was no spread.

---

218. "An endotracheal intubation places a tube into the windpipe (trachea). This is done to open the airway to administer oxygen, medication, or anesthesia. It may also be done to remove blockages or to view the interior walls." Source: *Medline Plus Encyclopedia*, a service of the U.S. National Library of Medicine and the U.S. National Institutes of Health.
219. Ministry of Health and Long-Tern Care, *Preventing Respiratory Illness* (September 2005), p. v. (*Preventing Respiratory Illness*)
220. *Preventing Respiratory Illness*. The time between admission and isolation in a proper, negative pressure room is 23 hours.

Dr. Bryce said:

> The resident and the RT, because it was an unexpected arrest, did not have a respirator on for the first minute till assistance arrived and then they were appropriately garbed and it was a difficult intubation and they had to call the emerg doctor who intubated them but with full precautions.

Mr. C was safely intubated without anyone being infected. In contrast, a number of physicians, nurses and respiratory therapists were infected while intubating patients in Toronto.

March 17, nine days after Mr. C's intubation, Mr. M., whose story is told above, was intubated at the Scarborough Grace Hospital, but with a different result. Four health workers contracted the disease.[221] Then, on March 24, an anaesthetist, a medical resident, and a nurse at Toronto's Mount Sinai Hospital got the disease while intubating a patient ill with SARS but undiagnosed.[222]

Still later, on April 13, six health professionals were infected with SARS during a difficult intubation. That was followed May 28 by an incident in which two health workers at North York General were infected during a resuscitation. This does not speak well of Ontario's worker safety learning curve.

Remarkably, Mr. C was also intubated safely well before the dangers of intubating SARS patients had begun to be identified in Ontario or at the CDC.[223]

---

221. "In the ICU, intubation for mechanical ventilation of [Mr. M] was performed by a physician wearing a surgical mask, gown and gloves. He subsequently acquired SARS and transmitted the infection to a member of his family. Three ICU nurses who were present at the intubation and who used droplet and contact precautions had onset of early symptoms between Mar. 18 and 20. One transmitted the infection to a household member." See Varia et al., "Investigation of a nosocomial outbreak of SARS.", p. 927.

222. D.C. Scales, K. Green, A.K. Chan, S.M. Poutanen, D. Foster, K. Nowak et al., Illness in intensive-care staff after brief exposure to severe acute respiratory syndrome, *Emerging Infectious Diseases* (October 2003). Available from http://www.cdc.gov/ncidod/EID/vol9no10/03-03-0525.htm

223. On March 20th, nearly two weeks after Mr. C's intubation, the CDC issued the first such warning:

> Procedures that induce coughing can increase the likelihood of droplet nuclei being expelled into the air. These potentially aerosol-generating procedures include aerosolized medication treatments (e.g., albuterol), diagnostic sputum induction, bronchoscopy, airway suctioning, and endotracheal intubation. For this reason, healthcare personnel should ensure that patients have been evaluated for SARS before initiation of aerosol-generating procedures. Evaluation for SARS should be based on the most recent case definition for SARS.

No Transmission at Vancouver General

On March 12, 2003, four days after Mr. C was intubated, the WHO issued its global alert about severe cases of atypical pneumonia in Vietnam, Hong Kong and Guangdong.

One day later, Vancouver General reported the case of Mr. C to the BC CDC.

A medical study said:

> This report, together with timely conversations between Dr. Danuta Skowronski (BCCDC), Dr. Allison McGeer in Toronto and Dr. Jeannette Macey of Health Canada marked the first official recognition that SARS had come to Canada.[224]

Another medical study said:

> This call linked the separate Toronto and Vancouver cases to events in Asia and led to recognition that SARS had spread beyond that region.[225]

Unlike at the Grace, SARS did not spread to any health worker who treated Mr. C:

> Review confirmed that symptoms had not developed in any of the 148 hospital workers involved in [Mr. C's] care by 10 days after his arrival at the hospital.

Nor was SARS transmitted to any other patient at Vancouver General. Mr. C's family physician, unlike the doctor who treated Mr. T and his wife, did not develop SARS.[226]

224. David M. Patrick, "The race to outpace severe acute respiratory syndrome (SARS), *Canadian Medical Association Journal*, www.cmaj.ca (April 17, 2003).
225. Skowronski et al., "Coordinated responses to SARS."
226. "The family physician had no detectable neutralizing antibody to SARS-CoV when tested at day 496." Skowronski et al., Coordinated responses to SARS."

Mrs. C did not require any hospitalization. One B.C. official told the SARS Commission:

> The wife of [Mr. C] was also infected but did not meet the clinical case definition for probable SARS as defined by Health Canada at the time. She had mild symptoms only but … she had serologically confirmed SARS-CoV infection acquired simultaneously with her husband at the Metropole Hotel in Hong Kong as part of the initial cluster …
>
> Of course, as with all infections, SARS included a spectrum of illness. Children in particular tended to have milder symptoms. [The index patient] in B.C. had illness at the extremely severe end of the spectrum while his wife … was at the opposite end of the spectrum with very mild illness.

Besides Mr. T, four members of his family – his sister, his brother, his wife and his infant child – caught SARS.

Significantly, and again in contrast to Toronto, neither Mr. C nor Mrs. C had any other household contacts.

Dr. Patrick of the BC CDC said there was an element of luck in what occurred at Vancouver General.

> Toronto's first importation represented somebody who went home, spread it at home, before the health care system was approached. That was a harder thing to recognize, there had already been spread before the health care system was in a position to intervene. Whereas in B.C., our first individual did not really go home for any length of time, did not have a huge extended family, presented at hospital and was recognized … very quickly by an emergency physician.

Dr. Patrick said these kinds of factors are "strictly chance," but he said other factors that were "a result of structural or operational decisions" also contributed to ensuring there was no outbreak in Vancouver.

These included Vancouver General's robust worker safety and patient safety culture, which allowed it to respond to an emerging threat before it was recognized.

Dr. Roscoe told the Commission:

> And I often say that we practice infection control with a vengeance. And then I think, it sounds silly, but I think it says, it kind of says a lot and it is that you start at the worst-case scenario in terms of what the risks are for spread and then back off as you get more information, either because the patient's clinical course is consistent with something else, or is responding to treatment, or you have some diagnostic test that can help you make those decisions. But it is the philosophy that you think of the worst-case scenario and act on that, if you can practically speaking. All of this has to be taken into, what the patient needs for their medical care because you can never deny that in the first instance and what facilities, manpower etc. you have to be able to implement this. But then it also speaks to is being up front, with the infection control team being recognizable, available, out on the wards, everybody knows who to call and they are very proactive and what we are doing we don't just sort of wait for things to happen or for requests to come, sort of a very proactive approach to anticipating what might happen, what might be the needs…

Many Ontario nurses and their representatives told the Commission they had trouble being heard during SARS, and getting their concerns taken seriously.

An integral component of Vancouver General's safety culture is listening to nurses.

Dr Bryce said:

> And we get the feedback from the workers… I mean you know we are not working in isolation here. You have to respect the opinions of the health care workers. And they have to have confidence in the system and in what you are doing for them. If they don't have confidence, then you won't have people coming to work and you'll have people doing whatever they feel is best because they respect you because you are not listening to them.

Dr. Roscoe said listening to health workers improves compliance and strengthens safety in the workplace:

> And in the end, infection control isn't done by the infection control unit, it is done by all the healthcare workers in the front line. That is who is really doing it. So you have to be there to educate them and to get them to buy into this and certainly SARS helped everybody buy into the importance of infection control, but it doesn't just happen and it doesn't happen, it is not something you do once and that's it. It has to be done over and over and over because you have people who are busy and who forget. They may have not have time, you have new people and that is never going to stop. So that has to be an ongoing thing.

Different Approaches to Workplace Safety

The contrast between the Ontario and B.C. SARS experiences was not limited to how their respective index cases were handled. It extended to the defining characteristic of the outbreak in Ontario, the fact that it mostly affected workplaces. Of the 247 probable cases in Ontario 190, or 77 per cent, were either health care workers, people who sought care at health care facilities, or visitors.[227] In B.C., only one health worker caught the disease, and SARS was not transmitted to a single patient or visitor.

With such vastly different outcomes, it is not surprising that the roles and approaches of the Ontario and B.C. workplace watchdogs were also dissimilar. When SARS began, B.C.'s workplace regulator, the Workers' Compensation Board (WCB)[228], more commonly known as WorkSafeBC, quickly got involved. A senior policy analyst with the WCB, said:

227. Dr. Colin D'Cunha, presentation to the SARS Commission, SARS Commission Public Hearings, September 29, 2003.
228. Its mandate is to:

- Promote the prevention of workplace injury, illness and disease
- Rehabilitate those who are injured and provide timely return to work
- Provide fair compensation to replace workers' loss of wages while recovering from injuries
- Ensure sound financial management for a viable workers' compensation system

See: http://www.worksafebc.com/default.asp

> So what happened in the early March, 2003, we heard about this horrific bug, that nobody knew what it was, and we acted right away.

Early in the outbreak, the WCB itself issued detailed guidelines on how to protect health workers in a manner consistent with provincial law, and undertook proactive inspections of hospitals to make sure this was being done.

In Ontario, the Ministry of Labour was largely sidelined during the outbreak. It was not given a primary role at the Provincial Operations Centre, and it was not seen as having a central responsibility in protecting health workers. In contrast, the WCB was widely recognized as having clear authority and jurisdiction over workplace safety issues.

A senior work safety expert who has also worked in Ontario told the Commission:

> Basically because our Workers' Compensation Board … is very prominent, and I think, much more so than in Ontario, I used to live in Ontario and practice there and when the WCB here says this is how it shall be, people do not question it quite as much.

A British Columbia senior work safety expert told the Commission:

> They make a decision and get on with it, so I think that once the WCB made it clear that they require certain certification, they were clearly the deciding agency, because they were the ones who could write fines if things were not done the way they thought they should be.

The situation in Ontario could not have been more different.

Despite being the ministry in charge of workplace safety, the Ministry of Labour was largely on the sidelines during SARS. Many in the Ministry were frustrated that more could not have been done during SARS. But there was a systemic failure to see the importance of ensuring that the Ministry, unions and worker safety experts were all at the table as integral partners in the fight against SARS.

The Ministry of Health was the lead ministry during SARS, and Labour had a very low profile during the outbreak. Labour had a secondary role at the Provincial Operations Centre (POC), which directed the response to the outbreak and issued directives.

As an indication of its low profile, senior Ministry of Labour staff even had trouble getting copies of directives. One official said he often had to get copies of directives from contacts at health worker unions or at other agencies.

He told the Commission:

> What were we supposed to do? We don't have any information. We can't get any information from the Ministry of Health. We are not getting any directives. How do we get the directives?

In a similar example of the Ministry of Labour's secondary status, the Ministry of Health set up a restricted access web site containing information for ministry staff, public health officials and other key players in the fight to contain SARS. Labour was not made aware of this site until "late April or May," a senior official told the SARS Commission.

SARS also found the Ontario Ministry of Labour was poorly resourced and ill prepared for a public health crisis. Its contingent of physicians had been decimated. In 1992, the Ministry had 19 physicians. By 1996, they were down to three and a half. The ministry no longer had a laboratory or air sampling technicians, and its occupational health and safety nurses had been laid off in the 1990s. Most inspectors had little or no training on infectious disease issues. All inspectors interviewed by the Commission said they had never been involved in an infectious-disease-related inspection of a health care facility before SARS. As a senior ministry official told the Commission, the ministry had little internal expertise in infection control:

> The ministry did not have until April of this year [2006], people with specific public health experience working, or people with specific communicable disease experience … So, at that time, we wouldn't have had people … [with] specific communicable disease or infectious disease experience.

The WCB in British Columbia was far more ready to tackle SARS because it had a strong internal cadre of experts and had long regarded health care as a sector that required oversight.

A senior policy analyst with the WCB said:

> We'd been involved, myself included, quite a bit in inspections of hospitals. Since, actually the day I started with the Board, in 1979-1980, and in many ways we had more focus inspections on hospitals because we had a lot of concerns about ethylene oxide exposures, anesthetic gases. In fact, we even went in during fully functioning operations and did sampling and of course, checked out all the equipment to do with surgery and pharmacy and with the boiler plan itself. And then we got quite heavily involved in the late 80's early 90's with ergonomic issues. That was really our prime focus. That was driven by a high injury rate related to soft tissue injuries (back injuries, shoulder injuries) and there is quite a bit of that. So, that has been our main emphasis. But we certainly did, not only did we go into the field of infectious control at that time … We were certainly aware of what was going on and some of us had specific interests in infectious diseases and developed that over time.

Timely, Proactive Inspections

A major difference between the SARS responses of the British Columbia WCB and the Ontario Ministry of Labour was their approach to proactive inspections. WCB inspectors began making proactive inspections on April 2, 2003, more than two months before the Ministry of Labour took similar action at SARS hospitals in Ontario.[229] As noted in Table 1, 11 of the WCB's 19 proactive inspections took place in April 2003.

229. Ministry of Labour, submission to the SARS Commission, SARS Commission Public Hearings, November, 17, 2003, p. 16:

> On June 12, the Ministry initiated a series of consultations at other health care facilities that were identified as having a risk of SARS transmission to their workers. The health care facilities were categorized based on potential SARS exposure. The facilities were listed as Category 0 to 3, with Category 0 being hospitals with no known cases of SARS. During these consultations the Ministry reviewed infection control precautions, use of respirators and respirator fit testing and the function of the internal responsibility system.

Table 1 – Proactive Inspections in B.C.[230]

	Date	Healthcare Institution
1.	April 2, 2003	Facility F
2.	April 3, 2003	Facility F
3.	April 4, 2003	Facility H
4.	April 7, 2003	Facility I
5.	April 17, 2003	Facility G
6.	April 17, 2003	Facility B
7.	April 24, 2003	Facility A
8.	April 25, 2003	Facility C
9.	April 28, 2003	Facility C
10.	April 29, 2003	Facility B
11.	April 29, 2003	Facility D
12.	May 5, 2003	Facility A
13.	May 5, 2003	Facility C
14.	May 7, 2003	Facility C
15.	May 7, 2003	Facility E
16.	May 8, 2003	Facility A
17.	May 27, 2003	Facility A
18.	June 22, 2003	Facility A
19.	June 26, 2003	Facility G

April was when SARS protective measures were first being rolled out, amid mounting reports of large numbers of health workers contracting the disease in many jurisdictions. Conducting numerous inspections in April allowed the British Columbia WCB to make sure at the start that SARS safety measures were implemented in accordance with provincial laws and regulations.

In B.C. the WCB was able to conduct proactive inspections at the beginning when they would have maximum impact on the course of the effort to contain SARS.

In Ontario, the Ministry of Labour could not and did not do so. The structure of Ontario's SARS response resulted in the Ministry of Labour deferring to the Ministry of Health and the health system to ensure that health workers were protected.

230. Workers' Compensation Board of B.C.

A ministry official told the SARS Commission:

> The resources and … in terms of infectious disease control don't reside in the Ministry of Labour … we don't have what the health care system has. We don't have what the Public Health officials have. So, I mean, it doesn't surprise me that we would say, that's fine. Access the Ministry of Health and they've got access to international experts and go to it.

It was not until the middle of May that the Ministry of Labour began to realize that workers were not being effectively protected.

A senior labour ministry official told the Commission:

> Certainly in mid-May it became apparent that things weren't going right in terms of following directives … and the large number of complaints that we had been receiving from health care workers …

It was not until about one month later, on June 12, 2003, that the ministry began a series of proactive inspections of SARS hospitals.[231]

A senior labour ministry official told the Commission:

> Once we became aware that the directives weren't being enforced with the ongoing problems and when we were probably aware of what the expectations were and understood what the situation was, we decided to meet off site.

Needless to say, by June 12, 2003, all health workers who caught SARS had already contracted the disease. The damage had been done to infected nurses, physicians, respiratory therapists and other health workers and their families.

---

231. Ministry of Labour, submission to the SARS Commission, SARS Commission Public Hearings, November 17, 2003, p. 16:

> On June 12, the Ministry initiated a series of consultations at other health care facilities that were identified as having a risk of SARS transmission to their workers. The health care facilities were categorized based on potential SARS exposure. The facilities were listed as Category 0 to 3, with Category 0 being hospitals with no known cases of SARS. During these consultations the Ministry reviewed infection control precautions, use of respirators and respirator fit testing and the function of the internal responsibility system.

Unlike in Ontario, the British Columbia WCB did not have to rely on anyone else to make sure workers were protected in the workplace, whether it was Public Health, the hospitals, regional health authorities, or the provincial Ministry of Health. And it did not have to wait until there was overwhelming evidence, including an enormous number of complaints, before acting.

The WCB acted proactively, aware that this was the most prudent course of action to take in the face of a mysterious new disease. As one occupational health and safety expert told the Commission:

> We all know that something that's proactive is much better than a reactive process.

In Ontario, the Ministry of Labour told the Commission that part of the delay in sending inspectors to SARS facilities was concern over their safety. One senior ministry official said:

> It wasn't clear in April whether it was safe for the inspectors to go in.

The WCB had the necessary internal expertise to develop its own guidelines for protecting its inspectors.

A senior WCB policy analyst said:

Answer:	We also put out an instruction to workers to inspection officers when they go onsite, for their own protection. So we are basically telling that there are certain situations you are not to go into unless you are properly protected and you haven't been instructed in this so keep out of it. And that's what the instructions are to the officers.
Question:	So, they were told not to go to a work site…was it with SARS, or?
Answer:	Well, not to enter, not to enter but to stay outside and make sure that there is control measures in place.

Question: Are you staying away from the whole facility or just the area where . . . ?

Answer: Well, the area where let's just say, the triage area and the ambulatory area where they would treat or …they would bring in the SARS or potential SARS patients.

Question: Okay, but they could go to the offices of the managers, for example?

Answer: Oh yeah, right.

Detailed Guidelines Are Issued by WCB

Where the WCB's response also differed from the Ministry of Labour's was in preparing its own guidelines.

On March 31, 2003, the WCB issued a guide containing its requirements for protecting workers from SARS. The guide also made hospitals were aware of their responsibilities under provincial law, and ensured workers knew under what circumstances they could refuse unsafe work.

The WCB policy analyst said:

> This was published within three weeks after we learned about this. So before it even got to be a problem in North America.

The guide was prepared after consultations with infection control and occupational hygiene experts.

The analyst said:

> Well, I was one of those [who helped to prepare the report] and we have our V.P. and then we have legal counsel and then we have several officers that have an area of expertise, infectious control, to go into hospitals and so there were several officers who were brought in as experts and we called them, "SME's", Subject Matter Experts. Brought in and talked about this and made the basis on their recommendation and that particular group drafted this particular document.

The guide was based on the principles of occupational hygiene,[232] which are founded on a precautionary approach and recommend that,

> … all available options for controlling the hazard should be put into place and that when these controls are not possible or not sufficient to control the risk, personal protective equipment such as respirators should be implemented. The hierarchy of controls is as follows:
>
> 1. Engineering controls
>
> 2. Administrative controls
>
> 3. Work practices
>
> 4. Personal protective equipment.
>
> These controls are meant to address hazards through control at the source of a hazard, along the path between the worker and the hazard and lastly, at the worker.[233]

---

232. Occupational hygiene, which is often called industrial hygiene in the U.S., is defined as follows: "The science and art of anticipating, recognizing, evaluating, and controlling chemical, physical, biological, ergonomic hazards that are in or originate from the workplace." Source: Salvatore R. DiNardi and William E. Luttrell, *Glossary of Occupational Hygiene Terms* (Fairfax, Va.: American Industrial Hygiene Association 2000), p. 106.

233. Controls that are implemented at the source should be put into place first. These include using engineering controls such as enclosing the hazard or using local exhaust ventilation. An isolation room with negative pressure ventilation is an example of an engineering control aimed at the source of the hazard.

    Controls that are implemented along the path should be put in place next. These include general exhaust ventilation or the use of shielding or barriers. Administrative control and workplace practice controls are also critical. These controls include such program components as processes to ensure early recognition and appropriate placement of patients who are infectious, surveillance for detection of outbreaks, adequate cleaning and disinfection of patient care equipment and the environment and education programs for health care workers about identifying and managing risk. If, after implementing controls at the source and along the path, the risk of overexposure to the worker is still present, then controls at the worker can be put in place. These include the use of personal protective equipment such as respirators and eye protection. The essential point from the hierarchy of controls is that employers should not rely exclusively on personal protective equipment (PPE) to protect workers. All other means possible should be used to protect workers and PPE used only when other controls have not eliminated or reduced the hazard significantly.

In B.C., the WCB's guide and its overall approach to SARS reflected the occupational hygiene principle that protecting workers means more than just providing them with an N95 respirator.[234] They have to be trained in its use. They have to be fit-tested. They have to be supervised. And the use of the respirator must be integrated into the hierarchy of controls in a manner consistent with provincial laws, regulations and occupational hygiene best practices.

B.C. law requires,

> … the employer to implement an exposure control plan where a worker has or may have occupational exposure to a bloodborne pathogen or other biohazardous material as specified by the Workers' Compensation Board. The Board has determined that the micro-organism causing SARS constitutes 'a bioharzardous material.'[235]

The WCB guide on SARS said:

> An employer must implement an exposure control plan where it can be *reasonably* anticipated that a worker will have occupational exposure to SARS. Such workers would include health care personnel who are providing care for, or are exposed to, patients with SARS. The employer must identify the workers at risk, develop safe work procedures, and provide adequate education and training. Engineering controls, such as isolation rooms, should form part of the exposure control plan.[236]

Health Care Health and Safety Association of Ontario, *A Guideline for the Development and Implementation of a Respiratory Protection Program for the Prevention of Occupational Infections in Health and Community Care Workplaces – Final Draft*, (Toronto: Health Care Health and Safety Association of Ontario, July 23, 2003), p. 11.

234. Using highly efficient filtering materials, N95 respirators are one of the nine types of disposable particulate respirators that are independently tested and certified by the National Institute for Occupational Safety and Health in the United States, which is part of the Centers for Disease Control. "The N indicates that the respirator provides no protection against oils and the 95 indicates that it removes at least 95% of airborne particles during worst case testing using a most -penetrating-sized particle." Source: A. Yassi et al., "Research gaps in protecting healthcare workers from SARS," *Journal of Occupational and Environmental Medicine* 47 (2005): 41-50.
235. WCB Occupational Disease Prevention Services, "General Guide on Applying the OHS Regulation to Severe Acute Respiratory Syndrome (SARS)" (March 31, 2003), p. 2 (WCB Guide).
236. WCB Guide, p. 2.

The analyst said the guide was prepared to avoid confusion at hospitals and ensure consistency in their worker safety measures:

> One of the problems with infection control is that there are guidelines from the infection control community. There is no regulation that deals with infectious control specifically, as I understand it. Unless the Canada Health Act has some guidelines. So it is up to the individual hospital whether they adopt in whole or in part. That's one of things we wanted to make sure, that each hospital was on the same page. That they understood what an Exposure Control Plan means. That means recognizing the hazard, evaluating the hazard and putting in place effective control measures. That would include personal protective equipment and would include putting things on properly and taking things off properly. That is still one of the things that we found problematic is what we call, "donning and doffing" and the problem of self-inoculation or self-infection. You know if you take things off in the wrong order you are going to contaminate yourself and then you go wipe your nose or rub your eyes with your hands and before you know it you've got yourself an infection. So, that's the basis of it.

In addition, the WCB issued a question-and-answer document that provided greater detail on the information and requirements outlined in the guide.

The WCB analyst said:

> Control measures, what that means? So, we talked about administrative controls, engineering controls and then of course, respiratory protection…

Ontario directives issued at this time provide a stark contrast to the WCB guide. On worker safety issues, Ontario directives were often confusing and incomplete.

An Ontario directive issued a few days after the WCB's guide, on April 3, 2003, is a case in point. It says the following about worker protective measures:

> 12. All staff and visitors entering the facility must use frequent hand washing/hygiene. However the routine use of gowns, gloves, and masks is not required provided the patient is not in respiratory isolation.

13. All HCWs and staff entering the room of a SARS patient in ANY location:

    • Use frequent hand washing/hand hygiene.
    • Use an N95 mask
    • Use an isolation gown
    • Use gloves
    • Use protective eyewear or face shield

14. All visitors to SARS patients must also use the precautions listed in #13.

15. For direct contact with any patient in Intensive/Critical Care Units or Emergency Departments HCWs must:

    • Use frequent hand washing/hand hygiene.
    • Use an N95 mask
    • Use an isolation gown
    • Use gloves
    • Use protective eyewear or face shield

Unlike in B.C., this Ontario directive, and many others that followed, did not have sufficient worker safety input. It focused on just one element of worker safety, personal protective equipment. There was no mention that worker safety protections must be integrated within a hierarchy of controls. There was no mention that personal protective equipment is considered by worker safety experts to be the last line of defence for a health worker and is not effective without appropriate fitting and training. There was no mention that worker safety protective measures must comply with provincial law. And there was no reference to the relevant provincial laws and regulations themselves.

This does not reflect badly on those who prepared them. The men and women who prepared the directives are to be praised for their dedication and hard work. Rather, the worker safety inadequacies in the Ontario directives reflect systemic problems, including a failure to give Labour an appropriate level of authority and jurisdiction in their preparation that is commensurate with its role as the Ministry in charge of protecting workers.

Work Refusal Regulations Clarified

A major area of concern for nurses in Ontario during SARS was over their already limited right to refuse unsafe work. Unlike most workers in Ontario, who can refuse unsafe work if the institutional protections fail to sufficiently protect them,[237] health workers and other first-responders, including police and firefighters, have only a limited refusal right.[238]

---

237. This right is enshrined in Section 43(3) of the *Occupational Health and Safety Act*, which states:

> 43. (3) A worker may refuse to work or do particular work where he or she has reason to believe that,
>
> (a) any equipment, machine, device or thing the worker is to use or operate is likely to endanger himself, herself or another worker;
>
> (b) the physical condition of the workplace or the part thereof in which he or she works or is to work is likely to endanger himself or herself; or
>
> (c) any equipment, machine, device or thing he or she is to use or operate or the physical condition of the workplace or the part thereof in which he or she works or is to work is in contravention of this Act or the regulations and such contravention is likely to endanger himself, herself or another worker. R.S.O. 1990, c. O.1, s. 43 (3).

238. Sections 43 (1) and (2) of the *Act* state:

> 43. (1) This section does not apply to a worker described in subsection (2),
>
> (a) when a circumstance described in clause (3) (a), (b) or (c) is inherent in the worker's work or is a normal condition of the worker's employment; or
>
> (b) when the worker's refusal to work would directly endanger the life, health or safety of another person. R.S.O. 1990, c. O.1, s. 43 (1).
>
> (2) The worker referred to in subsection (1) is,
>
> (a) a person employed in, or a member of, a police force to which the *Police Services Act* applies;
>
> (b) a firefighter as defined in subsection 1 (1) of the *Fire Protection and Prevention Act, 1997*;
>
> (c) a person employed in the operation of a correctional institution or facility, a training school or centre, a place of secure custody designated under section 24.1 of the *Young Offenders Act* (Canada) or a place of temporary detention designated under subsection 7 (1) of that Act or a similar institution, facility, school or home;

Work refusals are also problematic for regulated workers like nurses who could be disciplined by the College of Nurses of Ontario.

On April 1, 2003, Ontario nurses' representatives asked the Ministry of Labour to clarify health workers' limited right to refuse unsafe work.

In their joint submission to the Commission, the Ontario Nurses' Association (ONA) and the Ontario Public Service Employees Union (OPSEU) said the response from the ministry dated April 15, 2003 was insufficient:

> Right to refuse unsafe work under the *OHSA* was an issue OPSEU and ONA members asked to have clarified. Both unions anticipated and received questions from their members about work refusals. OPSEU published a section on Right to Refuse in almost all of its regular Hazard Alerts. The steps of a work refusal were set out, as were the limitations faced by HCWs under the *OHSA*. ONA had asked the MOL for its position on work refusals for HCWs in the April 1st correspondence referred to above.
>
> The MOL's response of April 15/03 was not detailed enough to give adequate direction to HCWs. ONA was concerned that a worker who did not follow precise steps could be disciplined by the College of Nurses of Ontario. Therefore about one week later ONA completed its own Right to Refuse document and posted it on its website.[239]

(d) a person employed in the operation of,

(i) a hospital, sanatorium, nursing home, home for the aged, psychiatric institution, mental health centre or rehabilitation facility,

(ii) a residential group home or other facility for persons with behavioural or emotional problems or a physical, mental or developmental disability,

(iii) an ambulance service or a first aid clinic or station,

(iv) a laboratory operated by the Crown or licensed under the *Laboratory and Specimen Collection Centre Licensing Act*, or

(v) a laundry, food service, power plant or technical service or facility used in conjunction with an institution, facility or service described in subclause (i) to (iv). R.S.O. 1990, c. O.1, s. 43 (2); 1997, c. 4, s. 84; 2001, c. 13, s. 22.

239. ONA/OPSEU, submission to the SARS Commission, SARS Commission Public Hearings, November 17, 2003, p. 30.

In B.C., however, the WCB said a worker had clear direction on the circumstances under which he or she could refuse unsafe work.

The B.C. guide said:

> A worker has the right to refuse any work which that person has "reasonable cause to believe … would create an undue hazard to the health and safety of any person" … If an employer requires a worker to work with a known or suspected case of SARS, without providing the appropriate personal protective equipment (PPE) and safe work procedures, then this would clearly constitute a case where there is undue risk to that worker's health.[240]

Only Certified Respirators Allowed

As noted elsewhere in this report, there was confusion at some Ontario hospitals over what type of respirator to use.

Most Ontario directives allowed the use of N95 respirators "or equivalent." The word "equivalent" was open to interpretation. Many in the health care system, including Health Canada and experts at some major Toronto teaching hospitals, interpreted "equivalent" to mean masks with the same manufacturer's specifications as an N95 but which had not been independently tested and certified. This led to situations where health workers were offered both respirators that were independently tested and certified and some that were not.

The Ministry of Labour said it accepted the term "equivalent" in directives because this allowed the use of higher rated NIOSH-approved respirators like the N99 or N100.[241]

One ministry official told the Commission:

> Now, if somebody uses an N99 or an N100, they are equivalent and would provide even higher protection.

240. WCB Guide, p. 2.

241. The minimum efficiency of each tested filter is to be greater than or equal to 99.97% for N100 filters and 99% for N99 filters.

The problem was that, like much else during SARS, the Ministry of Labour's position on the word "equivalent" was not appropriately communicated to employers and it was not followed in some workplaces. As will be seen later in this report, some health workers involved in the Sunnybrook intubation in mid-April 2003 and who got SARS wore non-certified masks.[242]

B.C. did not have this problem. Like the Ministry of Labour, it only accepted independently tested and certified respirators. The difference is that the WCB was able to convey this clearly to employers. Experts in Vancouver interviewed by the Commission said the issue of using non-certified respirators never arose in B.C.

The WCB said, in its SARS questions-and-answer document:

> Currently, the board has accepted only NIOSH-approved/certified respirators … The board will consider non-NIOSH approved equipment with the following proviso. To be considered as an approved or certified devices, the respirator in question must have been tested in accordance with testing criteria as prescribed by NIOSH or other agency using methods and criteria deemed acceptable by the board. The manufacturer must be able to provide test information on the respirator being marked for use by workers, otherwise one cannot establish that the device does in fact meet NIOSH or equivalent standards.

Impact of the WCB's Proactive Approach

While the failure to conduct proactive visits in Ontario until June 2003 was a missed opportunity to ensure workplace compliance, we will never know whether this would have made a difference. It is pure speculation to question whether such proactive measures might have reduced the toll of SARS.

Nor will it ever be known whether the toll of SARS among Ontario nurses, physicians and other health workers would have been reduced if the Ministry of Labour had been better prepared and better resourced and had not been sidelined by systemic problems. Conversely, it will never be known whether the greater preparedness of the British Columbia WCB and its more aggressive approach to worker safety ensured

242. "Cluster of severe acute respiratory syndrome cases among protected health-care workers Toronto, Canada, April 2003," *Morbidity and Mortality Weekly Report* 52 (May 16, 2003): 433-6.

the much lower impact of SARS in the workplaces in B.C.

What can be said is that the WCB was better prepared before SARS to address a public health emergency, and was better able to respond to the SARS outbreak.

What also can be said is that since SARS, the Ontario Ministry of Labour has made a concerted effort to learn from its experience, and has adopted many of the kinds of approaches employed by the WCB during SARS. It has made a significant effort to address its resource and expertise weaknesses, including hiring 200 more inspectors and developing sufficient in-house health care expertise. And it has adopted a more assertive, proactive approach to workplace safety in general, and to the health sector in particular. A case in point was a series of proactive inspections of health facilities in late 2003 and early 2004. As the Ministry of Labour said in a submission to the Commission:

> Inspectors issued orders for a variety of contraventions related to infection control including the notifications of occupational illness, Workplace Hazardous Information System (WHIMS), operation of joint health and safety committees, training, ventilation, storage and handling of materials, risk assessment of needlestick/sharp injuries and the use of safety engineered medical devices, handling of waste materials, appropriate use of refrigeration units and the use of personal protective equipment.
>
> All 192 acute care facilities in Ontario were visited and 2,172 orders were issued.
>
> On average there were approximately 11 orders per facility. Of the 11 orders per facility many related to infection control programs and consultation with the joint heath and safety committee.[243]

239. Ontario Ministry of Labour, submission to the SARS Commission, SARS Commission Public Hearing, Appendix C, P.2 March 15, 2006.

A Regional Health Authority and SARS

The only transmission to a health worker in B.C. was at the Royal Columbian Hospital in New Westminster.[244] Under B.C.'s highly centralized health system, Royal Columbian is overseen by Fraser Health,[245] one of the province's five regional health authorities.[246]

How Fraser Health protected its workers from SARS and how it and the WCB reacted to the infection of a nurse provides yet another contrast to the Ontario SARS experience.

In Ontario during SARS, the expertise and contributions of occupational hygienists and the principles of their discipline were not well understood or recognized.

As a health association said in a submission to the SARS Commission:

> There appears to be a lack of understanding in the public health/health care system of the professional expertise available through occupational health and safety personnel. Had the health care sector been aware of and more fully utilized occupational hygiene professionals trained in aerosol science, engineering controls and the proper selection and use of personal protective measures, a significantly improved level of protection for health care workers could have been attained.

At Fraser Health, worker safety experts were seen as integral to the SARS response. Wanting to ensure their workers were fully protected in a manner consistent with the WCB guide and provincial laws and regulations, Fraser Health officials consulted their in-house occupational hygienists shortly after the WCB guide was issued on March 31, 2003.

---

244. The City of New Westminster is about 20 km east of Vancouver.

245. Headquartered in Surrey, B.C., Fraser Health oversees the health region east of Vancouver, supervises 12 acute care hospitals with about 2,000 acute care beds, employs about 21,000 people and has a budget of $1.8 billion. It serves about 1.5 million people.

246. The B.C. health system is highly centralized and is managed by five health authorities that govern, plan and coordinate services in geographic regions. A sixth authority coordinates and provides provincial programs and specialized services, such as cardiac care and transplants. Introduced in December 2001, this structure merged the previous 52 health authorities into a more streamlined system. See: http://www.healthservices.gov.bc.ca/socsec/about.html

A Fraser Health occupational hygienist told the Commission:

> The question came to our director, we are using these N95s, is there any special thing that we need to do? So that was passed along to myself, and I said yes, if we are using N95s we are going to be into doing fit testing or even holding education sessions and do that now. That was communicated to all of our Safety Consultants. The issue that we had at that point in time was that the supplies of N95s within our Health Authority were extremely low because of the world wide demand for them, we had a lot of difficulty in having fit test staff when you just do not have enough N95s and in some of our areas, for example our emergency department in Royal Columbian Hospital, we have got 130, 140 staff that can work in that department.

The unique expertise of worker safety specialists was especially on display when they addressed fit-testing[247] problems and shortages of N95 respirators.

Unlike in Ontario, where the logistics of fit-testing and the lack of in-house fit-testing expertise at many hospitals caused a great deal of concern, worker safety specialists at Fraser Health knew what needed to be done under difficult circumstances.

A Fraser Health occupational hygienist told the Commission:

> We had enough N95s just to cover the staff that were going into the patients isolation room, within our emergency departments we did not have enough to provide for all the staff for fit testing and everything, so at that point in time what we did is we provided them with education on how to put it on and how to take it off properly, we went through the fit check, we went through all that information, we visually inspected as best we could whether they were getting a good seal but because we did not have enough N95s we could not fit test everybody at that point. So we were in communications with our purchasing department and trying to get any N95s that were available so that we could obviously proceed to a higher level.

247. Required by Ontario and B.C. law, fit-testing ensures that workers select a respirator that best fits their facial features. As part of fit-testing, users are also taught how to achieve a tight mask-to-face seal and how put on and take off the respirator safely.

The transmission to the nurse at Royal Columbian involved a SARS patient who had extensive contact in Hong Kong with two family members, both of whom died of SARS. The patient was admitted to Royal Columbian on March 26.[248]

A nurse who had contact with this patient on March 29 and March 30 helped the patient to use:

> . . . the toilet, which was flushed with lid raised in her presence. She followed guidelines in place at the time, but these did not include eye protection. Symptoms developed in the nurse on April 4.[249]

Four or five days later, the nurse began showing the symptoms of SARS: muscle pain, cough, shortness of breath and diarrhea. On April 15, a fever developed and she entered another Vancouver area hospital, St. Paul's, where she was admitted directly to a negative-pressure isolation room.

Officials at Royal Columbian and Fraser acted decisively to prevent further transmission to workers and patients. Staff who may have been exposed were quarantined. Patients on the ward were isolated. And, recognizing the threat of a possible nosocomial outbreak, Fraser Health mobilized its occupational health and safety, and infection control resources.

One Fraser Health occupational hygienist told the Commission:

> Question: So when you had a hot zone, you devoted a lot of your occupational health resources to it?
>
> Answer: Yes.
>
> Question: And your infection control resources?

248. This patient " … had prolonged contact abroad with 2 family members in Hong Kong, who subsequently died from SARS. Although asymptomatic, she went to her physician … on March 26 because she was concerned about her exposure. Chest radiograph showed bilateral consolidation, and she was directed, masked, to hospital B, where she was admitted directly to a [negative pressure isolation room]. She was transferred to the ICU of hospital C for assisted ventilation. Neither of her 2 household contacts had detectable SARS-CoV antibody at day 215." Source: Skowronski et al., "Coordinated response to SARS."

249. Skowronski et al., "Coordinated response to SARS."

> Answer: And our infection control resources. We had an emergency operations centre set up at Royal Columbian, one at Surrey [Memorial Hospital], because that was where we also we still had a [SARS patient] in ICU, and I think we had one set up at MSA Hospital [in Abbotsford, BC] because there were some suspect cases.

Fraser Health dedicated a team to ensure there was no further nosocomial transmission at Royal Columbian.

Recalled one Fraser Health occupational hygienist who had gone out of town:

> So I came back during that Easter weekend and our department was basically on site 24 hours a day for a whole other week and a half after that, until it became clear … that there was no [other] transmission …

Nurses, physicians and other staff on affected wards at Royal Columbian were given intensive assistance to make sure they were protected.

An occupational hygienist at Fraser Health told the Commission:

> We had hands-on training and supervision and provided support to them. We made sure they were taken care of. Went over with them training them … We got to a high level of involvement very quickly. That definitely assisted in preventing a nosocomial outbreak.

To make sure there was no further transmission, joint teams of worker safety and infection control experts were on hand on the affected wards at the Royal Columbian Hospital for each health worker shift change. They made sure health workers knew proper procedures, were fit-tested and had the latest information on SARS. They were also on hand to get feedback from staff and address their safety concerns. And they made sure that all support staff, including x-ray technicians, cleaning staff and catering staff, were properly protected.

One Fraser Health occupational hygienist told the Commission:

> We were there for all the shift changes, any time a staff member would come in, we were there. Infection Control was there. We gave them a full update on everything they needed to do. We would make sure that they were fit tested. And then any staff that would potentially go into that

> room we were fit testing as well. So any medical imaging staff or laboratory staff who needed to draw blood or the various support services that might need to go into that room to provide care for the patient. So there was a huge amount of fit testing at that point.

The situation in Toronto was very different. As one hospital with a strong occupational health and safety program said in its submission to the Commission, many other hospitals lacked qualified worker safety specialists:

> … our facility has the advantage of an established occupational health and safety program, which focuses on recognizing and controlling the broad spectrum of hazards encountered by staff in health care settings, not just biological hazards. Many health care organizations do not have appropriately qualified occupational health and safety staff and thus have to rely on infection control practitioners, where available. This leads to significant gaps in the protection of staff, as infection control practitioners are qualified to address the control of communicable diseases within a patient care population, rather than applied biosafety for the protection of staff. Infection control practitioners do not receive masters' level training in aerosol dynamics, respirator performance, engineering controls, ventilation etc., and are not trained to conduct risk assessments relative to the range of biological hazards for which staff protective measures, such as the use of biosafety cabinets, need to be established.

Unlike in Ontario, where as noted above the Ministry of Labour was largely sidelined, the WCB made five inspections at Royal Columbian to make sure workers were protected.

An occupational hygienist at Fraser Health said:

> We did have WCB coming onto our site around April 15, which I think was just prior to the Easter weekend … They were coming in to see what we were doing. So they did an inspection with us. They talked to staff to see if they were fit tested, if they received any training or not.

During the two largest SARS outbreaks at Ontario hospitals, at Scarborough Grace in March and at North York General in May, the Ministry of Labour deferred to public health officials, and did not get directly involved onsite to make sure workers were protected.

At the Scarborough Grace Hospital, Labour received complaints from nurses' representatives by telephone in late March 2003 but did not act beyond conferring, again by telephone, with the hospital, union officials and public health officials.[250]

The Ministry of Labour told the Commission:

> On March 24, 2003, the Ministry received the first complaint relating to SARS from a worker representative regarding management's response to the hospitalization of health care workers at Scarborough Hospital – Grace Division. The complaint was assigned to an inspector who contacted a Ministry physician who in turn telephoned the hospital on March 24 advising both the Director of Occupational Health and Safety and a Human Resources representative about the requirements under the *Occupational Health and Safety Act* to notify the Ministry of Labour of occupational illnesses. In addition the Ontario Nurses Association was contacted. The Ministry physician also discussed infection control measures with the hospital. The Ministry of Labour physician was told that they were receiving assistance from both Toronto Public Health and Mt. Sinai Hospital and were also in contact with Health Canada.
>
> On March 25, 2003, the Ministry of Labour physician spoke with a Toronto Public Health physician who confirmed that Toronto Public Health was attending at the Scarborough hospital to assist with infection control measures. On March 26, the physician from Toronto Public Health also confirmed that Toronto Public Health was investigating health care workers exhibiting SARS symptoms.[251]

This pattern continued in late May at North York General. On May 27, 2003, four days after the second phase of SARS erupted, the Ministry of Labour was contacted by workers at North York General. The Ministry, in its submission to the Commission, indicated that its response was much similar to its response at the Grace two months earlier:

> On May 27, 2003, a Ministry of Labour physician was contacted by a worker at North York General Hospital who raised a concern about

250. Ministry of Labour, submission to the SARS Commission, SARS Commission Public Hearings, November 17, 2003, pp. 9-10.

251. Ministry of Labour, submission to the SARS Commission, SARS Commission Public Hearings, November 17, 2003, pp. 9-10.

> infection controls in the emergency department. The Ministry of Labour physician, after contacting a North York General Hospital occupational health representative, contacted the Director of Communicable Disease at Toronto Public Health regarding this concern. The Ministry of Labour physician was advised that Toronto Public Health was aware of the concern and their inspectors were in the hospital doing contact tracing. The Ministry of Labour physician specifically requested that the inspectors attend at the emergency department to review the worker concerns which had been communicated to the Ministry of Labour. Toronto Public Health agreed to do so.[252]

At the two largest SARS outbreaks in Ontario, at the Grace and North York General, the Ministry of Labour made no onsite visits to make sure workers were protected. It relied on telephone discussions and it deferred to public health authorities who, unlike the ministry, do not have the statutory duty to ensure that workers are protected under Ontario law. Under the way the provincial SARS response was structured and pursuant to a 1984 Memorandum of Understanding with the Ministry of Health,[253] the Ministry of Labour deferred to Public Health. This assumed that even with the myriad tasks on Public Health's plate, from the gargantuan challenge of contact tracing to deciding whether to close the hospital, Public Health had the resources and capability to give worker safety the same level of attention as the Ministry whose primary responsibility it is.

The WCB was not shackled by these kinds of systemic restrictions. Rather, the WCB independently took decisive action when a nurse contracted the disease at Royal Columbian, wanting to make sure there was no other workplace transmission.

---

252. Ministry of Labour, submission to the SARS Commission, SARS Commission Public Hearings, November 17, 2003, p. 11.
253. Ministry of Labour, submission to the SARS Commission, SARS Commission Public Hearings, November 17, 2003, p. 10:

> Since 1984 the Ministry of Labour has been party to an agreement establishing lines of responsibilities where there are suspected outbreaks of infectious diseases in workplaces. This agreement provides that the Ministry of Labour has a general responsibility for investigating hazards in a workplace under the *Occupational Health and Safety Act* and that the local Medical Officer of Health has responsibility for the identification, investigation and control of outbreaks of communicable diseases. It also provides that where the local Medical Officer of Health decides to take charge of an investigation and control of an outbreak the Ministry of Labour will assist.

Disagreements Over PPE Addressed

The N95 respirator and fit-testing were major sources of contention during SARS in both Ontario and B.C. As in Ontario, some infection control practitioners in B.C. thought requirements for N95 respirators and fit-testing were unwarranted and excessive. One occupational health and safety manager was quoted as saying:

> Infection Control Practitioners in the acute care facilities abide by Health Canada guidelines re: appropriate respiratory protection and are reluctant to move toward the more stringent guidelines/ requirements of WCB.[254]

The resistance to fit-testing and N95 respirators was as entrenched among some infection control experts in B.C. as it was among some of their colleagues in Ontario. An infection control physician at one B.C. hospital told the Commission:

> The pressure from Worker's Compensation in midstream to suddenly demand full N95 usage and fit testing was not only nonsense but was potentially dangerous. In either regard, it was grossly inappropriate. And it was done perhaps in their mind in the best of intention but without any seeming notion of realities or the expertise of very experienced hospital folk. The notion that somehow we had this new virus that was going to work in mechanisms unlike any other virus that we had ever experienced before. It was just really outrageous.

A senior WCB official said:

> … actually it was a very difficult task because we got a lot of resistance from the medical community ... There were certain things they [some hospitals] were doing in terms of clinical procedures which we were extremely uncomfortable with. For example, when they were intubating probable patients … they had prescribed surgical masks and we said, wait a minute, you're exposing somebody to that airborne. And if it's airborne as far as we're concerned respiratory protection comes into place.

254. Chun-Yip Hon and Rita Ciconte, Occupational Health and Safety Agency for Healthcare (OHSAH), "Lessons Learned from SARS: An Occupational Health Perspective."

What was different in B.C. was how these and other worker safety issues were addressed and resolved.

As noted throughout this report, key players in worker safety in Ontario, including the Ministry of Labour, occupational hygiene experts and health unions, were not involved in a meaningful way in resolving workplace issues. The Ministry of Labour, as noted above, was largely sidelined during SARS.

Health unions were also on the margins. When worker safety issues arose, they did not know who at the Provincial Operationsn Centre was making worker safety decisions, how to communicate with them, or how to ensure that their members' concerns were heard.

Ontario Nurses' Association (ONA) and the Ontario Public Service Employees Union (OPSEU) said in their joint submission to the Commission's public hearings:

> • Prior to SARS ONA/OPSEU, was not aware that there was a POC [Provincial Operations Centre], nor that there was a POC-in-waiting, that would spring up in the event of a crisis such as the SARS outbreak.
>
> • To date, OPSEU/ONA are not sure who exactly was working at the POC, how they were chosen or what their roles were – ONA reports that at the OHA meetings this question was raised numerous times – To date both unions still do not know.
>
> • Most importantly, ONA/OPSEU did not know the background and expertise of the people who were drafting the Directives that directed the daily work of health care workers.[255]

Health unions, like the Ministry of Labour, also had trouble getting copies of directives and access to the Ministry of Health's "Dark Site."

ONA and OPSEU said in their joint submission to the Commission's public hearings:

---

251. ONA/OPSEU, submission to the SARS Commission, SARS Commission Public Hearings, November 17, 2003, p. 6.

> In the early days of the crisis, both unions had difficulty getting access to the Directives at all. Although OPSEU/ONA was involved in teleconferences discussing the Directives, it was not until April 7, almost two weeks after the first Directive was released, that both unions gained access to what was called the MOHLTC "Dark Site." This is where the Directives were posted. Until this point, both unions had relied on contacts within the OHA or from union members to provide them with the Directives that were governing the work and the safety needs of health care workers. Even when both unions were issued the password to access the MOHLTC site, ONA/OPSEU was warned in writing that "the site is not intended for the general public and is password protected to provide access to healthcare providers/associations only" (undated memo from [name provided], Communications and Information Branch, MOHLTC). Shortly thereafter, both OPSEU and ONA began to post the Directives in their entirety on their own websites for members, accompanied by interpretations and advice.[256]

Ontario lacked a process to bring all workplace parties together and sort out quickly any workplace issues that touch on occupational health and safety. Janet Beed, the chief operating officer of the Ontario Hospital Association, has said:

> What we learned from SARS is that what is needed is a process to bring together the various partners – union, management, government, ministries, associations – to address these very complex systemic and legal issues, but we need to do that long before the crisis hits. When the crisis hits, we need timely action; we don't need bringing a group together that hasn't worked together before or has only worked in distant relationships. Bringing that group together in anticipation and setting up a set of ideologies and legislative requirements will help.[257]

The expertise of worker safety experts in Ontario was also not utilized, or well understood, as was noted in a number of submissions to the Commission.

256. ONA/OPSEU, submission to the SARS Commission, SARS Commission Public Hearings, November 17, 2003, p. 6.
257. Justice Policy Committee, Public Hearings, August 18, 2004, p. 147.

The situation was dramatically different in B.C. All the workplace parties got together early in the outbreak and everyone with a stake in worker safety was involved.

Dr. Annalee Yassi, head of the Occupational Health and Safety Agency, said:

> The various agencies and organizations that needed to talk to each other got talking to each other very quickly. The, I cannot remember what date it was, but you know mid March, very close, very shortly, after the, you know, the events started occurring, a meeting was held that had brought together people from Infection Control, people from Public Health, the Workers Compensation Board, [the Occupational Health and Safety Agency] ourselves, we insured that we kept the health care force and the health care unions involved from the very beginning. There was a very good sense of we are all going to work on this together from the very beginning. There were no turf issues, there was no question of who should be the lead agency, this was just going to happen …

Through this process, guidelines supplementing the WCB's March 31, 2003, guide were developed collaboratively among all affected parties. An article in the *British Medical Journal* said:

> Guidelines were developed through a collaborative process involving the Workers' Compensation Board of British Columbia (the state's regulatory agency), the Occupational Health and Safety Agency for Healthcare (jointly governed by healthcare unions and employers), and provincial experts in public health, infection control, and infectious disease.[258]

What helped to bring all the parties together was the innovative Occupational Health and Safety Agency, which is jointly governed by employers and unions, including the Health Employers Association of B.C., the British Columbia Nurses' Union and the B.C. Government and Service Employees' Union.

Through this collaborative process involving all the workplace parties, decisions regarding personal protective equipment, despite ongoing differences of opinion, were made on the basis of the precautionary principle. The perspectives of worker safety experts were an integral part of the decision-making process.

---

258. "Severe acute respiratory syndrome guidelines were drawn up collaboratively to protect healthcare workers in British Columbia," *British Medical Journal* 326 (June 21, 2003):1394-5.

Dr. Yassi said:

> Well, you know, not to overstate it, there were certainly the two lines expressed, interestingly even more from the Public Health vs. Occupational Health community even more so than the Infection Control vs. Occupational Health community but I think there was an overall sense of we have to err on the side of safety and that also workers feeling that management cared about their well-being was manifest by over providing rather than under providing, and giving health care workers a sense that managements cares about them, in and of itself important. So even if the science that, you know, N95 respirators fit tested was absolutely whether it was clear or not there was a feeling of the act of doing it would give health care workers a sense of comfort that their needs were being looked after, so that I think factors into the decisions that were made.

Unlike in Ontario, B.C. health workers were also part of the process of implementing guidelines.

One B.C. union official was quoted as saying:

> Frontline leaders were consulted in addressing practical problems. For example, how to deliver meals to patients in isolation areas; nurses made management aware of just how long it took to glove/gown/mask etc… Once nurses got involved in the process, better decisions were being made, especially around staffing requirements/equipment.[259]

Was It a Matter of Luck?

How could the experiences of Toronto and Vancouver be so unlike?

There was an element of good fortune in the case of Mr. C at Vancouver General. He went directly from the airport to his family doctor, who sent him directly to Vancouver General, and, unlike in Ontario, he did not infect any members of his household.

259. Chun-Yip Hon and Rita Ciconte, Occupational Health and Safety Agency for Healthcare (OHSAH), "Lessons Learned from SARS: An Occupational Health Perspective"

Dr. Patrick of the BC CDC told the SARS Commission:

> The Toronto index patient was someone who spread it at her home. That's a harder thing to recognize. In B.C., our first individual did not have a huge extended family, presented at hospital and was recognized very quickly as possible SARS. The pattern of early spread is more to do with luck. Luck was a big element.

Dr. Perry Kendall, the Provincial Health Officer, told the SARS Commission:

> The index case had directly flown in from China. In Ontario, the index had no travel history. Made it a lot harder to make that link.

And yet, there is no denying the remarkable manner in which Vancouver General treated Mr. C. He was quickly isolated. Health workers took the kinds of precautions not routinely used in Ontario until much later in the outbreak. And while much has changed in the way many Ontario hospitals would react today in the event of another SARS outbreak, Vancouver General officials told the Commission they would treat Mr. C today much as they did in 2003.

Dr. Bryce, head of infection control at Vancouver General Hospital, said:

> I just don't think we would have been managed differently…

Vancouver General treated its index patient with the kinds of heightened precautions, including the use of N95 respirators and the rapid isolation of patients presenting with undiagnosed respiratory symptoms, that when appropriately implemented in Toronto proved effective in containing SARS.

What the case of Mr. C also demonstrated was B.C.'s ability to respond to an emerging threat before it was recognized.

The BC CDC had alerted front-line workers to be on the lookout for severe influenza-like illness in returning visitors from mainland China or Hong Kong. This message had reached emergency room staff at Vancouver General staff who were already suspicious of patients with undiagnosed respiratory illnesses. As one study concluded:

> [The case of Mr. C] tests the baseline capacity of a system to respond to emerging threats before they are known or recognized ... The response to

> [Mr. C] in Vancouver highlights the importance of central coordination, baseline preparedness at the local level, and an efficient network of communication in mitigating outbreaks. Baseline preparedness should include barrier precautions in the care of all acute-onset respiratory infections. These should be reinforced through timely public health alerts and periodic infection control audits.[260]

Many Ontario hospitals have adopted the kinds of worker safety policies, practices and systems in place at Vancouver General in March 2003, including the use of N95 respirators, more training for staff, and a greater emphasis on worker safety.

There was also an element of good fortune regarding the two other imported cases of SARS in B.C.

The first was a 64-year-old woman who returned from Hong Kong to Vancouver on March 20. She was later phoned by her family and told she had attended a dinner party with family members who had SARS. Two family members subsequently died of the disease. Although asymptomatic, she visited her family doctor on March 26. Two days later, when a chest x-ray showed bilateral consolidated, she was given a surgical mask and directed to Royal Columbian Hospital in New Westminster, B.C. She was admitted directly to a negative pressure isolation room. Neither of her two household contacts got SARS. She was discharged from hospital on April 21, 2003.[261]

The second was a 49-year-old man, who had stayed at the Amoy Gardens housing complex for a few days before returning home on March 30, 2003. More than 300 people in four separate buildings were infected at the Amoy Gardens in one of the largest community outbreaks of SARS. Back home, he isolated himself in the basement of his home and avoided contact with family members. By April 3, he was so short of breath that his son drove him to the emergency room of Vancouver General. Both wore surgical masks. He was immediately admitted to a negative pressure isolation room. He was discharged from hospital on April 21. No family members, including his son, got SARS.[262]

260. Skowronski et al., "Coordinated response to SARS."
261. Skowronski et al., "Coordinated response to SARS."
262. Skowronski et al., "Coordinated response to SARS."

The circumstances of these two patients made it easier to prevent further spread. Both attended at hospital wearing surgical masks. Both were immediately placed in negative pressure isolation rooms. And both clearly had epi links to SARS: the 64-year-old woman to family members with the disease, the 49-year-old man to the Amoy Gardens, the site of the largest community outbreak of SARS.

Dr. Patrick told the SARS Commission:

> It's much easier to contain something that has never spread than it is to contain something once spread is off the ground.

While there is no denying B.C.'s good fortune, it was also better prepared and better organized to contain any outbreak.

Dr. Perry Kendall said:

> We share information, we have been sharing information, different parts of the system and the Public Health system. And it takes one call from the Deputy Minister and in an hour you can have six CEO's and six V.P.'s of Nursing and six Chief Medical Officers of Health sitting on a teleconference call. You can't do that in Ontario. So, yes, we had some luck but I think we had a better organizational setup or a more optimal organization setup and we were better prepared in terms of anticipating imported cases.

Though occupational health and infection control are often described as separate silos, B.C. succeeded in bringing both disciplines to the table and ensuring their cooperation.

This is not to say there were no disputes in B.C. During the preparation of guidelines, discussions become heated on occasion. One participant in those discussions told the Commission that, despite the contentious nature of the issues, the meetings broadened the acceptance of worker safety principles:

> At points, they kind of got a little heated, everyone pretty much maintained their composure, but there are certain individuals, that obviously, have strong opinions and I noticed things at the first few meetings, first meeting at least, there was a lot of head banging, saying I do not see the value of this, and the other side saying well this is the value of it, but the more information that we presented from the

> [occupational] health and safety side in terms of well here is the research on it and here is what has been done, this issue has been looked at, and it was, it became a lot more acceptable to the infection control side, when they realized there is a science behind it, but definitely it was, it was somewhat heated at the beginning, just because there are some very vocal infection control people that are high profile, that have not really seen this as a requirement before and to change their stance immediately and their ideas was a bit of a challenge.

The difference is that in B.C. all the parties were at the table. All were given a voice. All were recognized as being part of the solution. Worker safety experts were given a prominent role and their expertise was valued.

Unlike in Ontario, the WCB was actively involved throughout SARS. It issued guidelines on March 31, 2003, and followed them up with 19 proactive visits. In Ontario, because of the way the SARS response was structured, the parties most involved in workplace safety, including the Ministry of Labour, ended up on the sidelines.

There was also quick recognition in B.C. of the danger that transmission to workers posed to other workers, to patients and, in fact, to the health system as a whole. This is especially evidenced by how the case of the nurse at Royal Columbian was handled. When there was a workplace outbreak, significant resources were dedicated to ensuring that there was no further workplace spread. There were joint teams of worker safety and infection control experts who were on-site until the danger had passed, and their efforts were monitored by WCB inspections.

There were many structural issues that helped assure the outcome in Vancouver, including efforts to promote a work safety culture.

Dr. Yassi told the SARS Commission:

> From the point of view of the health care response, first of all a fair bit of work had been going on in terms of promoting a safety culture in the workplace, and the need to pay attention to proper precautions, patient safety, worker safety so that with the high degree of suspicion that the BCCDC had and the good work that Vancouver Coastal Health [the regional health authority that oversees Vancouver General Hospital] had in terms of promoting proper use of personal protective equipment and escalation procedures and so on. I think that there was a better response

> from that point of view that from the very get go had people looking at there is a risk here we have to prevent transmission, protect ourselves, protect the transmission to others. So the climate was I think more attuned to a proper response.

Dr. Yassi also said:

> I think that consistent with that sense of collaboration and getting beyond what could have been turf issues was a sense of commitment to really a collaborative but evidence-based approach, that we will err on the side of safety and do what we, what the evidence tells us ought to be done, and that route really quite well. So I think really the combination of a lot of work that was done on safety culture to begin with and the collaboration and the, you know, the commitment to taking a prompt evidence based approach and really good communication with all stakeholders involved.

Conclusion

There was undoubtedly an element of good fortune that saved Vancouver from the devastation that SARS wrought on Ontario. But it must also be said that Vancouver made its own luck.

One study concluded:

> While favourable random chance may have played a role, Vancouver's response to SARS should not be dismissed on the basis of luck alone. Pasteur's edict that "chance favours only the prepared mind" may have modern relevance to the prepared healthcare system.[263]

The story of Toronto and Vancouver will extend beyond this chapter and resonate throughout this report, for it is against the backdrop of Vancouver's good fortune, better preparedness and systemic strengths that the rest of the story of SARS will be told and Toronto's performance assessed.

263. Skowronski et al., "Coordinated response to SARS."

Even with the crucial differences in the way the index cases presented to hospital in Vancouver and Toronto, it is fair to compare and contrast the differences in every respect, in preparation, worker safety and the application of the precautionary principle.

Courage, Achievement and Misfortune at the West Park Healthcare Centre

Introduction

This is the story of the remarkable contribution of the West Park Healthcare Centre,[264] a chronic care facility in northwestern Toronto, to the fight against SARS. It is a story that displays the underlying weaknesses of a health system in crisis and how people who step forward with great courage respond to an emergency. Sadly, it also is the story of how one nurse who stepped forward, Tecla Lin, got sick and died.[265]

A Worsening Crisis

March 23, 2003, was the day when the enormity of the SARS outbreak became clear and it was apparent that worse days might lie ahead.

At the epicentre of the outbreak, the Scarborough Grace Hospital's emergency department was shut, its ICU accepted only inpatient cardiac arrests; the closing of the entire hospital was on the horizon. Particularly worrying was the growing toll of the disease on the Grace's physicians, nurses and other health workers. By the morning of March 23, 21 health workers at Scarborough Grace Hospital had reported sick.

To make matters worse, there was no place to care for the sick Grace workers. The hospital was short of negative pressure rooms, and even those few rooms would soon be out of action. The Grace was shut down the next day.

264. Founded in 1904 and located on a 27-acre campus, West Park provides specialized rehabilitation, complex continuing and long-term care services. It has 279 rehabilitation and continuing care beds, 133 rehabilitation beds, 148 complex continuing care beds, and 200 long-term care beds. (http://www.westpark.org/about/facts.html).

265. Ms. Lin's name is used here because the circumstances of her illness and death are in the public domain.

Dr. Donald Low recalled in a lecture during the outbreak:

> That was sort of when it hit the fan, when all of a sudden we realized that we just didn't have a problem within a family, we were having hospital workers reporting, phoning in with fevers, EMS, emergency, the paramedics, ambulance drivers with fever, visitors who had been in the hospital that were sick, family members.[266]

As noted elsewhere, Dr. Bonnie Henry of Toronto Public Health said:

> We were coming to the realization that these people probably had this disease, and that we needed to do something . . . The hospital did not feel they could look after their people adequately, because they didn't know how many staff were getting sick. And we were unclear of the situation.

Other Toronto hospitals had reached or were nearing the limit of their capacity to accept new cases. So where to put the growing number of SARS cases at Scarborough Grace? The people leading the fight against SARS had few options in the mounting crisis and discussed the possibility that West Park's old tuberculosis unit, which had been mothballed in 2001,[267] provided the only, albeit imperfect, solution to the problem of where to house the sick Scarborough Grace health workers.

West Park is a century-old rehabilitation and continuing care facility that sits on 27 acres in Toronto's Weston area. It was opened in 1904 as the Toronto Free Hospital for Consumptive Poor. For decades it was a leading treatment centre for tuberculosis patients known locally as the Weston San. In the 1970s, as tuberculosis (TB) began to diminish, the facility moved into other health areas such as rehabilitation, and in 1976 its name was changed to West Park Hospital and later to West Park Healthcare Centre.

On March 23, in a matter of hours, in a remarkable display of generosity, the old TB unit was reopened and began accepting Scarborough Grace health workers. Over the next two days, 14 were admitted to hospital. All would recover.

---

266. Donald Low, "On the front lines: clinical experience in Toronto," conference presentation, New York Academy of Sciences, May 17, 2003.

267. West Park's 22-bed, state-of-the-art tuberculosis treatment facility was opened in 2000 in its Main Building (http://www.westpark.org/about/hismilestones.html).

Amid this enormous achievement, however, there was tragedy. Tecla Lin, a West Park nurse who had volunteered to treat her sick colleagues, caught the disease and inadvertently spread it to her husband. He died on April 26, 2003. Ms. Lin died on July 19, 2003, becoming the second nurse claimed by SARS in less than a month.

Discussions to Reopen Old TB Unit

The best place to accommodate the sick Grace health workers would have been an acute care hospital with enough negative pressure rooms. But as the Naylor Report noted:

> On March 23, 2003, officials recognized that the number of available negative pressure rooms in Toronto was being exhausted.[268]

Sunnybrook[269] generously agreed to accept SARS patients but said it needed to upgrade its facilities first, a process that would take 48 hours.

The other possible choice, West Park's old TB unit, was far from ideal. Located in the 1930s E. L. Ruddy Building,[270] it didn't meet current standards for treating respiratory illnesses. A West Park official said:

> It's not really conducive towards current practices in medicine and treatments in medicine with regards to therapies, occupational therapy, physiotherapy, those types of things.

There were no negative pressure rooms, no anterooms where staff could change their protective equipment before heading into common areas, and no washbasins outside

268. Naylor Report, p. 27.

269. During the SARS outbreak, Sunnybrook was part of the Sunnybrook and Women's College Health Sciences Centre.

> In June 1998, the Ontario government passed a special act of legislation (Bill 51) creating Sunnybrook and Women's College Health Sciences Centre (Sunnybrook & Women's). This new health organization amalgamated Sunnybrook Health Science Centre and Women's College Hospital. On August 18, 2005, the Ontario government announced that Women's College Hospital and Sunnybrook would again become separate healthcare facilities.

270. See http://www.westpark.org/about/hismilestones.html.

patient rooms. Some patients would have to leave their rooms to use a washroom across the hall.[271]

Because of these and other shortcomings, the old TB unit could not provide optimal conditions for safely treating SARS patients. As a communicable diseases manual edited by one of the WHO's top SARS experts said:

> Probable SARS cases should be isolated and accommodated as follows in descending order of preference: negative pressure rooms with door closed, single room with own bathroom facilities, cohort placement in an area with an independent air supply, exhaust system and bathroom facilities . . .
>
> Movement of patients outside the isolation unit should be avoided . . .
>
> Handwashing is crucial and access to clean water essential with handwashing before and after contact with any patient.[272]

Despite its many inadequacies, those at the head of the SARS fight believed correctly that there was no other option but West Park. There was certainly no alternative in sight.

At about 1 p.m. on March 23, a Regional Director of the Ministry of Health and Long-Term Care called West Park's on-call administrator.

A memo by the on-call administrator said:

> At 1300 hours on Sunday, March 23, 2003, I was contacted by [name provided], Regional Director, Ministry of Health, to consider opening one of our closed units to accommodate a group of patients that may have been exposed to an acute respiratory illness referred to as SARS . . .
>
> On March 22, 2003, Scarborough Hospital received 15 calls from staff reporting flu like symptoms. Today, 10 more staff called in with flu like symptoms. Public Health was contacted concerning this issue. Public

271. Report by Ministry of Labour investigator Stella Barber, December 9, 2003, pp. 25-26.
272. David L. Heymann, ed., *Control of Communicable Diseases Manual*, 18th Edition (Washington, D.C.: American Public Health Association, 2004), p. 484.

> Health and the Ministry of Health have had multiple conversations and have daily conference calls to discuss the issue. The Ministry of Health decided to identify a place where the patients could be isolated and watched in a contained unit.
>
> The Ministry's first choice was to identify a hospital that had a negative pressure unit to accommodate upwards of 25 patients that are showing symptoms of SARS. No unit exists within the Toronto area.
>
> The next choice was to find a hospital that had an isolated building, either not in use or a building that did not have a shared air handling system. (West Park's Ruddy Building fit that profile.)
>
> [Name provided] further advised me that West Park came to mind because:
>
> We have closed units.
>
> We have expertise in handling infectious respiratory illnesses with our TB experience.
>
> We have respiratory expertise here at West Park.

The on-call West Park administrator explained the closed unit would require a great deal of work before it could reopen. His memo said:

> In my telephone discussion with [name provided], I advised her that we do have a closed unit in the Ruddy Building that can accommodate upwards of 29 patients. However, the unit is currently out of operation and has been for 2 years and would require a significant effort on behalf of West Park to recondition the unit to accommodate patients in any sort of short-term notice.
>
> [Name provided's] response was she is not concerned about providing all the finishing touches in a unit and the Ministry will be quite willing to tolerate some grumblings and complaining of patients that fill a unit where they can isolate this group of patients.
>
> I responded that I would not be able to confirm that West Park could accommodate the Ministry's request at this time without further discus-

sion with Barry Monaghan, President and CEO.

Things moved quickly. About an hour later, the on-call administrator joined a conference call with provincial and local officials, including Dr. Henry and Dr. Colin D'Cunha, the Chief Medical Officer of Health.

The Administrator's memo said:

> I asked if [name provided] was able to identify another hospital that could accommodate this emergency request, as West Park was not equipped to open a unit immediately.
>
> [Name provided] responded that the Ministry had no success in identifying another hospital and that West Park was considered to be a prime location for this because:
>
> Our expertise in respiratory illness.
>
> We have a unit in the Ruddy Building that does not have a shared air handling system.
>
> We have experience in dealing with infectious respiratory diseases such as TB.
>
> In Summary, West Park – You are it.

West Park Reopens Old TB Unit

Despite the Ruddy Building's inadequacies, and even though the facility was not equipped or staffed to provide an acute level of care, West Park accepted the challenge.

Dr. Sheela Basrur, then Toronto's Chief Medical Officer of Health, said:

> Some of those workers [from the Scarborough Grace Hospital] had become ill, they needed a place to be cared for, and West Park generously opened up a wing of their hospital and looked after them.[273]

273. Justice Policy Committee, Public hearings, August 18, 2003, p. 160.

Immediately after the 2 p.m. teleconference, efforts began to reopen the old TB unit. There was no time to spare because the first patients would arrive later that evening.

Dr. Henry said:

> On Sunday afternoon West Park operationalized, incredibly quickly, and we started calling all of the staff back and saying we need you to go there now.

In about six hours, the former TB unit was made ready. Rooms were washed. Beds were wiped down and placed in each room. Bed linen and patient gowns were obtained. Curtains were put up. Arrangements were made with food services.

An in-house publication quoted a West Park manager as saying:

> The thing that impressed me most . . . was how hard the staff worked, their willingness to pitch in and do anything necessary to get the unit up and running.[274]

An on-call nursing service manager arrived at 4:00 p.m. She said:

> . . . my first responsibility was to try and attain staff to care for the patients . . . And we were speaking with staff at Scarborough Grace hospital who were giving us the clinical background of these patients so that we would have a better idea of what their state was, what kind of supplies and equipment we would need to be able to provide care for them.

Dr. Peter Derkach, West Park's Chief of Staff, got a message on his pager at around 5:00 p.m.:

> We were at a birthday party, I was not on call, but I always carry my pager anyways. And I came home and there was a message on the answering machine to say that I should report to the board at West Park as soon as I get that message . . . I went to West Park and there was already a meeting in progress. And Barry Monaghan, our President, was there and other

274. West Park Healthcare Centre, *Community Report*, October 2003.

> senior management staff. I believe our infection control nurse was there at that time . . . and others, whom I can't remember at the moment. But any rate, there was a discussion in progress about a conversation that had taken place regarding a phone call from the Ministry asking us to set up a unit, to help out. And because the Ministry knew that we had an empty unit, it was an old TB unit for that matter, and also because of our expertise in dealing with TB and infectious disease.

Dr. Derkach went home, packed some clothes, and returned to West Park, not knowing when he'd see his family again:

> As Chief of Staff I simply assumed that I needed to be involved in this and it was part of the job, I would do it anyways, just go right in. But I went home, packed my bags and told my wife I wasn't quite sure when I would see her again, and came back.

He was also concerned about his children:

> I told [them] . . . not to tell anybody at school that I was involved in dealing with SARS because I didn't want them to be shunned in any way.

Patients Begin Arriving at West Park

Through the evening of March 23 and into the early hours of March 24, staff at West Park hurried to get the SARS unit up and running.

Dr. Derkach said:

> Physically everything was rushed, and you know we were organizing ourselves, I mean from the basic things, like where to put these forms and those forms and this paper and pens, and where do we keep the gloves and the gowns, and patients rolling in, where do we get food, where is the water, where's the pantry, where's this, where is the washrooms, it's just the normal things, and so there was an element of commotion . . . although there wasn't an element of panic or fear per se, there was just a job that needed to be done, and everybody was trying to do their best.

Dr. Donald Low volunteered to attend at West Park and help admit patients. He was accompanied by a Mount Sinai epidemiologist and brought much-needed supplies, including goggles and disinfecting wipes.

Late in the evening of March 23, the first health workers from the Grace were directed to go to West Park.

One of those health workers said:

> And then I sort of noticed I started to get a dry cough Sunday in the afternoon so I came in, in the early evening, and apparently a whole slew of various, nurses and techs had started to show up. And they took an X-ray, the first set of the chest X-rays, and they said at first glance it looked okay, but they looked at it a little more closely, they saw a bit of infiltrate in one spot, a sort of fuzziness.
>
> And then they said, because of your symptoms as well, they've opened up an unused floor at the West Park, where they can isolate everybody. We're going to send about a dozen of you over there. So I ended up going there.

Transportation arrangements were improvised. Dr. Bonnie Henry said:

> We figured it was probably safest to go in a private vehicle, and we told them don't take public transport, go in a private vehicle, sit in the back seat if somebody is driving you, keep the windows open, that sort of stuff, which seemed to be the most the best we could do at the time. Some people did have masks and we asked them to wear them.

One doctor involved in the opening of West Park recalled:

> Between Sunday night, all Sunday day, early Monday morning and Monday, we admitted 14 health care workers that had fever. Everybody from housekeeping to one of the anesthesiologists. They came by taxi, they came by ambulance, they drove themselves in. It was quite remarkable as the night went by, you saw these people, the elevator door would open and you would have two more patients there. These all were people who had come back to Scarborough Grace over the weekend with fever or they had been assessed and sent home and now they realized that they had it and they got phone calls saying you've got to report to West Park.

The sick health workers from Scarborough Grace appreciated the health workers who came to care for them despite the risks. One said:

> I am so thankful that anybody came.

Another said:

> I had no idea where West Park was. I'd heard about some place they had chronic ventilators, patients who needed long-time ventilation, but I knew nothing more about it than that.
>
> I did know that some of my colleagues were already down there, so I sort of felt better at that, I knew I was going down to be with some of them . . .
>
> West Park on the whole was great. They were amazing at West Park, absolutely amazing. . . It was as if they were looking after their own. I couldn't say a bad thing for anyone at West Park.

The rooms at West Park were old and, recalled one health worker, there were "dust bunnies" under the beds.

One nurse from Grace said:

> Once we got to West Park, I remember [a colleague] and I saying, well, the entrances were very bright, very clean, very nice. It was cheerful down there.
>
> But once we got up to, I think it could've been the third floor, I'm not sure, we were greeted by Dr. Don Low. He was there with a gown and mask and gloves.
>
> And then we looked down the halls and there were lines of hampers and gowns, it looked like a sanatorium. And I was sent to my room. It was a huge room with three beds but I was the only one there.

A remarkable closeness developed between patients and staff. Dr. Derkach said:

> They were there, they bonded with us, they were extremely close with us, you know it's kind of a mentality that is extremely well known in doctor-patient relationships, but this had an extra added feature . . . you're held captive in a place for so long, and even though in retrospect it was only three weeks, or four weeks or whatever it was, but it was long enough that the people bond together. And we couldn't not work on a floor because we committed ourselves, we couldn't work anywhere else, and they couldn't leave, so we were there every day. And every day, twice a day, we would make complete rounds, and we would go and see everybody, so we got to know them intimately, and they got to know us, my personality and the personality of everybody else, and you bond together.

Patients at West Park experienced difficult periods of isolation and loneliness. A medical study on the SARS unit at West Park said:

> Most patients expressed feelings of fear, depression and anxiety at the time of the acute illness . . . In addition, many expressed nonspecific anger and frustration at being in isolation and without contact with family and loved ones. This was particularly the case for those patients with young children, and especially the two patients whose children developed SARS.[275]

Dr. Derkach said:

> Answer: Well they were pretty sick, frightened, terrified. And one of them simply just wanted to go home, but we told them we couldn't let them go home. But even if they wanted to go home they had to stay . . . Most of them were very compliant and cooperative and very, very afraid, and a few of them were very sick. Three of them ended up being very seriously ill. We even tried to transfer them out, but we couldn't transfer them out. There were no rooms in the intensive care units, or we couldn't get an ambulance, and the

275. Monica Avendano, Peter Derkach, Susan Swan, "Clinical course and management of SARS in health care workers in Toronto: a case series," www.cmaj.ca, May 28, 2003; revised June 6, 2003, p.1657 (Avendano et al., "Clinical course and management of SARS in health care workers").

patient improved by the time we could, so we said forget it.

Question: It must have been hard to try to reassure them?

Answer: Reassure them for what, with what? But there was nothing to say. We did talk, of course, but reassure them with what, that they weren't going to die, that we didn't know? We didn't think they were going to die, but already I think out in the southeast, there was already beginning to be this inkling that, not everybody dies, they've got it, and most survived, but there were already beginning to be, a good total of number of people that had died already, so we didn't know how long it was going to last, we didn't know how long we were going to be there, we didn't know what we were treating, how it was going to work out. It was one big one giant question mark, and there wasn't much to say other than we were there together. And as with all other types of epidemics, these things tend to run their course and eventually this will go.

Shortages of Staff

Staffing the SARS unit was a problem from the start.

As the Naylor Report said:

> Despite the efforts of West Park physicians and nurses, and assistance from staff at the Scarborough Grace and Mount Sinai Hospitals, qualified staff could be found to care for only 14 patients.[276]

Part of the reason was the lack of acute care[277] expertise at West Park. Since West

276. Naylor Report, p. 27.

277. "Acute often . . . connotes an illness that is of short duration, rapidly progressive, and in need of urgent care" (www.medicinenet.com/script/main/hp.asp).

Park was not an acute care hospital,[278] the skills, expertise and experience of its staff were more attuned to its core chronic care programs.[279]

A nursing manager said:

> Question: Did you have problems recruiting [nursing] staff?
>
> Answer: I did. Primarily I believe because we're not an acute care facility . . . I tried to ask staff who had IV experience. Again, not being an acute care facility, we don't get a lot of IVs.

Fear of SARS also played a role in the staffing shortages. A senior public health official said:

> There were always concerns about staffing that unit. People were afraid. People were concerned about ensuring that we had all the correct protection for people who were working the SARS cases, myself included.

One of the first nurses to volunteer for the SARS unit was Tecla Lin.[280] The 58-year-old nurse had extensive experience in Hong Kong and Canada and was employed part-time at West Park.[281]

---

278. A facility that provides "short-term medical treatment … for patients having an acute illness or injury or recovering from surgery" *The American Heritage Dictionary of the English Language*, 4th edition.
279. West Park's website describes its core programs in the following terms (www.westpark.org/patientservices/index.html):

> Rehabilitation and Community Living: Helping patients overcome such health challenges as stroke, lung disease, amputation, severe trauma or brain injury through active rehab care and support.
>
> Complex Continuing Care: Providing compassionate and respectful chronic care in a warm and therapeutic environment to residents who need longer term medical and nursing care.
>
> Long-Term Care: Providing a home-like environment, quality nursing and supportive care to the frail elderly and those not able to live safely on their own.

280. "West Park Healthcare Centre announces death of staff member," West Park news release, July 20, 2003, http://www.westpark.org/media/newsSARSannouncement072003.html.
281. Biography of Tecla Lin, http://www.westpark.org/media/PDF/Tecla%20Lin%20Biography.pdf.

Dr. Monica Avendano, a respiratory medical specialist who had been at West Park for 25 years, said:

> I knew her for quite a while. She was a very good nurse.

Dr. Derkach also knew her:

> Question: What was she like as a person?
>
> Answer: Oh, . . . very bubbly, perky, helpful, really nice. She was great. Very active, that's how I remember her. Charming, and always ready to help. If you asked her for anything, she would be right there.
>
> Question: Did she volunteer for this unit?
>
> Answer: They were all volunteers throughout the whole thing. We didn't force anybody to work.

It was also difficult to find physicians to staff the unit. Besides Dr. Derkach, the only volunteers were Dr. Avendano and a physician who was leaving West Park and was able to work for only the first few days.

Dr. Derkach said:

> Question: Were you surprised that no one volunteered to help you out?
>
> Answer: Yes and no.
>
> Question: How so.
>
> Answer: Well, you know, there was a certain element of danger. There was certainly a big element of danger to it. So I wouldn't have expected everybody to volunteer, but I was also disappointed that no one else volunteered. So it was really just Dr. Avendano and myself who were there . . .
>
> You know the other thing was, by the way, that some-

> body had to man the rest of the hospital. The work still had to continue and so there was the reality that people needed to work elsewhere, because I certainly couldn't go back and forth, between units, and neither could Dr. Avendano. So the other respirologist said that he would help us out with reading X-rays, trying to organize some of the diagnostics, that sort of thing. But that was the extent of what we had.

Those who did volunteer displayed a remarkable courage and sense of duty. Dr. Avendano said:

> I suppose we were enough, or maybe at times we were not enough, but I can tell you that the people who worked in that unit were all extremely dedicated people, that I will work with them any time, because it was a risky situation. The staff that cleaned, the housekeeping, did not want to go either. So we had a woman that was absolutely amazing, she was always there working, washing and cleaning. And at one point, [something spilled on her] and she was in a panic, and we just washed her. The pharmacist was all the time there, from eight o'clock until eight o'clock at night. The infection control nurse . . . was all day there, the ward clerk in the TB unit worked there with his mask because there were so many papers coming and going.

An important factor, said Dr. Avendano, was the support from West Park's top management:

> The CEO, Barry Monaghan, was absolutely amazing. You know many physicians do not have very good relationships with their administration. He was there all the time. If we needed something at seven o'clock, we would call his office and he was there. We need something at ten o'clock, we call his office and he was there. We had every day the noon conference with all the SARS units, and he was there. He was not afraid of sitting in the room with us, which was appreciated, because everybody else was afraid of that.

Tecla Lin Contracts SARS

As Table 1 indicates, Tecla Lin began working on the SARS unit on the evening of March 24, 2003. Her last shift was more than one week later, on April 2.

Table 1 – Tecla Lin's Work Schedule at West Park

	Shift	Time at Work
Monday, March 24, 2003	Night Shift – 12 Hours	7 p.m. to 7 a.m. (March 25)
Tuesday, March 25, 2003	Night Shift – 12 Hours	7 p.m. to 7 a.m. (March 26)
Thursday, March 27, 2003	Split Shift – 8 Hours	3 p.m. to 11 p.m.
Saturday, March 29, 2003	Split Shift – 8 Hours	7 a.m. to 3 p.m.
Monday, March 31, 2003	Split Shift – 8 Hours	11 p.m. to 7 a.m. (April 1)
Wednesday, April 2, 2003	Split Shift – 8 Hours	11 p.m. to 7 a.m. (April 3)

On April 3, 2003, Ms. Lin had onset of fever, myalgia[282] and cough. One day later, she was seen at the SARS clinic at the Women's College Campus, where her chest X-ray showed pneumonia. She was admitted to Sunnybrook Hospital.[283]

Her husband's fever began on April 3, and he was also seen at Women's College Campus. He was sent home because doctors did not think he had SARS. His condition worsened on April 7 and he was admitted to Toronto East General on April 9. He died on April 26, 2003.[284]

On May 27, Tecla Lin was transferred from Sunnybrook to the William Osler Health Centre.[285] She died on July 19.[286] No one knows how Tecla Lin contracted SARS.

Dr. Derkach said:

282. "Myalgia: Pain in a muscle; or pain in multiple muscles. Myalgia means muscle pain. There are many specific causes of various types of myalgia. Myalgia can be temporary or chronic. Myalgia can be a result of a mild conditions, such as a virus infection, or from a more serious illness" (MedicineNet.com).
283. Toronto Public Health Case Review.
284. Toronto Public Health Case Review.
285. Ministry of Labour investigation into the death of Tecla Lin, p. 43.
286. Toronto Public Health Case Review.

Question: Any sense of how Tecla Lin got sick?

Answer: No. It's still a mystery to this day . . . I don't remember her breaking protocol. I don't remember seeing anybody walking around or going into a room without a mask or without gloves or without anything. Nobody did that. Now whether she broke her protocol at one point for a short while but we didn't know, I have no idea, but she didn't seem to be different than any other one of us. And she was always, as far as I could see, pretty careful about doing what she needed to do to protect herself. I don't think we'll ever know.

Dr. Avendano recalls that Ms. Lin helped treat a very ill SARS patient during the early part of the patient's incubation period, but was well protected. When asked how Ms. Lin contracted SARS, Dr. Avendano said:

> I don't know, because it could have been, the incubation period could be from one day to 10, 11, and 12, so it could have been other patients. He [the patient] was coughing quite a bit that night, but she was very protected, that night she was fully protected, because he was coughing so much.

The aforementioned study on the SARS unit at West Park stated:

> After one of our nurses was diagnosed with SARS, 24 members of the SARS unit team were quarantined, some at home and others on working quarantine. This was a source of considerable stress for our team.[287]

Ministry of Labour Not Consulted

When West Park's old TB unit was reopened, the Ministry of Labour was not consulted, even though it knew first-hand of shortcomings and had the expertise to try to mitigate them.

287. Avendano et al., "Clinical course and management of SARS in health care workers."

In 1995, the Ministry had inspected the old TB unit at West Park's Ruddy Building. It found deficiencies with the ventilation system and with the type of respiratory protective equipment worn by staff.

A senior Ministry official said that under the best of circumstances, West Park's old TB unit was "a poor choice" for SARS patients:

> Certainly, putting people with respiratory illnesses in a facility that is clearly identified as being inadequate for respiratory illnesses seems like a poor choice.

However, he also recognized the exigent circumstances of March 23:

> Now, if it's an emergency situation and there's nowhere else to move people and they were stuck with them, then they really have to be diligent about the hand washing, environmental cleaning and the use of fit-tested N95s.

In hindsight, it is clear that the Ministry's involvement would have been germane when West Park's old TB unit was reopened. Although no one can say what impact Labour's involvement might have had, neither can it be said that without the Ministry's participation everything was done that could have been done to make the old TB unit a safe workplace.

That Labour was not consulted does not reflect on those who made the decision to reopen the old TB unit. They acted in good faith and did their best under trying circumstances in a crisis that appeared to be spinning out of control. That no one thought of calling the Ministry of Labour shows once again how little awareness there was in the health care system about Labour's expertise and role.

In addition to the incredible success noted above, the story of West Park Hospital demonstrates the importance of ensuring that the workplace regulator is an integral part of the response to a public health emergency like SARS.

Systemic Problems

West Park, a chronic care facility that normally offered rehabilitation, continuing care and long-term care services, was asked to provide the kind of acute care that challenged even the most sophisticated resources of the city's teaching hospitals.

That West Park was able to do so is a notable achievement, and needs to be acknowledged.

What also must be acknowledged is that West Park faced many of the systemic problems that, as is noted throughout this report, hampered the overall SARS response. If these systemic problems were difficult to overcome for some of Toronto's leading teaching hospitals, they were doubly so for an institution which was not oriented to providing specialized acute care and which did not have the benefit of sophisticated academic and research support.

The health care system lacked the capacity to provide West Park, and indeed every other SARS hospital, with the kind of worker safety and infection control support and assistance that might have helped to mitigate the shortcomings of the Ruddy Building.

As in every other SARS hospital, for example, staff on the SARS unit at West Park were not fit tested until after the outbreak. And on the evening of March 23, 2003, when West Park began to receive its first SARS patients, there was no clear direction that staff had to wear N95 respirators.

Dr. Derkach said:

> I think I was basically wearing just a regular surgical mask. I think. The N95 aspect really didn't come until days later, if not maybe even a week later. Maybe longer, it's hard to say. But there was certainly no directive on that Sunday you had to wear N95 masks because nothing else was worthwhile. That wasn't there.

When asked whether the Ministry of Health provided any technical information, Dr. Derkach said:

> The only information that I got actually was really from [Dr.] Don Low and whatever I could find on the Internet. Those were my two sources. And [Dr.] Don Low, I remember, he photocopied some information and he brought it in.

Dr. Derkach also said:

> I don't think the Ministry told us anything, period. And I think it's whatever I heard from Dr. Low, whatever I could glean from the Internet,

> whatever [the infection control nurse on the SARS unit] thought was good, prudent infection control. And so that's why eventually, within a period of days, we just went to full protection. So, again, I think, by the end of the week, again I can't remember exactly, but we were just putting everything on. And we realized how difficult it was to maintain those precautions, so once you came out of the room and you disrobed, what happened then?

For information on how to protect themselves, staff on West Park's SARS unit, as in every other SARS hospital, relied on the Provincial Operations Centre's directives, but like many other health workers they found those directives to be confusing and incomplete. As noted in the Commission's first interim report, problems with the directives were not the fault of those who prepared them but show the inadequate conditions under which the directives were prepared[288].

West Park physicians and nurses did the best they could. Dr. Avendano said:

> We had no other choice, and we were very strict in terms of caring for ourselves. I was very, very strict, and if anybody I thought was not being strict, I would tell them.

Dr. Low said:

> You didn't have the proper isolation, you didn't have anterooms, you didn't have anything, but you were just trying to do the best you could.[289]

It is instructive to compare West Park's lack of outside worker safety support, and indeed the lack of support provided to all Ontario SARS hospitals, to what happened at Fraser Health, the health authority east of Vancouver. When Royal Columbian Hospital, one of the 12 hospitals it oversees, received its first SARS patient on April 1, a Fraser Health safety specialist was on site to make sure staff were protected.

An occupational hygienist told the Commission:

---

288. SARS Commission, first interim report, pp. 81-89.

289. Dr. Donald Low, "On the front lines: clinical experience in Toronto," conference presentations New York Academy of Sciences, May 17, 2003.

> On April 1st we had the patient at Royal Columbian Hospital, and they got transferred to Surrey Memorial Hospital onto their ICU department. I started working with Royal Columbian staff, that is where my office was, and that is where one of our highest, our busiest emergency departments is…

When the patient was transferred to another hospital, Surrey Memorial, other worker safety specialists were on site to make sure that hospital's staff were protected.

Initially, there were shortages of N95 respirators at both Royal Columbian and Surrey Memorial, and it was difficult to fit test everyone. Work safety specialists used their expertise in occupational hygiene to mitigate the risks from respirator shortages and from a lack of fit testing. They were on site to make sure staff at both hospitals knew how to use N95 respirators, including visually inspecting staff wearing personal protective equipment.

An occupational hygienist at Fraser Health told the Commission:

> We did not have enough [N95 respirators] to provide for all the staff for fit testing and everything. So at that point in time what we did is we provided them with education on how to put it on and how to take it off properly. We went through the fit check.[290] We went through all that information. We visually inspected as best we could whether they were getting a good seal. But because we did not have enough N95s, we could not fit test everybody at that point.

There was also a different response in B.C. when a nurse at Royal Columbian got SARS. Unlike what happened at West Park after Tecla Lin contracted the disease, Fraser Health dedicated a team of infection control and worker safety experts to Royal Columbian Hospital to ensure that there was no further nosocomial transmission. Nurses, physicians and other staff on affected wards were given intensive assistance to make sure they were protected.

An occupational hygienist at Fraser Health told the Commission:

290. Before a respirator is used, a fit check ensures that there is a good seal.

> We had hands-on training and supervision and provided support to them. We made sure they were taken care of. Went over with them, training them . . . We got to a high level of involvement very quickly. That definitely assisted in preventing a nosocomial outbreak.

Joint teams of worker safety and infection control experts were on hand on the affected wards for each health worker shift change. They made certain that health workers knew proper procedures, were fit tested and had the latest information on SARS. They were also on hand to get feedback from staff and to address their safety concerns. And they verified that all support staff, including x-ray technicians, cleaning staff and catering staff, were properly protected.

As noted earlier in the report, one Fraser Health occupational hygienist told the Commission:

> We were there for all of the shift changes so any time a staff member would come in, we were there. Infection Control was there. We gave them a full update on everything they needed to do. We would make sure that they were fit tested. And then any staff that would potentially go into that room we were fit testing as well. So our medical imaging staff or laboratory staff who needed to draw blood or the various support services that might need to go into that room to provide care for the patient. So there was a huge amount of fit testing at that point.

To ensure that there was no further transmission, the Workers' Compensation Board, the workplace regulator in B.C., also sent inspectors to Royal Columbian.

When Tecla Lin got SARS, neither West Park nor any other Ontario hospital received the kind of support that was given in B.C. Worker safety and infection control experts were not sent to West Park or any other Ontario hospital to make sure staff were protected. And the Ministry of Labour did not conduct any proactive inspections.[291]

That there was no such assistance and regulatory support for West Park is yet another example of the systemic weakness in worker safety resources and culture in Ontario.

291. The Ministry of Labour's investigation into the death of Tecla Lin will be discussed later in this report.

Conclusion

Tecla Lin and the other men and women who staffed West Park's SARS unit did a remarkable job and displayed incredible courage and a strong sense of public duty. They worked under the most trying of circumstances and were not helped by a system unprepared to protect health workers. The province of Ontario is fortunate to have such men and women in its health system.

Provincial and local health officials who felt that West Park was the only option available for treating the Grace's sick health workers were dealing with a mounting crisis and the decision was made in good faith to ask that West Park's old TB unit be reopened. They did the best they could under the circumstances. The equally dedicated officials at West Park, who bravely accepted the challenge of opening up the Ruddy Building's old TB unit, also did so in good faith.

There were no teams of worker safety and infection control specialists dispatched to assist staff at West Park or any other Ontario hospital, as there were in Vancouver. And there were no proactive inspections by the Ministry of Labour, as there were in Vancouver.

The health system in B.C. was prepared to protect workers under exigent conditions. It had worker safety specialists who knew what could be done to mitigate risks in difficult situations like a lack of N95 respirators. It made sure they were on site at hospitals with SARS patients. And it made sure they worked directly with staff who treated SARS patients, including visually inspecting how they put on personal protective equipment.

Ontario was not as well prepared to protect its workers.

The Disaster at Mount Sinai Hospital

Introduction

On March 12, 2003, Mr. N, a 75-year-old man with a history of serious illness, including a liver transplant and triple-bypass surgery, visited a foot clinic at Scarborough Grace Hospital, where he contracted SARS.

These were still early days in the outbreak at the Grace, and the focus remained on Mr. T, and on whether he might have tuberculosis. There was concern that something unusual was happening at the Grace, but as of March 12 no one realized that a new disease, later called SARS, was in the hospital, let alone that it would spread among patients, visitors and staff.

Mr. N felt unwell a few days after his foot clinic visit, and was admitted to the Grace on March 22. His condition worsened and he needed intensive care the next day. With the outbreak surging through the Grace, its ICU could take no new patients, and he was transferred to Mount Sinai's ICU. No one knew that Mr. N had SARS and was bringing it to Sinai. He infected 13 others, including three members of his immediate family; a cousin; two close friends, one of whom died; his family doctor; and three nurses, two physicians and one respiratory therapist at Mount Sinai. Sixty-nine Mount Sinai staff also were quarantined, and its ICU was closed to new patients.[292] SARS claimed the life of Mr. N on April 1, 2003.

This is the story of how difficult it was to detect SARS in the early days of the outbreak, and of the dangers posed by unrecognized patients. On two separate occasions, once when he was at the Grace, and a second time at Mount Sinai, experts acting to the best of their abilities and on the basis of all that was known about SARS at the time examined Mr. N and ruled he did not have it. This does not reflect poorly

292. Mount Sinai Hospital, "Mount Sinai on the SARS Frontlines," Summer 2003, http://www.mtsinai.on.ca/Publications/YHRSummer2003/GoingsOn/SARS.htm

on the Grace or Mount Sinai. The Grace and Mount Sinai[293] did their best under trying circumstances, and their staffs worked with courage and dedication.

In hindsight, the experts would have benefited from taking a precautionary approach.[294] With the benefit of hindsight, the case of Mr. N points to the importance in the future of employing a precautionary approach when fighting a new disease like SARS that is not well understood, mimics the symptoms of known illnesses and is particularly dangerous if cases are not recognized and enter the health care system.

---

293. It is worth noting the important voluntary contributions made by Mount Sinai to containing the outbreak. Some of its highly respected experts, including Dr. Donald Low and Dr. Allison McGeer, led the fight against SARS. And, at that time when Ontario's laboratory resources were woefully inadequate, Mount Sinai helped to fill that gap. As the Naylor Report noted:

> With the provincial lab overwhelmed, some hospitals sent specimens directly to the National Microbiology Laboratory, bypassing the usual hierarchy of referral.
>
> The Hospital for Sick Children, Mount Sinai, and Sunnybrook and Women's had strong platforms in polymerase chain reaction technology—an elegant laboratory testing modality that identifies microorganisms by analyzing strands of their DNA or RNA. They became the de facto and unfunded referral centres for Toronto SARS testing.

294. Mr. Justice Horace Krever has said:

> Where there is reasonable evidence of an impending threat to public health, it is inappropriate to require proof of causation beyond a reasonable doubt before taking steps to avert the threat. As an editorial in the *American Journal of Public Health* in May 1984 put it:
>
> > The incomplete state of our knowledge must not serve as an excuse for failure to take prudent action. Public health has never clung to the principle that complete knowledge about a potential health hazard is a pre-requisite for action. Quite the contrary, the historical record shows that public health's finest hours often occurred when vigorous preventative action preceded the crossing of every scientific "t" and the dotting of every epidemiological "i".
>
> Address by the Honourable Horace Krever, International Joint Commission, Great Lakes Science Advisory Board Workshop, Methodologies for Community Health Assessment in Areas of Concern, Windsor, October 4, 2000.

Mr. N Is Admitted to the Grace

On Wednesday, March 19, 2003, one week after visiting the foot clinic, Mr. N began to develop what physicians thought was community-acquired pneumonia.[295] The next day he visited his family doctor. The physician looked for signs of fever or respiratory symptoms, but didn't find any. Mr. N had other underlying health problems which, at that time, were the focus of attention.

In the next few days, Mr. N got sicker. A cousin who visited him on the evening of Friday, March 21 recalled that Mr. N was quite ill and had a high fever. The cousin later became ill with SARS.

By Saturday morning, March 22nd, Mr. N's condition had worsened. His family doctor visited him at home, found that his health had declined considerably, and arranged for him to be admitted to the Grace. The following week, the family doctor felt ill and was eventually diagnosed as a suspect case.

On Sunday, March 23, 2003, Mr. N's condition continued to deteriorate. A family member recalled that he was very ill:

> When I went in to see him on Sunday morning, it was like he was a different person. He could not breathe: the nurse said that he had a very bad night.

As Mr. N became more gravely ill, doctors at the Grace decided he needed intensive care. The Grace intensive care unit was closed to new patients, so Mr. N would have to be transferred elsewhere.

CritiCall, the provincial agency that manages patient transfers,[296] was contacted and

---

295. "Community-Acquired Pneumonia: Pneumonia caused by any organism found regularly outside the hospital; common organisms include Streptococcus pneumoniae, Haemophilus influenzae, and Mycoplasma, as opposed to hospital-acquired or nosocomical pneumonia." *Stedman's Medical Dictionary*, 28th ed. http://www.drugs.com/medical_dictionary.html

296. "CritiCall is a 24-hour-a-day emergency referral service for physicians across the province of Ontario. CritiCall links hospitals and medical resources throughout Ontario, to provide strategic healthcare communications solutions anywhere, any time they're needed .... As a key provincial medical resource, CritiCall is a fast, efficient, and reliable tool for healthcare providers. We: Provide effective and efficient resources for all levels of care; Promote accessibility for a greater number of people, at reduced cost; Offer physicians increased efficiency of time-management; Allow governments to increase network efficiency; Provide enhanced disaster planning capabilities; Improve communications among emergency services and ambulances and between hospitals." Source: https://www.criticall.com/info/Default.shtml.

found an available bed at Mount Sinai's ICU. It put Mount Sinai's ICU into contact with the sending physician at the Grace. CritiCall also advised Mount Sinai of the SARS outbreak at the Grace.[297] Also at this time, infectious disease experts from Mount Sinai were at the Scarborough Grace Hospital helping with the investigation and response.

Transferring Mr. N to Mount Sinai

Because Mr. N came from the Grace, nurses at Mount Sinai were concerned he might have SARS.

One nurse who contracted SARS from Mr. N said:

> We were concerned that the patient had pneumonia and it was considered atypical community-acquired pneumonia. We were concerned that coming from a quarantine hospital, that even if he didn't have exposure, shouldn't we still maintain respiratory isolation and quarantine for him . . .

Before accepting Mr. N, Mount Sinai wanted to make sure he did not have SARS, and contacted the sending physician at the Grace, who said:

> … I remember getting a call back from him [the admitting physician at Mount Sinai] saying, You know, we really need someone else to look at this case.

One continuing problem during the outbreak was determining whether a patient had SARS or another disease with similar symptoms. Clinicians relied on the case definition, which, at this time, equired an epidemiological link, or epilink as it's often called, to reach a diagnosis. An epilink provided sufficient evidence of a cause-and-effect connection between a person with SARS symptoms and someone who might

297. An external review by infection control practitioner Carol Goldman, commissioned by Mount Sinai to examine how it handled the case, said:

> CritiCall called the MSH, ICU attending staff MD to request a transfer of a patient from SGH to MSH-ICU because of deteriorating respiratory status
>
> • CritiCall call taker made specific mention of SARS cases and the investigation occurring at SGH and the fact that the ICU was closed (necessitating transfer of patient)

have infected them. Alternatively, it might provide sufficient evidence of a direct connection between a person with SARS symptoms and a jurisdiction or location where there were confirmed cases of SARS transmission.

Two physicians who treated SARS patients wrote:

> While the various case definitions caused some degree of confusion in the organizational response to SARS, front-line clinicians made the diagnosis of SARS based on the presence of three factors: fever, respiratory symptoms, and an epidemiologic link to someone else with SARS. The epidemiologic link was clearly the most important criteria and extensive public health resources were devoted to tracking down case contacts.

The epilink was often difficult to identify.

Dr. Donald Low said:

> We used the epilink. The problem was that, as the disease spread throughout Toronto, sometimes that epilink was not evident. It was only evident in hindsight when you pulled the story together. So if a person came into your emergency room complaining of fever or a headache or a muscle ache or a bit of a cough, but had no link whatsoever to SARS that you could discern, you sent that person home. In actual fact, that person may have happened to be sitting in the waiting room of a doctor's office next to a person who had SARS.[298]

The sending physician at the Grace asked an infection control expert from Mount Sinai who was at the Grace helping contain its outbreak to examine Mr. N. No evidence of an epilink was found. This was a critical element in concluding that Mr. N did not have SARS.

A study into the case of Mr. N published by the CDC said:

> Before transfer, SARS was excluded from the differential diagnosis because the patient had not traveled, had never left the emergency

298. Interview with Dr. Donald Low in Biosecurity and Bioterrorism: Biodefense Strategy, Practice, And Science Volume 2, No. 1, 2004.

> department of the referring hospital, and had only had a single recent outpatient visit to an area of the original hospital in which SARS had not been identified.[299]

An external review[300] commissioned by Mount Sinai to examine how it handled the case of Mr. N summarized the measures taken to rule out SARS before Mr. N was transferred from the Grace:

> • Discussion between sending and receiving medical staff about epidemiological links to SARS-MSH was advised no contact to SARS at SGH
>
> • Transfer was held until MSH could confer with MSH infection control personnel (who coincidentally were consulting infection control at SGH and intimately involved in the ongoing investigation) and who confirmed that there appeared to be no link[301]

On March 23rd, the third-floor foot clinic that Mr. N had visited on March 12 was not considered an epilink. This would change soon afterwards, as the sending physician at Scarborough Grace Hospital told the SARS Commission:

> We were being careful. We knew about the chiropody clinic. But we did not see how that was the link because I don't believe the 3D staff started getting sick until a day or two later. Had he shown up one day later, OK, chiropody, 3D [CCU], it's close enough, and so we couldn't see the connection. And we didn't know about [Mr. H] at that point. We had to dig out this information. Had we gotten the call that [Mr. H] was ill, he came from the Grace, then we would have said 3D CCU you are a problem now. It would have been raised to a level that we would have said there is an epi-link somewhere in here, we'll find it… Had we gotten that

299. Scales, Green, Chan et al. Illness in intensive-care staff after brief exposure to severe acute respiratory syndrome. *Emerging Infectious Diseases* 19,no. 10 (October 2003). http://www.cdc.gov/ncidod/EID/vol9no10/03-03-0525.htm. (Scales, Green, Chan et al., "Illness in intensive-care staff").

300. In the aftermath of SARS, Mount Sinai commissioned Carol Goldman, an infection control practitioner to review the hospital's handling of this case. The Commission is grateful that Mount Sinai generously shared this frank and insightful document.

301. Carol Goldman, "Infection Control, Critical Review Mount Sinai Hospital ICU," November 6, 2003 (Goldman, "Infection Control").

> call [about Mr. H] the minute they knew about it, Mr. N would not have gotten to Mount Sinai or would have gone under certain circumstances, special care.

The external review said that those who concluded that Mr. N did not have SARS did the best they could under the circumstances:

> The knowledge of the outbreak was known, and it seems that prudent steps were taken to determine if SARS was a diagnosis to consider. Attending staff in the ICU made careful inquiries from both [the Grace] critical care staff and those infection control/epidemiology personnel conducting the investigation. Based on their conclusions that no epidemiological link existed between this patient and any SARS patient at [the Grace], it was determined that this patient had [community-acquired pneumonia] not SARS, and isolation precautions were not indicated. I believe that at the time this would have been the only conclusion to make.[302]

Mr. N Arrives at Mount Sinai

Mr. N was admitted at Mount Sinai at 8:18 p.m. and was placed in ICU room 1803.[303] When he was wheeled into the ICU, he was placed next to where a nurse was sitting. Her face was on the same level as Mr. N's. She later came down with SARS.

She told the Commission:

> When the patient first came in I had the patient adjacent to the room … the patient arrived by ambulance without warning onto the unit so we didn't have a chance to mask.
>
> And the patient actually came in, was kind of wheeled in, like level to me, and I can basically turn around and there he was. I had no mask on. I had no idea at what time the patient was actually going to be arriving.

302. Goldman, "Infection Control."
303. Goldman, "Infection Control."

> So I didn't have a chance to prepare. And neither did any of the other people on the unit ...

This nurse was not on duty during the balance of Mr. N's stay at Mount Sinai, and had no further exposure to him.

> And I didn't have any mask, I didn't have any gloves. So I don't really know for sure when exactly I contracted the virus. But that was my biggest, my most vulnerable time was at that time. Other times I had mask, gown and gloves when I was in the room.

The next day concern returned that Mr. N might have SARS. A medical article said:

> After about 14 hours in the ICU, clinical suspicion of SARS resulted in the use of isolation precautions.[304]

Because of the growing unease, experts from the infectious disease department reviewed the diagnosis of SARS, and Scarborough Grace Hospital was called to determine Mr. N's appointments prior to his getting ill and try to identify any epilinks.

According to the external review, the experts from the infectious disease department concluded:

- That no epidemiological link occurred with SARS cases at SGH, but recommended that confirmation should be made by interview with wife to confirm that patient did not visit ER between March 7-14

- Agrees with Dx [diagnosis] of CAP [community acquired pneumonia] in an immunocompromised host.[305]

304. Robert Maunder, Jonathan Hunter, Leslie Vincent et al. "The immediate psychological and occupational impact of the 2003 SARS outbreak in a teaching hospital." Canadian Medical Association Journal, April 16, 2003. www.cmaj.ca on Apr. 16, 2003
305. Carol Goldman, "Infection Control."

Mr. N Is Intubated

Mr. N's condition deteriorated during the course of March 24th. One of the physicians who treated him said:

> … his respiratory status was progressively getting worse.

A nurse who had looked after Mr. N on the night of the 23rd recalled:

> Next night [I] came in looking at him and thinking this patient is very sick. Went into room, he looked very, very ill. I thought, this fellow needs to be intubated.

By the evening of March 24th his breathing had become so laboured that doctors decided he needed to be intubated, a procedure in which a tube is placed into the windpipe, "to open the airway to administer oxygen, medication, or anesthesia."[306]

About one-quarter of SARS patients had to be intubated. Intubations of SARS patients were inherently risky because the procedure could aerosolize the patient's respiratory secretions, thereby creating tiny droplets of moisture that can carry microorganisms.[307]

As noted earlier, on March 17th four health workers at the Grace who had intubated an unidentified SARS patient contracted the disease. No directives had been issued after the Scarborough Grace intubation by the Provincial Operations Centre alerting staff to the dangers of this procedure.

However, the risk of intubating SARS patients did not go unnoticed at the CDC. On March 20th, four days before Mr. N's intubation, it issued the following warning:

> Procedures that induce coughing can increase the likelihood of droplet

306. "An endotracheal intubation places a tube into the windpipe (trachea). This is done to open the airway to administer oxygen, medication, or anesthesia. It may also be done to remove blockages or to view the interior walls." Source: *Medline Plus Encyclopedia*, a service of the U.S. National Library of Medicine and the U.S. National Institutes of Health.

307. "The process of creating very small droplets of moisture (droplet nuclei) that may carry microorganisms. The aerosolized droplets can be light enough to remain suspended in the air for short periods of time and facilitate inhalation of the microorganisms." MOHLTC, "Final Report of the Infection Control Standards Task Force: Non-Acute Institutional Settings," March 2004, p. 6

> nuclei being expelled into the air. These potentially aerosol-generating procedures include aerosolized medication treatments (e.g., albuterol), diagnostic sputum induction, bronchoscopy, airway suctioning, and endotracheal intubation. For this reason, healthcare personnel should ensure that patients have been evaluated for SARS before initiation of aerosol-generating procedures. Evaluation for SARS should be based on the most recent case definition for SARS.[308]

Even if the CDC's warning had been distributed to staff at Mount Sinai, it is not certain this would have made a difference. The health workers who intubated Mr. N at Mount Sinai did not think he had SARS. The CDC warning was based on recognizing SARS.

Late on the evening of March 24, 2003, a resident attempted to intubate Mr. N, but was unable to do so.

The resident recalled:

> I knew beforehand going in it would be very difficult and it was. So at that point, I knew I had to ask for help and I called an anesthetist in to help me. So a staff anesthetist and an anesthesia resident came up to assist me in securing the patient's airway.

The staff anesthetist was worried Mr. N might have SARS. He was told the infectious diseases consultation earlier that day had ruled out SARS.

The resident said:

> Even at that time, though, we did not think this patient had SARS. That's the thing actually. Even at that point, it was believed that he was a patient severely immunocompromised and just crashing with a community-acquired pneumonia. Even in my mind I remember and that, not clicking in that this patient truly had SARS.

308. CDC, "Infection control precautions for aerosol-generating procedures on patients who have Suspected Severe Acute Respiratory Syndrome (SARS)," March 20, 2003, 7:00 PM EST

The resident said that it's not unusual for severely ill elderly patients to get as sick as Mr. N was that night:

> Question: And was there any suspicion, did you have any suspicion that maybe he had SARS?
>
> Answer: He was an elderly patient and patients dealing with a community-acquired pneumonia can get very sick and that was my impression.

Five health workers were in the room during the intubation: the anesthetist, the medical resident, a postgraduate medical trainee, a nurse and a respiratory therapist. The anesthetist, the medical resident and the nurse got SARS. The anesthetist and the nurse wore gowns, gloves and surgical masks. The medical resident wore a gown, gloves and an N95 respirator, although he had not been fit-tested or trained in its use.

During the intubation of Mr. N:

> . . . the patient's respiratory secretions were splashed onto the uncovered cheek of one of the healthcare workers.[309]

A health worker who got SARS recalled:

> I remember at one time I got sprayed with secretions.

One health worker who got SARS said his face was very close to Mr. N's during the procedure:

> The patient was breathing, almost into my face. I was wearing the face mask, but I did not have goggles … this patient was in respiratory distress… and my face is not too far away from his, trying to put in a breathing tube.

309. Scales, Green, Chan et al. "Illness in intensive-care staff".

An Unexplained Transmission

Five of the six health workers who caught SARS at Mount Sinai, including the three who were in the room when Mr. N was intubated, had direct contact with him. The sixth health worker, however, was on the same floor as Mr. N but does not appear to have gone anywhere near either him or an earlier SARS patient who was admitted to Mount Sinai on March 13.

One nurse said:

> And there was another nurse. She didn't have any contact with the patient, she was on the other side of the unit. She didn't have any contact, direct contact, with either of the patients. We still don't know how she got it.

While no one knows for certain how this nurse got SARS, a medical study noted a possible link between this nurse and one of the physicians involved in intubating Mr. N.

The study said:

> SARS developed in one quarantined health care worker (a nurse) who had not entered the index patient's room; the disease did not occur in any other healthcare workers who had not touched or had close contact with the index patient. The nurse was present in the ICU for 18.75 h (two shifts) during the patient's admission. Of note, after the endotracheal intubation of the index patient, the physician who performed this procedure entered the room where the nurse was caring for another patient. Neither the nurse nor the physician recalled direct contact, and they were certain that the physician had changed gloves and gown before room entry. This nurse had no other epidemiologic risk to explain the development of SARS.[310]

The study also suggested a number of possible transmission routes, including airborne transmission:

310. Scales, Green, Chan et al. "Illness in intensive-care staff".

> In the second case, transmission could have occurred in a number of possible routes. The nurse may have come within sufficient range of the SARS patient to be exposed to large droplets. Recent reports indicate that the virus may survive for several hours on fomites or in body secretions (12) and raise the possibility of transmission by indirect contact with contaminated objects or of inadvertent carriage and spread by another healthcare worker. Fecal transmission is unlikely as the patient did not have a bowel movement during his stay. True airborne spread may also have occurred. Although evidence does not support this route of transmission for the SARS-associated coronavirus, existing literature suggests that other coronaviruses may be spread by an airborne route in certain circumstances.[311]

Mr. N Is Transferred to Toronto General Hospital

After the intubation, the nurses attended to Mr. N. One nurse told the Commission:

> … he was very, very nice. He helped us turn and he was very good. So I suctioned his mouth. I remember doing all that. Cleaned him. We cleaned his sheets because it's very messy after an intubation.

Late in the evening of March 24th, the possibility again arose that Mr. N might have SARS, and he was transferred to nearby Toronto General Hospital at about 4:30 a.m. on March 25. According to the external review, Mr. N's chart said he was transferred because "SARS precautions requiring."[312]

Nurses' notes on Mr. N's chart said:

> 2358hrs – waiting for transfer to a more secure isolation facility as SARS is being considered because of patient's contact at SGH.[313]

The decision to transfer Mr. N appears to have been prompted by the rising number of SARS cases at the Grace. The external review said:

311. Scales, Green, Chan et al. "Illness in intensive-care staff".
312. Goldman, "Infection Control."
313. Goldman, "Infection Control."

> Now infection control is concerned about the increasing number of people developing SARS at [the Grace] and therefore the decision is made to increase the management of the patient to full isolation with negative pressure isolation room.[314]

One senior hospital official told the Commission the suspicion that Mr. N might have SARS increased after the intubation:

> And there was no suspicion at the time he was intubated that he could have SARS. It was felt that he was compromised because of his transplant, and the reason he had pneumonia was, he was a very severely compromised patient.

A medical study said:

> Endotracheal intubation required fiber-optic placement. That the extent of the outbreak at the referring institution was larger than originally appreciated became apparent at this time; therefore, the patient was transferred to another facility for placement in negative pressure isolation for possible exposure to SARS.[315]

On the morning of March 25, after Mr. N was transferred to Toronto General, some of the Sunny brook nurses who cared for him had a sense of foreboding. One nurse was so concerned that before going home she called her husband to take special precautions and make sure their children did not come near her:

> So I told everybody, you bet, you watch, we're going to be quarantined. And I remember calling my husband in the wee hours of the morning to say, please have the kids out of the house; I don't want you near me because when I come home, I'm just going to take my clothes off, throw them out and shower because I think I've been exposed to SARS. And I had concerns for my family because I thought, I've been in there, cleaned him up after intubation.

She also said:

314. Goldman, "Infection Control."
315. Scales, Green, Chan et al. "Illness in intensive-care staff."

> So when I came home, I sterilized myself in hot water and walked around the neighbourhood to clean out my lungs. I remember going for a walk for hours and hours, just trying to breathe in air … because I was afraid.

Another nurse who attended Mr. N the night of March 24and got SARS said she also had a bad feeling. "It played on my mind," she recalled. After an overnight shift, she often looked in on her elderly parents before going home. She called her father and said, "I have a bad feeling." She decided not to visit with them that day and went directly home. As we see time and again throughout the story of SARS, the intuition of front line staff proved to be right. In this case, the fears of the staff at Mount Sinai were realized, when they later learned that Mr. N had SARS.

One day later, on Wednesday, March 26, 2003, Mount Sinai told staff in a bulletin that an unidentified patient was under investigation as a possible SARS patient:

> Today we have identified that a patient who was transferred from Scarborough Grace to our ICU late Sunday evening March 23 and subsequently transferred out of MSH in the early morning of Tuesday March 25 is under investigation for possible exposure to SARS.[316]

One hospital official recalled:

> … the next day, the head of our ICU was quite concerned about the fact that someone was transferred from a hospital where all this was going on. We had a meeting with our senior administrators the next day and it was decided that we had to treat him as if he had SARS and we decided to send him about 75 health care workers who may have had contact with him in the ICU during those 31 hours so maybe that was Tuesday morning and 4 days later we admitted about 7 health care workers with fevers.

A medical study said:

> Once the risk for SARS was identified, all patients in the ICU were considered to have been potentially exposed. To prevent spread of SARS, we closed the ICU to admissions and discharges and implemented strict

316. Mount Sinai Hospital, "SARS Update," March 26, 2003.

> respiratory and contact precautions for all remaining patients. We quarantined 69 healthcare workers who were considered to be at high risk for developing SARS.
>
> On the basis of our understanding of disease transmission, we arbitrarily decided that persons at high risk included anyone who had entered the index patient's room or who had been in the ICU for >4 hours during the patient's 30.75-h stay.[317]

The case of Mr. N caused Mount Sinai to institute a number of other measures, including closing its ICU and cancelling most surgical procedures.

It is important to distinguish between systemic flaws and the skill and dedication of those who worked within a health system fettered by those flaws. In examining the case of Mr. N, the external review concluded:

> The old adage that hindsight is 20/20 must be made in this case.[318]

The experts who examined Mr. N and ruled out SARS on two separate occasions acted in good faith on the best information then available according to the standards that prevailed at the time. They did their best under difficult circumstances.

With the benefit of hindsight, the story of Mr. N points to the importance of the precautionary principle as a lesson for the future, particularly if faced with a new, little-known disease that is so problematic in its diagnosis. It illustrates that the precautionary principle was not as sufficiently integrated into the system that responded to SARS in Ontario as it was in Vancouver, and it demonstrates the consequences of this systemic flaw.

It also shows the importance for the future of employing a precautionary approach when fighting a new disease like SARS that is not well understood, shares the symptoms of known illnesses, and is very dangerous if cases are not recognized and enter the health care system.

It is better to be safe than sorry. Action to reduce risk should not await scientific certainty.

---

317. Scales, Green, Chan et al. "Illness in intensive-care staff."
318. Goldman, "Infection Control."

"Send Units Down!" The Fiasco at York Central Hospital

York Central Hospital[319] in suburban Toronto became the scene of a medical disaster and an emergency management fiasco during the early days of the SARS crisis.

The medical disaster had its roots in the March 16, 2003, transfer of a patient from Scarborough Grace, Mr. H, whose story is told earlier in the report. Mr. H arrived at the York Central Hospital's intensive care unit, but no one knew he was infected with SARS. He infected 15 other patients and staff at York Central, an outbreak that led to closure of the hospital on March 28 and to an emergency management situation that resembled a poorly directed paramilitary operation.[320]

The SARS outbreak at York Central Hospital was discussed during a conference call on March 28, 12 days after the infectious transfer, the day the hospital became aware that it had SARS cases. The hour-long conference call between the high-level group managing the SARS emergency for the province, hospital officials and representatives of York Region Public Health resulted in a manager of the Emergency Operations Centre calling 911 at the end of the meeting and asking local police to "send units down to close York Central Hospital."

Inexplicably, hospital staff were not told of the closing before the police were on the way, nor were police given any details other than a request not to let anyone in or out

319. York Central Hospital is a community hospital in Richmond Hill, Ontario, in the Toronto area. It is a 419-bed facility with 219 acute care beds, 52 chronic care beds, 32 rehabilitation beds and 116 long-term care beds. More than 1,800 hospital staff, 300 physicians and 800 volunteers are affiliated with this institution.

320. The patient contracted SARS in the Grace emergency ward on March 7 from unprotected exposure to Mr. T. The patient's wife, who visited him, was also admitted to York Central, on March 21, with shortness of breath and went to a nursing home for respite care on March 26, returning to York Central with persisting respiratory symptoms after her husband was diagnosed. She was immediately put into the hospital's SARS Assessment and Treatment Unit (SATU). See Hy A. Dwosh, Harry H.L. Hong, Douglas Austgarden, Stanley Herman and Richard Schabas, "Identification and containment of an outbreak of SARS in a community hospital," *Canadian Medical Association Journal* 168 (2003): 1415–1420 (Identification and containment of an outbreak of SARS in a community hospital).

of the hospital. The first the hospital staff knew about the directive to close was when they heard sirens[321] and saw flashing lights and police cars surrounding the hospital.

A York Central doctor recalled that he was in the hospital boardroom on the conference call about the imminent closing, when he heard sirens:

> We had this hospital board meeting with the ministry and they said "we are closing you down at 6 o'clock" . . . This was on the phone and we closed the doors and got security. They asked if we needed extra security and we said we do not know, and they asked if we needed the police to come and help and we said sure, and while we are having the teleconference we start to hear sirens and a half dozen cop cars show up and they blocked the entrances and they blocked people in and would not let anyone out and we have a shift change at 7:00 and you have 1,800 people working and 900 people trying to come in . . .[316]

Hospital vice-president Asmita Gillani recalled at the Commission's public hearings:

> [I] was being paged by my staff that at the front entrance we had police cars and we, the staff, were forbidden from leaving the hospital. In fact, we were then told that this hospital is closed and we were quite alarmed . . . We had no idea what it meant . . . We had to wait for Public Health to get there. We had to institute screening right away. We had to wait for thermometers; we couldn't discharge the staff. So from about 4:30 to 10 p.m. we were in a total state of halt. The shift from 7:30 in the morning could not go home until about 10 p.m.[322]

The shutdown and the arrival of police had a terrifying effect on staff, who had had no warning of this dramatic operation. One staff nurse interviewed by the Commission gave this account:

> I think it was March 28th, it was a Friday night, they locked the doors of the hospital, with all the nurses and everyone in it still. They didn't know what to do with us. They locked the doors and they said, the Ministry's

321. There is some doubt whether sirens were used at all. One officer recalled: "It is not believed that sirens were ever used in relation to this detail." Another officer recalled that he "was on patrol when call received . . . best recollection, did not activate lights or siren when proceeding to call . . . took responsibility for blocking north entrance to hospital parking lot with lights activated . . . under the circumstances, did not think it prudent to put lights or siren on."

322. SARS Commission, Public Hearings, October 1, 2003.

> shut us down and nobody's to leave the hospital. Well, for three hours, the nurses sat there terrified, not knowing what to do, where to go, who to call. The kids had to be picked up from the babysitters and whatnot, it was a horrible, horrible night. Then it was discovered that it was a patient in the hospital with SARS.

The police were baffled. One officer told the Commission:

> At 6:25 p.m., upon arrival at York Central Hospital, I observed many people around the outside of the hospital. Some were panic-stricken, wanting to know what was going on. There were people wanting to visit people in the hospital. Our information was to close down the hospital, don't let people in or out . . . We attempted to find out what was going on inside to justify why we were there . . . Hospital staff provided security for the front door. We maintained our position and waited to confirm what was going on, what our role would be.
>
> The press began arriving. They were asking questions that I didn't have the answers for. The atmosphere outside of the hospital was almost circus-like . . . It was well into the night before someone came out to tell us the access routes.
>
> Not allowing traffic in or out. Besieged with questions. Actual security for the building was by their people. I kept trying to obtain further information on this incident, reasons [for the closure]. People wanted to know what was going on, why could they not get into the hospital . . . It was well into the night before they explained access doors and where they could and could not get in. It was so we would have information to provide to the general public . . . We were left hanging at the beginning. No information as to our role, who to assist, who was making decisions.

The medical disaster that triggered the closing started, as noted above, on March 16 when a patient with highly infectious, undetected SARS was transferred to York Central from Scarborough Grace, the epicentre of the first SARS outbreak. The 77-year-old patient, Mr. H, was not isolated, because no one at York Central suspected SARS. He had been admitted to Scarborough Grace for cardiac problems on March 7, sent home on March 10 and readmitted on March 13 before he was transferred to York Central Hospital. No one at York Central knew that Mr. H was linked to the index case at Scarborough Grace Hospital.

As the Chief of Staff Dr. Richard Schabas and Chief of Intensive Care Dr. Hy Dwosh noted in a medical article:

> At the time of transfer, it was not known that the patient had been exposed to the SARS virus at the referring institution, thus, no specific respiratory precautions were used.[323]

Over the next 12 days SARS spread to 15 people at the hospital.

York Central's story of SARS was presented in full at the Commission's public hearings.[324] Nothing in this report constitutes any finding of any kind against the hospital or anyone who worked there. As noted earlier in this report, it does, however, reflect a systemic problem that as late as March 28, York Central, had absolutely no knowledge of Mr. H's connection to theindex case and his SARS exposure.

The reason SARS went undetected for 12 days at York Central as it spread to patients and staff, as explained by hospital vice-president Asmita Gillani at the Commission public hearings, was that the hospital had no knowledge of where the patient had been or what his history was:

> Well, March 28th was a pivotal date for us because two of our staff members started showing symptoms that were consistent with SARS and we got very alarmed and when we dug a little deeper, they had been looking after the patient who had been transferred from Scarborough Grace.
>
> I want to point out that, at this point, we had absolutely no knowledge of where this patient had been or what his history was, but the fact that two of our staff members came down with some such illness, we got alarmed and we informed the POC [the Provincial Operations Centre] right away.[325]

323. Identification and containment of an outbreak of SARS in a community hospital.

324. The hospital's story and presentation are set out in full in the transcript of Commission public hearings on September 30 and October 1, 2003, and in the hospital's slide presentation, including its febrile surveillance program, to which Dr. Schabas credits the prevention of further secondary transmission instituted after the hospital discovered the spread of SARS from Mr. H.

325. SARS Commission Public Hearings, October 1, 2003.

The day before the shutdown fiasco, York Central Chief of Staff Dr. Richard Schabas departed for Paris on a long-scheduled vacation. He was told of the hospital closing on arrival there and quarantined himself in the apartment he had rented in the French capital. He stayed in touch with developments in Toronto by telephone. On his return, he was critical of the handling of the crisis, saying the authorities overreacted to the outbreak:

> My concerns are, fundamentally, that we failed to take the measure of SARS. We failed to understand what it was about and we did that because we didn't put sufficient emphasis on data collection, data analysis and learning about the infection[326].

Dr. Schabas was especially critical of the closing of York Central and other hospitals and suggested that all patient transfers from Scarborough Grace Hospital should have stopped on March 14:[327]

> I can say that from the perspective particularly of York Central Hospital because even the simple expedient of putting a freeze on transfers from Scarborough Grace Hospital to other hospitals on March 14 would have saved York Central Hospital the tragedy that ensued there when a patient was transferred without any warning of the possibility of SARS on March 16.[328]

Control measures obviously were not in place for the March 28 shutdown of York Central when the emergency authorities, via the 911 emergency line, asked the police to shut down the hospital. The police response was immediate, as is appropriate when a 911 call is received. The York Region police acted quickly and there was no problem with their work. The police found themselves in a difficult situation. There was no directive from the hospital about what was to happen once police cruisers blocked the entry and exits. The emergency system took the sensible idea of extra security and cranked it out of all proportions.

---

326. SARS Commission Public Hearings, September 29, 2003.
327. As noted earlier in this report, public health authorities and officials at Scarborough Grace Hospital did not know that on March 14, whatever illness had killed Mr. T and his mother and had sickened members of his family had spread and would continue to spread to other patients, visitors and health workers.
328. SARS Commission Public Hearings, September 29, 2003.

As one police officer told the Commission:

> Immediate direction would have helped the police. It was a controlled environment. If they had of told us why we were there, what they wanted from us, it would have made it easier. A direct liaison with police would have been great.

This breakdown in communications between emergency authorities and health authorities shows why it is essential to make clear the lines of authority between the Chief Medical Officer of Health and the Director of Emergency Services as recommended in the SARS Commission's second interim report.

As for the decision to close York Central Hospital, public health authorities had just discovered that SARS had spread undetected at York Central for 12 days and had decided to close it to prevent further spread. This decision was not made lightly. As one participant involved in the decision to close the hospital later told the Commission:

> At the time, based on the science and the concerns at the time, we acted prudently to close hospital. A lot of important people were at the table making that decision . . . We didn't know how SARS transmitted. We had fundamental issues at the hospital re. infection control. We had a high school across [the] road and kids were coming and going from the York Central cafeteria.

But the command directive to the police took no apparent account of how it would actually be carried out. The command directive was issued without telling the hospital, without any apparent coordination and without any apparent thought to important things like dialysis patients who had to get into the hospital for their treatment or how to get incoming staff through the police barriers. Because of these basic flaws, the emergency management objective was not achieved. As a police official noted:

> It would appear that the police attended York Central Hospital with the intention of assisting them to secure the hospital from entry and to prevent people leaving. Neither objective was achieved. The police had no control over who left the premises and it would appear that members of staff were gaining entry to their workplaces and members of the public requiring dialysis were also afforded accommodations.

The Regional Emergency Operations Centre issued the command directive to police without giving them an effective contact number. The 911 call shows continued police attempts to find out who was in charge and to find someone at the hospital who knew what was going on, all in vain. The seven-page transcript of the 911 call from the Emergency Operations Centre can be read only with mounting disbelief that any emergency system could work so badly.

Dispatcher: Communications 9-1-1. Do you require police, fire or ambulance?

Caller: Police.

Dispatcher: Okay, you're calling from 17250 Yonge Street, the administration side of the building?

Caller: Yes, the Health Unit, EOC.

Dispatcher: Okay. What's the emergency there, sir?

Caller: To send units down to close York Central Hospital.

Dispatcher: Okay . . .

Caller: York Central Hospital has to be closed down, there's a health emergency right now.

Dispatcher: Okay, just bear with me one minute, and I'll get a call going, okay?

Caller: Okay.

Dispatcher: Are you the administrator?

Caller: Ahhh, for the administrator, [gives name].

Dispatcher: Okay, just one second . . . due to a health emergency?

Caller: Yes.

Dispatcher: No one is to leave or enter?

Caller: Correct. Until further notified [inaudible].

Dispatcher: The phone number I have coming up is [number provided]? Is that the correct number we can call back for more information, sir?

Caller: Yes. You can call through the duty officer at extension [extension provided].

Dispatcher: [repeats extension]?

Caller: Yes.

Dispatcher: And who's that person that's going to answer the phone, sir?

Caller: Just ask for [name provided].

Dispatcher: [name repeated]? Okay, I will put a call in, sir, and I'll have somebody attend.

Caller: Thank you.

Dispatcher: Thank you, sir.

Caller: Bye.

Dispatcher: Bye, bye.

—

Next call, dispatcher to Regional Municipality of York:

Unknown: Health Operations Centre, [name deleted].

Dispatcher: Hi, it's York Regional Police calling you back. We got a phone call about closing down York Central Hospital?

Unknown: Hm hmm.

Dispatcher: Was it you I was just speaking with, sir?

Unknown: No.

Dispatcher: Okay, somebody from there just called. We want to know who our contact person is at York Central Hospital.

Unknown: That would be Frank Lussing [CEO of York Central Hospital]

Dispatcher: Okay, just one second . . . Frank Lussing [spells name].

Unknown: [spells name], I believe, hang on a sec, hold on one second?

Dispatcher: Yeah, yeah.

Unknown: [spells name].

Dispatcher: And where can he be reached?

Unknown: [number provided].

Dispatcher: Just one second. [number repeated].

Unknown: [number repeated].

Dispatcher: And his extension?

Unknown: Ah, there's no extension, that's a straight number.

Dispatcher: That's straight. And does this Frank know we're coming?

Unknown: Ahhh, know you're coming?

Dispatcher: Yeah, does Frank know that York Regional Police are on their way to close the hospital down? To stop everyone from leaving or coming in?

Unknown: I don't believe so. Hang on a sec, just let me . . . can you hold on one second?

Dispatcher: Yeah, I can.

[slight pause]

Unknown: Instructions are here that YRP [York Regional Police] are not to enter the building at this point.

Dispatcher: Yeah, we're not going to enter the building. We know we're going to stop people from going in and going out, but we want somebody from York Central Hospital to be on the other side of the door when we get there.

Unknown: [not speaking directly to dispatcher] They want somebody from York Central to be on the other side to meet them when they get there.

Dispatcher: That's right.

Unknown: [not speaking directly to dispatcher] Who is the contact? Frank? [speaking to dispatcher again] Nobody can right now.

Dispatcher: Okay, so . . .

Unknown: So all they can basically do is just shut it down, but you can't contact anybody from within the hospital because it's quarantined.

Dispatcher: Okay, but we can call back to this number for more information.

Unknown: You can call that number and you should be able to reach him, but do not talk to the media.

Dispatcher: Oh no, obviously not, sir.

Unknown: You should be able to contact that number that I gave you, but you can't make any physical contacts with anybody there.

Dispatcher: Well no, we realize that, sir. We know that. We know we're going stop people from going in and going out, but we wanted somebody on the other side of the door who is also going to do the same thing.

Unknown: Sure. [inaudible] . . . he should be able to help you.

Dispatcher: Okay, that's what we're going to do. Okay, I'll give him a call then, sir.

Unknown: Okay. Thank you.

Dispatcher: Thank you. Bye, bye.

—-

Next call:

Marian: Frank Lussing's office, Marian speaking.

Dispatcher: Hi, it's York Regional Police calling.

Marian: Yes?

Dispatcher: May I speak with Frank please?

Marian: Umm, yes, is it something urgent?

Dispatcher: Well, the reason I'm calling is the Health Department just called us to shut down the hospital.

Marian: Okay, umm . . .

Dispatcher: And he's the contact person within the hospital.

Marian: Yes, okay, hold on a second . . .

Dispatcher: Yes.

Marian: Okay, hold on.

Dispatcher: Thank you.

[call on hold for approximately 30 seconds]

Unknown: [inaudible] speaking.

Dispatcher: Hi, it's York Regional Police calling.

Unknown: I'm the Chief Operating Officer here.

Dispatcher: Okay, we've been advised by [name provided] office to close the hospital down.

Unknown: Who is [name repeated]?

Dispatcher: She is the . . . administrative . . . administrator for Health Services with York Regional.

Unknown: Okay. We are on a conference call with the Medical Officer of Health for Ontario, Dr. D'Cunha . . .

Dispatcher: Yeah, I know who he is.

Unknown: And we're receiving instructions from him as we speak, so Frank and myself and our doctors are in on a conference call. We need to sort things out because we have a [inaudible] dialysis programme here, so they're giving us instructions.

Dispatcher: Okay.

Unknown: And then we might need your help.

Dispatcher: Okay, but my only problem is, I have police on the way to stop people from coming and going from the hospital. We have a command directive. We must attend and do this.

Unknown: I'm sure you have, but what you have to do . . .

Dispatcher: But we have to have somebody at the hospital on the other side of the door.

Unknown: Right.

Dispatcher. That's all we're asking for.

Unknown: Can you just understand that our own staff don't know anything about this yet? We are just fielding the calls from Public Health, and we need to instruct our staff. We don't want to cause any panic.

Dispatcher: So what is your suggestion then?

Unknown: So, can you give us like 10 minutes?

Dispatcher: We can't, ma'am. We have to act upon getting this order, okay? You know, 10 minutes could be detrimental. We do have [inaudible, both parties speaking at same time] to close down the hospital and not let anybody in or out of the facility.

Unknown: You mean our staff can't go home?

Dispatcher: We've been advised to not let anyone in or out of the facility, no one, ma'am.

Unknown: Okay, who am I speaking with?

Dispatcher: Okay, what I'm going to do is give you the person who gave me this information.

Unknown: Yeah.

Dispatcher: Okay, their phone number is [area code provided]

Unknown: [area code repeated].

Dispatcher: [first part of number provided].

Unknown: [first part of number repeated].

Dispatcher: [second part of number provided]

Unknown: [second part of number repeated]

Dispatcher: If you could ask for extension [extension provided].

Unknown: [extension repeated].

Dispatcher: And that is the office of [name deleted]?

Unknown: Okay.

Dispatcher: And she is the administrator for York Regional Health Services.

Unknown: Okay. And you are?

Dispatcher: I'm York Regional Police. My badge is [badge number provided]

Unknown: [badge number repeated].

Dispatcher: Yes, ma'am.

Unknown: And your name?

Dispatcher: [name provided], ma'am.

Unknown: [name repeated]?

Dispatcher: Yes. Just so you're aware, ma'am, we do have police officers outside of York Central.

Unknown: Okay.

Dispatcher: Okay?

Unknown: All right.

Dispatcher: Well, sorry for all of this going on.

Unknown: Yeah, no. I mean, we're, you know, in . . .

Dispatcher: Yeah, exactly, I can understand what you're going through.

Unknown: We want to cooperate as much as we can, okay?

Dispatcher: Absolutely, no problem.

Unknown: All right.

Dispatcher: I just wanted you to be forewarned that this was happening.

Unknown: Okay.

Dispatcher Okay?

Unknown: Thank you.

Dispatcher: You're welcome.

Unknown: Bye, bye.

Dispatcher: Bye, bye.

The transcript speaks for itself. The lack of anyone in charge of the emergency response, the failure to coordinate the efforts of the police and the hospital, the failure to provide the police with the information and direction they required, the failure even to tell the hospital that the police were on their way, all emerge clearly. It is difficult to conceive of a less coordinated emergency response. Surely there is a better way to close a hospital than to call 911 and issue the police command "send units down to close York Central Hospital" without any coordination and without even telling the hospital.

The problem is obvious. The emergency system issued a command directive to send police units to the hospital to close it down but did not put the hospital in touch with the police or tell the hospital or the police what to expect, did not make it clear to anyone what should happen when the police got there, and did not tell the police what they were to do or what was wanted from them. One police official, in a mastery of understatement, said this:

> Immediate direction would have helped the police . . . If they had told us why we were there, what they wanted from us, it would have made it easier. A direct liaison with police would have been great.

Another point, not so obvious, emerges from this fiasco: the legal basis for the power to stop and screen people leaving a place of infection. Ontario's laws on this point are weak and unclear. The police at York Central that night were properly sensitive to this legal weakness and confusion:

> We knew that we had provincial authority – *Trespass to Property Act* – the fact that it was a hospital – a public institution, and criminal authority, but we did not know the health authority. No knowledge, no understanding. We were there to assist . . .

It is time to fix this problem.

It is sensible to give officials a limited power to briefly stop for identification and screening anyone person leaving a place of infection, as at York Central on March 28, 2003. But the power to stop anyone for any purpose, however briefly, is in law the power to detain because if the person does not comply the only recourse is arrest. These powers, however good their purpose, require stringent safeguards and effective legal balances.

Unfortunately, the government has not yet addressed this problem, one of dozens in the antiquated *Health Promotion and Protection Act*, which the Commission analyzed in its second interim report with a recommendation that:

> The *Health Protection and Promotion Act* be amended to authorize the Chief Medical Officer of Health or a medical officer of health to order the temporary detention of anyone who there is reason to suspect is infected with an agent of a virulent disease, for the purposes of obtaining a judicial order authorizing the isolation, examination or treatment of the person, pursuant to s. 35 of the *Health Protection and Promotion Act*. The

> detained person must be brought before a justice as soon as possible and in any event within 24 hours. This power is to be backed up by the ultimate power of arrest with police assistance if necessary in the case of non-cooperation.

It is time for the government to respond to this recommendation.

This fiasco shows how vital it is to ensure that public health decisions like how to close a hospital are made by the Chief Medical Officer of Health and executed through a coordinated emergency system. The lines of authority between the Chief Medical Officer of Health and the director of emergencies, although improved since SARS, are still unclear and inadequate. The SARS Commission recommended that the lines of authority be clear, that the Chief Medical Officer of Health be clearly in charge with the emergency commissioner standing by to help with logistical backup.

In a public health emergency there is room for only one person in charge, and that person should be the Chief Medical Officer of Health. In a public health emergency the director of emergencies should be clearly subordinate to the Chief Medical Officer of Health.

The government has not yet acted on this recommendation. This leaves a dangerous gap in our public health emergency machinery.

Neither has the government acted on the recommendation to clarify the power to stop and screen anyone leaving a place of infection. These failures to act leave a dangerous gap in our protection against infectious disease.

"We jumped in a taxi": Emergency Declared

Introduction

By March 24, it was apparent that SARS had spread further than anyone had initially imagined. Public health and government officials worried about the number of people who might be incubating the virus and feared the worst was yet to come.

Ontario was on the edge of crisis, or, more accurately, already over the edge. On March 24th, Health Minister Tony Clement passed a minister's regulation making SARS a communicable and virulent disease under the *Health Protection and Promotion Act*. This legally required hospitals, clinics and other health care institutions to report SARS cases. It also gave Public Health power to make orders in respect of SARS cases, including quarantine orders.

By March 25, Toronto Public Health (TPH) had the names of approximately 5,000 patients or staff who were possible contacts of SARS. Public Health faced the daunting task of contact tracing to determine who had been exposed to SARS and who was ill. A Toronto Public Health chronology of events, prepared after the SARS outbreak, described the situation at that time:

> The case load is increasing by eight to 10 patients per day. Local area hospitals are reporting patients in their emergency rooms with SARS symptoms. Many patients are health care workers from SGH [Scarborough Grace Hospital].
>
> TPH urges the provincial government to declare a Public Health Emergency given that SARS has now expanded beyond the boundaries of Toronto. TPH urges the implementation of severe control measures.[329]

329. Toronto Public Health Chronology, SARS I.

Young Takes the Initiative

It was on the initiative of Dr. Jim Young, then the Commissioner of Public Safety and Security, that Ontario declared the emergency. From this declaration flowed the jerry-built command structure and the stern measures that ultimately stopped SARS even without preparation and without proper systems. The road was very bumpy. Bad things happened that should never have happened, and the second outbreak was an unmitigated disaster. While Ontario's response was seriously flawed from lack of systems and preparation, it did in the end stop SARS. The wonder is not that it worked badly, but that it worked at all. Starting with nothing, in the face of a deadly new disease, an invisible enemy for which there was no diagnostic test and no knowledge of how it spread, this jerry-built apparatus somehow did stop SARS.[330]

One of Dr. Young's colleagues described for the Commission how the emergency came to be declared. Dr. Young was monitoring the situation through his network in the medical community and with Toronto Public Health. Both he and Toronto Public Health officials were concerned about how far the disease had spread and what was to come as more and more cases were identified. He concluded that there were "a lot of concerns and thought this may be a situation where it's time for a provincial emergency to be declared."

The official described what happened next:

> So then we jumped in a taxi and drove from here up to the health ministry, where [the then Chief Medical Officer of Health] Colin D'Cunha's office was, at Yonge and Finch.

Dr. D'Cunha agreed with Dr. Young that an emergency should be declared. Dr. Young, wasting no time on bureaucratic niceties or political manoeuvres, then went straight to the Minister of Health, the Honourable Tony Clement, and his Deputy, Phil Hassen:

330. In the beginning, nothing at all was known about SARS. It was a disease with no diagnostic criteria, symptoms uncertain, clinical course unknown, incubation period unknown, duration of infectivity unknown, virulence of infectivity unknown, method of transmission uncertain, means to prevent spread uncertain, effectiveness of protective measures unknown, attack rate unknown, death rate unknown, infectious agent unknown, origin unknown, no treatment, no vaccine, no prophylaxis, long-term effect unknown. As time went on, more became known, but most of SARS was a fight against an invisible and unknown enemy.

> So then we jumped in Colin's [Dr. D'Cunha's] car and came back downtown and went to see Tony Clement and the health deputy, Phil Hassen, and said, this is what we have in mind. And they agreed.

Dr. Young, having secured approval from the Minister and Ministry of Health, then raised the matter immediately with the Premier's Chief of Staff, Steve Pengelly, and then spoke to Premier Ernie Eves:

> He then spoke to Eves who was out in Brampton, I think, and Eves agreed.

Paperwork was done and faxed to the premier in Brampton.

> The paperwork was done up here, we faxed it over to the premier's office, they faxed it out to Brampton, he signed it. It was all done in about three and a half hours.

This aspect of SARS worked well. The emergency declaration was quick and decisive without miscommunication or turf wars. It reflected good communication, good cooperation between government departments and timely, decisive action at the public service and political levels. To bring on board within three and a half hours the Ministry of Health and the Deputy Minister of Health and the Chief Medical Officer of Health, plus the political commitment of the Minister of Health and the Premier, was a remarkable achievement that reflects well on everyone involved.

It is a tribute to Dr. Young, Premier Eves, and Minister Clement that the declaration of emergency necessary to cope with SARS was made in such a timely fashion with no bureaucratic or political delay. It is a particular tribute to the Premier and Minister of Health that they acted immediately on the professional advice of Dr. Young without thought to political considerations.

The declaration resulted from good cooperation and mutual trust between senior public servants like Dr. Young and political leaders like Mr. Clement and Mr. Eves and from a good division of political and public service roles. The Premier and the Minister of Health, without involving the political apparatus associated with major government decisions, accepted from Dr. Young politically independent public service advice to declare the emergency. The Premier and the Minister then provided public and political leadership to back up the advice given to them by the permanent nonpolitical public servants.

Part of this success had to do with the unique role of Dr. Young. As Chief Coroner, he was well respected throughout the medical and hospital community. This medical respect provided the credibility vital for a public health emergency manager. His emergency management credibility came from his track record during a number of emergencies, including the 1998 ice storm, and from his public safety achievements in working with coroners, forensic laboratories and police services.

Emergency managers cannot simply give orders. They have to secure the cooperation and support of many people over whom they have no authority: their political masters, other levels of government, independent organizations like hospitals, medical associations, nurses' unions. This is even more so in a public health crisis like SARS. Independent professionals like doctors and nurses and independent organizations like Ontario's hospitals do not respond well to military or police-like leadership. The essence of a public health emergency manager is not so much the ability to give the right orders as the ability to bring people on side and secure cooperation from those whose trust and support is vital.

It was a fortunate that someone with Dr. Young's unique skills happened to be the Director of Emergency Management when SARS struck Ontario. His unusual combination of medical and emergency expertise turned out to be tailor-made for the SARS crisis. But effective emergency management cannot depend on the happy accident that a manager with unique skills and credibility happens to be in charge when disaster strikes.

Because it is unlikely that the next public health crisis will see anyone with Dr. Young's unique skills in the emergency seat, it is all the more important to ensure the right structure and lines of authority, especially the paramountcy of the Chief Medical Officer of Health. Emergency management requires not only the right person in charge but also the right support systems and machinery. Above all it requires clear lines of authority and a clear understanding of who is in charge.

Unfortunately, this was not the case during SARS. The system of divided authority between Dr. Young and Dr. D'Cunha did not always work well. It was sometimes unclear who was in charge. This created serious problems noted in the Commission's first interim report.

Although the lines of authority will be somewhat more clear in the next public health emergency, important work remains to fix the problem of who is in charge. It must be clear that in any medical emergency, the person in charge is the Chief Medical Officer of Health, to whom everyone else, including the Director of Emergency

Management, should defer.

The government, as recommended by the Commission, has given the Chief Medical Officer of Health a measure of independent authority to ensure that medical decisions are insulated from political considerations. The government, however, has not yet implemented the Commission's further recommendation to clarify the roles of the Chief Medical Officer of Health and of the Director of Emergency Management and to ensure that the Chief Medical Officer of Health is in charge. It is essential that medical decisions be made by the Chief Medical Officer of Health and essential that the Emergency Management Director and the emergency management apparatus are there to assist but do not elbow their way into decisions on infectious outbreak management. To leave this recommendation unimplemented is to invite in the next outbreak a repetition of the problems that hampered Ontario's response to SARS.

Grim Situation

The Naylor Report described the grim picture of growing cases before the emergency was declared:

> By March 25th, 2003, Health Canada was reporting 19 cases of SARS in Canada – 18 in Ontario and the single case in Vancouver. But 48 patients with a presumptive diagnosis of SARS had in fact been admitted to hospital by the end of that day. Many more individuals were starting to feel symptoms, and would subsequently be identified as SARS. Epidemic curves later showed that this period was the peak of the outbreak. On March 19, nine Canadians developed "probable" SARS, the highest single-day total. Taking "suspect" and "probable" cases together, March 25 to 27 are the highest three-day period in the outbreak.[331]

Dr. Young often used a forest-fire analogy to describe going into battle against SARS:

> You have to get ahead of the fire so you fly over it and figure out how big it is, where it's going and how fast, and you build barriers in the right places to stop it. After SARS was identified and we learned something about it, we realized that the people who were sick had been infected more than a week before, so the picture we had was already 10 days old.

331. Naylor Report, p. 27-28.

> That's when we asked the Premier to sign a Declaration of Emergency.[332]

The April 2-3 minutes of the Science Committee reveal the seriousness of the situation and the need for a strong centralized response:

> JY detailed past events – lack of recognition of the severity of the outbreak for some time, local response measures inadequate initially, lack of epidemiology to provide the science for the best decision-making, lack of coordinated effort provincially and federally with the city until a few days ago. POC [the Provincial Operations Centre] opened one week ago and MOH [the Ministry of Health] now has taken the lead. Shortly after a provincial health emergency was called[333].

When Premier Eves signed the emergency order on March 26th, it was the first declaration of a public health emergency in the history of Ontario. The declaration was done pursuant to the authority granted to the Premier under the *Emergency Management Act*.[334] Under the *Act*, the declaration of emergency gave the Premier power to direct and control local governments and facilities. It gave government officials the power to direct hospitals and other health care providers.[335]

---

332. *Getting Ahead of the Fire*, http://www.networkedgovernment.ca/AheadoftheFireBain

333. April 2–3Minutes of the Ontario Scientific Advisory Committee, 2003.

334. Section 7. (1) of the *Emergency Management Act* said:

> Declaration of emergency
>
> (1) The Premier of Ontario may declare that an emergency exists throughout Ontario or in any part thereof and may take such action and make such orders as he or she considers necessary and are not contrary to law to implement the emergency plans formulated under section 6 or 8 and to protect property and the health, safety and welfare of the inhabitants of the emergency area. R.S.O. 1990, c. E.9, s. 7 (1).

335. See sections 7 (2), (3), (4) and (5) of the *Act*:

> Power of Premier
>
> (2) For the purposes of subsection (1), the Premier of Ontario may exercise any power or perform any duty conferred upon a minister of the Crown or a Crown employee by or under an Act of the Legislature. R.S.O. 1990, c. E.9, s. 7 (2).
>
> Emergency powers

Premier Eves recalled for the Commission the reasons why he decided to accede to Minister Clement's advice and declare the provincial emergency:

> I can't remember the exact words but the message communicated to me was that we would probably want to do this, because we'd want to prevent it from spreading throughout the community and that we would be better to err on the side of caution as opposed to the other way, and so we responded.

When asked if he would make the same decision to declare the provincial emergency, Minister Clement said:

> Question: Again, in hindsight, would this kind of situation necessarily have to be a provincial emergency. Would you declare it again or could you see a way of managing it outside of that, that particular box and all that comes with that?
>
> Mr. Clement: Well, it's a difficult question to answer because in hindsight there were 44 deaths and a lot of very sick people, but remember what we knew at the time, which was not a heck of a lot. This thing could have been airborne, it

---

(3) Where a declaration is made under subsection (1) and the emergency area or any part thereof is within the jurisdiction of a municipality, the Premier of Ontario may, where he or she considers it necessary, direct and control the administration, facilities and equipment of the municipality to ensure the provision of necessary services in the emergency area, and, without restricting the generality of the foregoing, the exercise by the municipality of its powers and duties in the emergency area, whether under an emergency plan or otherwise, is subject to the direction and control of the Premier. R.S.O. 1990, c. E.9, s. 7 (3).

Assistance

(4) The Premier of Ontario may require any municipality to provide such assistance as he or she considers necessary to an emergency area or any part thereof that is not within the jurisdiction of the municipality, and may direct and control the provision of such assistance, and the Lieutenant Governor in Council may authorize the payment of the cost thereof out of the Consolidated Revenue Fund. R.S.O. 1990, c. E.9, s. 7 (4).

Premier may designate minister

(5) Where the Premier of Ontario makes a declaration under subsection (1), he or she may designate a minister of the Crown to exercise the powers conferred on the Premier by subsections (1), (2), (3) and (4). R.S.O. 1990, c. E.9, s. 7 (5).

> could have been spread by air as far as we knew, and so based on the information that we had at the time, it was the right thing to do.

As Minister Clement noted, the decision to declare or not to declare a provincial emergency is a difficult one.

Experts and public health officials truly had no idea of the actual magnitude of the outbreak. When the provincial emergency was declared, the outbreak was rapidly spinning out of control as the number of contacts grew in leaps and bounds and the number of ill continued to climb.

It also worth noting that there was no alternative to a provincial emergency. The Chief Medical Officer of Health and local medical officers of health lacked the power to manage the outbreak. As noted in the Commission's second interim report, their power was limited to section 22 of the *Health Protection and Promotion Act*, which dealt primarily with orders against individuals.

The Commission observed that without strong day-to-day powers, the only recourse for public health officials in times of outbreak may be the greater extraordinary powers that come with the declaration of an emergency. Even with greater day-to-day powers, a declaration of a provincial emergency in a public health crisis might still be warranted, as it was in SARS. With stronger day-to-day powers, a lesser crisis could be managed without a declaration of emergency. Stronger day-to-day powers give the government more flexibility and more choices for a graduated response than the present all-or-nothing emergency system.

The Code Orange Order

Once the provincial emergency was declared, the Ministry of Health and Long-Term Care ordered that all hospitals in the Greater Toronto Area[336] and Simcoe County[337] activate their Code Orange emergency plan. The March 29 directive to all GTA/Simcoe County acute care hospitals provided as follows:

---

336. The Greater Toronto Area was defined as including "geographic area of jurisdiction of the City of Toronto and the four surrounding regional municipalities of Durham, Halton, Peel and York." (Directives to GTA/Simcoe County Acute Care Hospitals, March 29, 2003).
337. Simcoe County included the City of Barrie and surrounding county (Directives to GTA /Simcoe County Acute Care Hospitals, March 29, 2003).

> In order to contain the spread of SARS (severe acute respiratory syndrome) the Ontario Ministry of Health and Long-Term Care advises that all hospitals in the GTA and Simcoe county must undertake the following procedures **effective immediately**:
>
> 1. Initiate full **CODE ORANGE** emergency response plans.[338]

Code Orange, the external disaster code, meant that hospital disaster plans kicked in. Visitors were restricted, non-essential visits by hospital staff were suspended, visits by volunteers were suspended and overall access to hospitals was restricted. Elective surgeries were suspended as hospitals operated essential services only.[339]

The March 29 directive required that hospitals establish isolation units for potential SARS cases, establish around-the-clock infection control coverage and implement the use of personal protective equipment for staff, including the use of fitted N95 respirators, an issue discussed in the Aftermath section of this report. Patient transfers between hospitals were also restricted: they had to be recommended by the infection control practitioner, approved by the Provincial Operations Centre and managed by the infection control practitioner.[340]

The province-wide Code Orange paralyzed the health care system. On April 1, in a directive issued to all acute care facilities, hospitals outside the GTA or Simcoe County were to "be prepared to implement Code Orange if directed by the Commissioner of Public Security and the Commissioner of Public Health." Although this did not officially put hospitals outside the GTA and Simcoe County on Code Orange status, the directives that followed in the document were directed to "all acute care facilities." Those directives so closely resembled the Code Orange that it was, practically speaking, the same thing.

Some argued that broadening Code Orange beyond the GTA was unnecessary and problematic:

> The issuing of the Code Orange directive at the end of March spun the health care system into a province-wide shutdown mode. It was quite clear to all involved that this was a Greater Toronto Area-based issue.

338. Directives to all GTA/Simcoe County Acute Care Hospitals, March 29, 2003.
339. Ministry of Health and Long-Term Care Fact Sheet, March 2003.
340. Directives to all GTA/Simcoe County Acute Care Hospitals, March 29, 2003.

> But although heightened vigilance would have been more than adequate for outside the GTA, a province-wide directive was issued, with no consideration of patient access or continuity of care.

But government officials pointed out that the need to stay ahead of the invisible outbreak required very strong initial measures. One government official described the need for a strong response:

> The decision was made that we needed to invoke measures and in order to do so and get ahead. My belief was we needed very bold steps. We had to do much more vigorous things than anyone thought we needed to do in order to jump ahead. That meant closing the system down for period of time while we figure out a way to safely transfer, while we educate people as using SARS as a diagnosis of exclusion. Only way to do that was to stop elective surgery, limit movement, etc. For all we knew when declared emergency SARS could have been in every hospital in Ontario. Turned out it was in five to six. We had to wait a week to 10 days to wait to see where it was. We did put patients at risk and we knew that. It was the lesser of two evils. If we waited we could have ended up one by one with each hospital down. We knew it was infecting large numbers of health care workers at that point as well. We also know that we close office around Christmas every year and we manage quite well because it suits us at that time so there was a buffer in the system.

One of the problems with Code Orange was the confusion over what it meant and to whom it applied. On April 3, the Ministry of Health and Long-Term Care had to issue a press release to clarify the previously issued directives:

> Toronto – Today officials from the Ontario Ministry of Health and Long-Term Care clarified SARS (Severe Acute Respiratory Syndrome) directives for all hospitals outside the GTA.
>
> Effective immediately, hospitals outside the GTA are to reinstate all surgical services, including elective, urgent and emergent surgery. To the extent possible, all out-patient clinics are to reopen, following both universal infection control precautions and SARS screening tool protocol.[341]

341. "SARS Clarification: Hospitals outside GTA should continue elective services," Ontario media notice, April 3, 2003.

In hindsight, many in the hospital system question whether Code Orange was appropriate for infectious disease outbreaks. In a thoughtful submission, the Ontario Medical Association made the following observations:

> The move to "code orange" was a critical juncture in the fight against SARS; however, the resultant impact on services was large – what were the pros and cons of this approach, are there better models that could be used in the future?
>
> Pro: Use of code orange was a useful tool to raise awareness in the hospital sector of the emergent and serious nature of this outbreak. It necessitates a comprehensive response and got attention of hospitals; it is, however, very drastic, very resource intensive and does not specifically address the needs to respond to an infectious disease outbreak. Need to develop outbreak specific code that can be used in hospitals to respond effectively to a large-scale infectious disease outbreak in their community.
>
> Con: We really need an outbreak specific "code orange" that covers the actions surrounding an outbreak.

Whether Code Orange was justified and appropriate, no one can dispute that it came at a high cost for many who were ill and for many whose family and friends were ill. Their stories will be told later in the report.

One thing is clear: experts and government officials never intended the Code Orange status to last long. Minutes of the April 2, 2003, Epi and Science Group Committee included a debate as to when the Code Orange status would be lifted in the GTA. On April 3, the Science Committee recommended that hospitals be considered for lifting of the Code Orange status on an individual basis, provided they have the following in place:

> Screening using the SARS assessment tool as per the Acute Care Directives;
>
> No evidence of transmission within the hospital under consideration OR spread by that hospital to another facility for the ten day period following identification of the last SARS case;
>
> Effective on-site infection control (i.e., minimum of 1 FTE trained infection control practitioner per 250 beds as per current CDC guidelines)

> No admission of known suspect or probable SARS cases and immediate transfer of newly identified cases to a designated SARS hospital.[342]

But the lifting of the Code Orange status depended on the identification of SARS hospitals. As early as April 3, the Science Committee noted that "the establishment of SARS hospital(s) is critical in minimizing transmission in the institutional setting. All patients with probable SARS who require admission should be sent to the designated SARS hospitals." This remained a roadblock for the lifting of Code Orange. As the Science Committee noted in its April 4 minutes:

> As stated yesterday, this [Code Orange status] is posing major hardship from the hospitals. The key impediment to lifting the Code Orange is the SARS hospital. However, we still must not limit SARS cases comparing into many hospitals. Wording was suggested to not specify a SARS hospital but to limit the cases going to numerous hospitals, however, it was emphasized that outbreak principles must be adhered. The document [the Draft Recommendation on Conditions for Lifting the Code Orange Status] was redrafted and sent to POC Executive at 1100[343].

The designation of "SARS hospitals" did not occur until the second outbreak. On May 27, government officials announced that the establishment of four SARS Alliance hospitals. More will be said about this later in the report.

The Code Orange status was not revoked until May 14.

342. April 3, 2003, Minutes of the Ontario Scientific Advisory Committee.
343. April 4, 2003, Minutes of the Ontario Scientific Advisory Committee.

SARS and Bukas Loob Sa Diyos (BLD)

Introduction

Easter of 2003 brought fear to Toronto with the news that SARS had spread beyond health facilities and into the community. Community spread was the ultimate nightmare, and when SARS penetrated an extended family and a religious group called BLD, Toronto was in crisis.

Until Easter, SARS appeared to be contained in hospitals and the immediate households of patients and health workers. The Easter bombshell raised the biggest question yet. Could the community spread be stopped? If so, there was a good chance that SARS could be contained. If not, the unspeakable disaster loomed, an uncontrollable epidemic.

Toronto Public Health responded quickly and strongly, with stern quarantine and clear public notifications. The religious community cooperated magnificently. The community spread was stopped in its tracks. This is the story of how Easter brought us to the edge of disaster and how we pulled ourselves back.

As one public health expert who worked at the Ministry of Health during SARS told the Commission:

> What I saw scared me. I actually was afraid that we'd lost SARS. I thought it was gone into the community . . . I thought it was going to take a superhuman effort to actually stop it.

A doctor who worked on the science committee formed by the province to help combat the outbreak told the Commission:

> I can tell you personally that the weekend prior to Easter weekend and Passover was very, very stressful for all of us in the science committee and in operations, trying to deal with what we perceived was the beginning of

> a community-wide outbreak and . . . the religious gatherings that were going to be taking place over the next week.

The SARS crisis at Easter 2003 involved the Roman Catholic prayer group Bukas Loob Sa Diyos Covenant Community (BLD). Some SARS transmissions were made through the group, but misconceptions and inaccurate reports exaggerated the group's role in the outbreak. Many people associated with that SARS cluster had no connection to BLD.

On April 12, the Saturday before Easter week, Dr. Sheela Basrur, then Medical Officer of Health for Toronto, issued an urgent message to Toronto hospital emergency departments advising them to be on the lookout for BLD members with SARS symptoms. This was based on an April 9 discovery by Toronto Public Health that two BLD members had SARS and on concern that there had been other contacts. "Members of this group may present at hospital emergency departments or SARS assessment clinics with no obvious link to a known SARS case," said the alert.

This alert said all members of the group had been placed under "mandatory isolation (i.e. isolation)" by Toronto Public Health, a difficult decision because many BLD members were Filipino and there was legitimate concern that quarantine of one ethnic group would lead to stigmatization. The large-scale quarantine was also bound to increase public fear, which was already heightened.

Fear of transmission at religious gatherings spilled beyond the BLD group and into larger religious communities. Early in Easter week the Roman Catholic Archdiocese of Toronto, after receiving a call from the Minister of Health, asked all parishes to suspend the practices of taking Communion from the chalice, kissing the crucifix on Good Friday and extending salutations of peace through handshakes. Some other Christian denominations did likewise.

As Bishop John Boissonneau said during an Easter week news conference:

> Some people may feel a stress or tension between what they would regard is their religious duty and their public health duty…. Let me tell you: their public health duty is their religious duty. They're responsible before their God and within their community to safeguard the common good.[344]

344. The Canadian Press, April 15, 2003.

Easter service attendance fell off. Those who did attend avoided some Communion practices, the holy water and physical exchanges with fellow parishioners. Nervousness was felt in churches where sneezing and coughing were present, as it almost always is in large gatherings. Some churchgoers carried anti-bacterial lotions and used them after having contact with prayer books, pews and Communion wafers.

The Easter crisis had international ramifications. One person from Pennsylvania was infected with SARS while attending a Toronto BLD retreat and Mass in late March. A nurse's aide from Toronto carried the disease to the Philippines, where she infected her parents, among others. She had no known BLD ties but contracted the disease while helping a friend's mother, who was infected during a visit to the Lapsley Family Doctors' Clinic,[345] which had a BLD connection.

Concern about the spread of SARS in BLD resulted in the World Health Organization and the U.S. Centers for Disease Control and Prevention adding Toronto to their lists of SARS affected areas. Toronto became known as a place to avoid and the tourism industry suffered losses estimated into the hundreds of millions of dollars.

The worst suffering was personal. Dr. Basrur noted the personal suffering in an article written post-SARS in collaboration with colleagues Dr. Bonnie Henry and Dr. Barbara Yaffe:

> Individuals and families affected by SARS faced multiple complex issues, including physical illness, psychological stress, financial hardship and social stigma.[346]

The Background of BLD

Bukas Loob Sa Diyos, a Filipino name meaning "Open in Spirit to God," is a Catholic prayer group. It was founded in Manila, Philippines, in 1983 and has spread throughout the world. It came to North America in the early 1990s when a small group began to meet in Toronto to pray together. Since then the movement has grown to thousands of members in 20 cities in Canada and the United States.

345. The story of the Lapsley clinic is told later in the report.
346. S. Basrur, B. Henry and B. Yaffee, "SARS: A local public health perspective," *Canadian Journal of Public Health* (January/February, 2004).

The Catholic Church sanctions BLD, and Toronto BLD is an active member of Archdiocese of Toronto Charismatic Renewal (ATCR), an archdiocesan umbrella organization of charismatic prayer groups. BLD Toronto usually meets on Fridays for prayer and Bible study. They also have retreats and workshops to promote spiritual growth and strengthen the family. Members also do apostolate work such as visiting the sick and elderly and volunteering with Toronto's Out of the Cold program.[347]

A BLD member caught SARS while accompanying his father to a Scarborough hospital on March 16. The son had contact with some BLD friends at a social event on March 23 and later there was more exposure through a BLD retreat on March 28-29 and a funeral home visitation for the father, who died April 1. No one knew of the SARS exposure at the time.

The so-called[348] BLD SARS cluster involved 31 persons who were listed as probable or suspected victims. Fourteen of these were in the family of the father who died, but only one member of that family belonged to BLD. Another 14 were BLD members from eight different families and the other three were nurses or doctors. Not all the cases resulted from BLD activity, and it is somewhat misleading to tag the cluster with the BLD name. Twelve of the 31 BLD cluster cases actually came from exposure to the father while he was in hospital.

In all, 819 people in the Toronto area were quarantined because of the BLD cluster. Overall, 33,535 people were quarantined in Toronto and York and Peel regions during SARS.[349]

The cluster was a small part of a larger outbreak in Canada, which had more SARS cases than any other country outside Asia. By August 2003 there had been a total of 375 probable and suspected cases, including 44 deaths. The majority of cases and all the deaths were in the Greater Toronto Area.[350] The infectious phase of the Canadian outbreak ended in mid-June 2003.[351]

The so-called BLD cluster had significance much greater than its size. First, as already noted, it marked the first spread of SARS beyond hospitals or family contact. Public health officials worried that the BLD cluster meant that SARS had escaped into the open community and would be very difficult to contain. As Dr. Don Low said:

347. From notes provided by the BLD and www.bldworld.org.
348. So-called because some of the cluster were not BLD members but only contacts of BLD members.
349. Figures compiled by Toronto Public Health.
350. Naylor Report.
351. Health Canada http://www.hc-sg.ca/pphb-dgspsp/sars-sras/cn-cc/numbers.html.

> The frustrating thing is that we have seen this week something that we hoped would not happen…. We have seen this disease go into the community. . . . We're in a new phase of the illness… We're into the community phase and that has to be aggressively controlled. But it's where we have far less control than we did in a hospital setting.[352]

Second, the cluster raised significant issues such as stigmatization of people connected through religious and ethnic associations, how Public Health should communicate potential risks to the public, and the pros and cons of quarantine.

It also played a significant role in the WHO's April 23, 2003, decision to issue a travel advisory for Toronto, a decision that had devastating economic consequences. The advisory was lifted after 10 days. The WHO cited the export of SARS cases to Pennsylvania and the Philippines as one reason for the advisory. The Pennsylvania and Philippines cases had ties to the BLD cluster.

How the Cluster Developed

As noted above, one of the earliest SARS cases involved the wife of a patient at Scarborough Grace Hospital. This woman, Mrs. M, who also was not feeling well, sat in the emergency room waiting area when her husband (Mr. M, whose story is told earlier in this report) was brought in on March 16. She was infected with SARS at this time, having contracted it from her husband, who was exposed to SARS while in the emergency department on March 7th with the index case Mr. T. While Mrs. M was in the emergency department on March 16, so were some members of a Filipino family, a man and his wife who had brought in his 82-year-old father, Mr. S. The elderly man was a diabetic with a gangrenous ulcer on his leg and was examined, treated and released. He was the patriarch of a family of at least six adult children, one of whom belonged to BLD.

Toronto has an extensive Filipino community and the S family was fairly well-known in that community. On March 23, seven days after the hospital visit, the S family held a social gathering at the patriarch's home. All the partygoers, mainly family, were potentially exposed to the SARS virus picked up in the Scarborough Grace waiting

352. War on Deadly Foe Enters Critical Phase, *Globe and Mail*, April 19, 20003

room. Only two of the people at the house gathering were BLD members. One was the patriarch's son, the other a close family friend. It is believed the friend became infected at the party. The friend then attended a BLD retreat and Mass on March 28 and 29, events attended by as many as 500 BLD members.

By April 1, the patriarch's family was in crisis. At least three members of the family had visited the Lapsley Family Doctors' Clinic in Scarborough one or more times during the last week of March. One of the doctors who treated them was Dr. Nestor Yanga,[353] a family friend whom they infected and who succumbed after a long fight against SARS on August 13, 2003, two months after the last reported infection. Mr. S had been admitted to Scarborough Centenary Hospital on March 26 and died there on April 1, but SARS was not suspected. On April 2 his wife was admitted to Centenary and two sons were sick. One son, F Jr., who had been with his father on his first hospital visit on March 16, visited Scarborough Centenary emergency department on March 27. He was examined and sent home. Another son, Fx, returned to the Lapsley clinic where he was seen by Dr. Yanga.

This was two weeks after the World Health Organization issued its first definitive description of the disease. It was called atypical pneumonia; the name SARS was not used until March 15.[354]

Funeral arrangements were made for Mr. S and a visitation was held at the J Funeral Home on April 3. There were two visitations at the funeral home that evening, one for Mr. S and another for an unrelated person, and the two sets of families and friends shared a common lounge. After the visitation one of Mr. S's sons, Fx, was so ill he was taken by ambulance to Scarborough Centenary, where his mother, admitted the day before, was in serious condition. Also on April 3, Mr. S's sone F Jr. wen to the Lapsley Clinic and was seen by Dr. Yanga. F Jr. was sent to Women's College Hospital and later admitted to Sunnybrook Hospital.

As of April 3, Mr. S was dead, his wife and two of his sons were in hospital and several other family members were beginning to feel unwell. Three major possible transmission events had occurred, the house party on March 23, the BLD retreat and Mass on March 28-29 and the funeral home visitation on April 3. More illness was to

353. Commission policy is not to use actual names of people who contracted SARS. However, Dr. Yanga's case and name have been publicized at public hearings and in the media, so it is impossible to conceal his identity in this report.

354. SARS Commission Public Hearings, September 29, 2003.

come. Before it was over both the patriarch and his wife had died of SARS and four others in the S family were sick enough to be treated in intensive care units.

The night of April 3, a Toronto Public Health doctor received a call from Scarborough Centenary, where a respirologist had diagnosed SARS in Mr. T's wife. Toronto Public Health also learned that the woman's husband had died two days earlier. On top of that, two of her sons were ill with flu-like symptoms. This was unusual and Toronto Public Health began to investigate.

There was some confusion over whether Mr. S died of SARS but it was considered likely. Toronto Public Health became alarmed about exposure at the visitation. It told the family that another planned visitation and the funeral must be cancelled, and that the interment could be attended only by family members who were not sick.

The next morning Toronto Public Health got the funeral home register to determine who had been at the visitation the night before. Roughly 70 persons were at the funeral home for Mr. S, plus another 36 for the other family and 11 staff.[355] It began contact tracing of those 100-plus people. Two days after the visitation it issued a public notice about the visitation and advised anyone who had attended to go into quarantine. Toronto Public Health also spoke to two of Mr. S's sons who were ill. It learned that one belonged to BLD but did not learn about the other potentially critical spreading events, the house party and the BLD retreat and Mass.

BLD leaders who had been at Mr. S's visitation contacted their personal physicians and were advised to go into voluntary quarantine because of possible exposure. They contacted other BLD members known to have been at the funeral home and advised them to do the same and to call Toronto Public Health. They did, and Public Health sent quarantine supplies such as masks and thermometers to their homes. However, no general quarantine of BLD was ordered.

Then, on April 5, Toronto Public Health received a call from Markham Stouffville Hospital saying that Dr. Yanga had come there with a dry cough and malaise. He went back to his home the same day and into voluntary quarantine, sending his family away. Dr. Yanga shared the Lapsley Clinic with three other physicians, and all but one became ill. The clinic was closed and checks were started on when members of Mr. S's family had been there. The story of the Lapsley Clinic follows in the next section.

355. SARS news conference with public health officials, April 2003.

Several days later Toronto Public Health began to put all the connections together. On April 9 Dr. Basrur received a late-night call from a staff member who said two members of BLD had been diagnosed with SARS. At least one had attended the March 23 family party, the BLD retreat and the funeral home visitation. "On the 9th of April, Wednesday, it clicked about the BLD connection," recalled a Toronto Public Health physician.

There was considerable scrambling over the next three days. Toronto Public Health held an emergency meeting with the BLD leadership. It asked for a list of everyone belonging to BLD. The group's leadership was extremely cooperative and cancelled all the community's functions for April and May. "They took the whole thing very seriously," Toronto Public Health reported later, "As leaders of the community they were bending over backwards to assist us."

There were concerns that news of SARS within BLD could have repercussions for the group and its individual members. These concerns proved to be well-founded; the details will be addressed later. Toronto Public Health obtained the BLD list on the night of April 11. It was given to five public health nurses staffing a Public Health hotline. They began calling out, talking to people who might have symptoms. The nurses made 30 calls in the first hour but quickly became frustrated because the word had spread through BLD and people were expecting the calls. "The nurses were doing risk assessments and the people already knew what answers to give", one Toronto Public Health doctor told the Commission.

Like most people who know they are going to speak with a doctor or a nurse about themselves, they had prepared what to say, making it difficult for the nurses to do thorough risk assessments. The public health nurses did find three sick people during the first hour, a mother and two of her sons. One son worked at a local racetrack and casino, and Toronto Public Health dispatched an ambulance to pick him up and take him to hospital. Hospital staff examined him, then put him on a bus back to return to work. He was located a second time and got himself to another hospital. The fear now was that SARS, which had been traced back only to hospital transmissions, was out in the community. No one knew where it might go or how difficult it might be to get it stopped.

About this time an epidemiology expert was drafted to help P ublic Health assess the outbreak. He told the Commission that he feared SARS had gone into the community and that:

> . . . I'm still impressed with the BLD church leaders for what they did and I think they deserve so much credit for actually stopping this.

The BLD leadership was concerned that the quarantine would leave the group stigmatized, but they not only accepted the Toronto Public Health decision, they plunged in with support. Said one Toronto Public Health physician:

> They were incredible. They were forthcoming. They identified the issues.

Toronto Public Health wrote a letter that the BLD leadership distributed through email, reaching 95 per cent of the membership. The other five per cent was reached by telephone. The three-page letter gave guidelines for the 10-day quarantine, plus a warning:

> I recognize that these directives will cause disruption and possible hardship to individuals and families. However, failure to comply with these requirements will place at risk not only your own health but also the health of your family, BLD members and possibly others in the broader community. Failure to comply will also result in legal action being taken against you.[356]

The SARS outbreak marked the first use of quarantine in Ontario in 50 years. The use of quarantine and its extent during SARS will be discussed below. Dr. Jim Young, told the Commission at its public hearings that Ontario's use of quarantine was unrefined but it served a purpose because there was some community spread of SARS and there was huge public pressure for quarantine.

> We had a community spread, in fact, through doctors' offices, with an incident in a funeral home and that, in turn, spread into the workplace. . . . So, we can't pretend that it [quarantine] was of no value or it didn't do anything. First, we didn't know its value and, secondly, there was community spread. We made the decision, from the beginning, as to what to do and how to do it using a scientific committee.[357]

There was concern that quarantine might be problematic in such a large group as BLD, especially because it would cover Easter week, the most important time of the Catholic religious year. Holy Thursday, Good Friday and the Saturday-Sunday Easter

356. April 13, 2003, letter from Dr. Sheela Basrur, Medical Officer of Health.
357. SARS Commission Public Hearings, September 30, 2003.

rites are critical Catholic times that devout practitioners are loath to miss. The BLD leadership took firm control, however, telling members it was their religious duty to stay at home. They arranged broadcast of Easter services over cable TV and home delivery of Communion.

Quarantine might be of limited effect, however, now that the disease was on the loose. Health officials did not know at the time that the virus was not particularly communicable in open community settings. There was worry about who had been unknowingly infected before quarantine. "As we had already learned with Grace [Scarborough Grace Hospital] after SARS shows up, it's too late," Dr. Young told the Commission.[358]

During Easter week, April 13 – 20, nine health professionals involved in treating Dr. Yanga were infected at Sunnybrook Hospital. This dramatic evidence that nurses and doctors and medical support staff were not adequately protected by worker safety systems will be discussed below under the heading "Disaster at Sunnybrook."

At roughly the same time, a nurse's aide from Toronto arrived in the Philippines and immediately started to show symptoms. She had been caring for a friend's mother who had been to Dr. Yanga's Lapsley Clinic. Her trip to the Philippines was to assist her parents return from a trip there. She infected her parents and started a Philippines cluster. She and her father died of SARS in the Philippines; their story is told in the Lapsley Clinic story that follows.[359]

Another exported case was a man from Pennsylvania who travelled to Toronto and attended the BLD retreat. He became ill on his return home on April 14 and was taken to a Philadelphia hospital, where he was diagnosed with SARS. There were no transmissions from him.

All this news prompted the U.S. CDC to list Toronto as an area with documented or suspected community transmission of SARS. CDC said BLD had multiple outreach areas throughout the United States and asked state and local health officials to be on the lookout for SARS among people who had travelled to Toronto and to report them to CDC.

The WHO also expressed its concern about the outbreak by advising against all but

358. SARS Commission Public Hearings, September 30, 2003.
359. Philippines Government death certificates, April 2003.

non-essential travel to Toronto.

> WHO has assessed the SARS situation in Toronto, Canada. The outbreak in this area has continued to grow in magnitude and has affected groups outside the initial risk groups of hospital workers, their families and other close person-to-person contacts, although all the cases reported have identified links to known SARS cases. In addition, a small number of persons with SARS, now in other countries in the world, appear to have acquired the infection while in Toronto.[360]

The Public Health Response

The social and economic ramifications of SARS were so huge that there was bound to be intensive examination and criticisms of how Public Health performed during the crisis. The BLD cluster quickly became one important area for focusing on what Public Health did wrong and what it did right.

The media questioned whether Public Health, Toronto Public Health in particular, had reacted quickly enough to the outbreak connected to BLD. Words like *misjudgment* and *missteps* showed up in the news coverage. "Crucial misjudgments and bad timing played key roles in a SARS outbreak that hit a religious community and threatens to spread the disease further across Toronto," reported the *Globe and Mail*.[361]

Questioning of Toronto Public Health's BLD performance centred on three main areas: preparedness, reaction speed and the use of quarantine.

A doctor who treated Mr. S's wife while she was dying told of how he needed some information on work quarantine and could not get through to public health authorities by telephone. He gave up and drove to his hospital to get the information he needed.

One management specialist called in to help the provincial health branch with the outbreak spoke of the "mess" of Toronto Public Health's systems:

360. World Health Organization, Update 37, April 23, 2003.
361. "Health system's misjudgments escalated new SARS outbreak," *Globe and Mail*, April 16, 2003.

> And because Toronto was such a mess with their records, we would often have the same person three or four times. . . . everybody got ticked that they were always being asked for information they had just given you.

Dr. Basrur reported on September 2003 to the Board of Health[362] that "the volume of information generated in the SARS outbreak far exceeded previous experience." She said staff were forced to use inefficient manual and paper-based systems that were slow and duplicated some effort. Public Health technical staff developed a case and contact management system partway through the crisis and work was later underway to improve information sharing between local health units, the Province and Health Canada.

The Commission heard and has reported in its interim report that at times Public Health was overwhelmed by a staggering workload during SARS:

> Despite the best efforts of so many, the systems for redeployment proved inadequate. SARS demonstrated the need to create surge capacity by planning in advance so that every available worker can be deployed where necessary.[363]

Toronto Public Health's reaction to SARS was to establish an emergency response plan, set up a public information hotline and assign staff full time to the outbreak investigation. Up to 400 staff worked on the front lines on any given day. The hotline received more than 300,000 calls between March 15 and June 24, with a peak of 45,567 on one day.

The deepest questioning of Toronto Public Health's response to the BLD cluster was about response time. Public health officials knew on April 3 that a family patriarch was dead, his wife was in hospital and two of his sons were ill. Toronto Public Health began contact tracing and issued a public notice on the funeral home visitation two days later. Toronto Public Health says that on April 9 it recognized a connection between Mr. S's family's illness and BLD. On April 13, it issued the quarantine notice to BLD members.

362. Toronto Board of Health, Toronto Public Health's Response to the Severe Acute Respiratory Syndrome (SARS) Outbreak 2003, September 9, 2003.
363. SARS Commission, first interim report, April 15, 2004.

The question has been asked in the media and by the Commission: Why did it take so long to isolate BLD members and to notify the public of the BLD exposures? Some BLD members who attended the April 3 funeral home visitation began voluntary quarantine on April 4.

Dr. Basrur gave her answer to the media a few days after the BLD quarantine was announced:

> It's a fair question . . . At that point [April 5] we didn't realize the degree of interaction between this group.
>
> Hindsight is absolutely my best friend.[364]

She said the more they investigated, the more they realized that BLD had more regular and close contact than imagined. As more cases were revealed, they decided to discuss quarantine.

> If we had acted in a similar fashion a week earlier it would have been seen as overkill, she said.[365]

At the time of the SARS outbreak there was considerable debate on whether to use quarantine. History has shown that quarantine brings fear, discrimination and hardships, including separation from family and friends and potential income loss from being away from work. Also there are hardships connected to being labelled a possible case. A study of the Ontario SARS outbreak showed that quarantine can result in considerable psychological distress in the forms of post-traumatic stress disorder (PTSD) and depressive symptoms.[366]

The study noted:

364. "Health system's misjudgments" *Globe and Mail,* April 16, 2003.
365. "Health system's misjudgments" *Globe and Mail*, April 16, 2003.
366. "SARS Control and Psychological Effects of Quarantine, Toronto, Canada," *Emerging Infectious Diseases* (July 2004) (SARS Quarantine Study).

> Public health officials, infectious diseases physicians, and psychiatrists and psychologists need to be made aware of this issue. They must work to define the factors that influence the success of quarantine and infection control practices for both disease containment and community recovery and must be prepared to offer additional support to persons who are at increased risk for the adverse psychological and social consequences of quarantine[367].

Some medical experts consider quarantine an outmoded public health strategy. Others consider it a tool secondary to good infection control practices, while still others say that the hardships and stigma presented by quarantine are acceptable if some disease spread is controlled.

The decision to put BLD members into quarantine certainly was not taken lightly. Two Toronto Public Health doctors recalled for the Commission the thinking that went in favour of quarantine. One remarked:

> If this is it, then it's take a stand now or never. If we can't control it at this stage then it really may be gone out of control into the community, and we knew we were doing something very drastic. We had no rose tinted glasses on about that at all.

Said the other:

> We certainly didn't do it with any great ease either. Quite a bit of anxiety back and forth around doing the right thing. There's the right thing for the group. There's the right thing for the rest of the community. It was difficult.

Dr. Basrur said there were concerns that because the majority of BLD members were Filipino their quarantine might be seen as singling out one ethnic group.[368]

One of the Toronto Public Health doctors invovle din this case said:

367. SARS Quarantine Study, p. 7.
368. "Health system's misjudgments," *Globe and Mail*.

> If you make a mistake, err on the side of caution. We quarantined all sorts of people that we did not have to quarantine but we did not know this at the time. I knew that we quarantined too many but if that is the worst thing that we did, we did all right. We knew this [SARS] was killing people and it was very dangerous.

Stigmatization

Concerns that a quarantine of BLD would bring discrimination and hardship on its members proved to be justified. Once BLD and SARS were connected publicly, members of the group began suffering stigmatization. The stigmatization went beyond BLD and spread into the Filipino community because so many BLD members had a Filipino background.

Once the BLD name was public, its members became thought of as people to be feared and avoided. The *Globe and Mail* newspaper in Toronto reported that many families were avoiding hiring Filipino nannies because many BLD members had a Filipino background. One woman offered to pay her Filipino nanny to stay home although the nanny had no connection with BLD.[369]

The BLD leadership complained that the group was stigmatized by public identification with the disease:

> Even as we received a clean bill of health from public health authorities and stepped out of the doors of our homes to rejoin the larger community, we encountered a number of distressing situations.

These included two medical labs in Oakville and Ajax and an X-ray clinic in Scarborough posting signs saying BLD members should not enter. Also a student who belonged to BLD was sent home because she coughed in class.[370]

The BLD experience raises the general problem of stigmatization suffered by Chinese, Asians generally, health workers and other groups that were named publicly.

Some people blamed the news media for helping to promote the stigmatization.

369. "SARS threatens jobs for nannies," *Globe and Mail,* April 16, 2003.
370. From a BLD fact sheet given to the Commission by BLD leaders.

"Media response was fast and furious," said a funeral home employee whose operation was caught in the media spotlight. "They loved to play on the terms that indicate danger."

When Toronto Public Health issued the public notice about Mr. S's visitation it named the funeral home, which was understandable. However, this funeral industry worker said that the media continued to link the home's name with the SARS story long after the quarantine period from the visitation ended. People, including suppliers, avoided the home because the name was still in the media. "The media lacked understanding," he said.

There was a feeling, certainly within BLD, that the BLD connection with SARS was hyped in the media. BLD member Don O'Shaughnessy of Scarborough, who was quarantined during the Easter outbreak, certainly thought so:

> When you see yourself [BLD] identified in a *Time* magazine graphic as a locus of the disease, it hurts, especially when the information is wrong.[371]

He said BLD should have been given the same consideration about privacy as individuals.

> The community really was singled out and the name BLD was carelessly used[372].

In fairness, the media had an important duty to report on this serious public health threat. The spread of a deadly disease into the community through any identifiable group, whether it be a religious or ethnic group or a visible minority, is a story that must be covered. The difficulty with reporting such stories is that they are easily sensationalized and require scrupulous accuracy, balance and fairness.

The media faced real difficulties in reporting the BLD story. SARS was a new threat and dealing with it was a learning experience. Efforts to get a quick and firm grip on the disease were hampered by a lack of clear facts in the fog of worry over a deadly developing situation. Even the public health authorities, on whom the public and the media were relying for solid information, did not have all the facts. Although the media generally did a good job in SARS, sometimes an outstanding job, there were

371. "Marked by SARS," *Toronto Star*, December 13, 2003.
372. "Marked by SARS," *Toronto Star*, December 13, 2003.

some unfortunate cases in which news stories did not appear to be completely accurate or fully balanced.

For instance, it was reported that two BLD members violated quarantine and went to work at a geriatric centre. In fact, the workers were not BLD members.

Another media report said that a BLD member went on a business trip to Montreal despite exhibiting SARS symptoms. The man was a BLD member and before the trip was feeling unwell, but he consulted his personal physician, who cleared him to travel.

The media reported that the Toronto nurse's aide who brought SARS to the Philippines was a BLD member. She wasn't and was infected by chance, by being kind to someone who had been infected at the Lapsley Clinic.

Some reporting simply gave a wrong impression. One newspaper report said the Catholic Archdiocese of Toronto restricted communal traditions because it was "fearful" that BLD members had exposed "congregants" to SARS. In fact, Tony Clement, Ontario's health minister at the time, has stated publicly that he called a Catholic cardinal and asked that rites be altered to reduce the chances of spreading the disease. The cardinal agreed.

These instances show the need in public emergencies for the media to use extraordinary efforts to ensure accuracy, balance and fairness. The same should apply to public authorities who are passing information to the public through the media. If their facts are not accurate, the media is not always in a position to confirm them.

The Lessons from BLD

The BLD story is strewn with confusion, misunderstanding and fear directly resulting from a lack of facts, for instance, people avoiding contact with any Filipinos, such as Filipino nannies, or people avoiding all people of Asian descent for fear of SARS exposure. Public health authorities tried to use reason to overcome such unreasonable fears. Toronto Public Health sent people into schools to work with principals. At news conferences, public health officials stressed that it was not easy to contract SARS and that race had nothing to do with getting it. "I would remind everyone that viruses are viruses," stressed one Toronto Public Health spokesman. "And viruses are not racial viruses . . . any racial stigma attached to this is simply scientifically not valid or appropriate."[373]

373. SARS news conference, April 5, 2003.

However, we have to do better next time in terms of public communication and supplying solid factual information with balance so the public is able to judge the situation reasonably. The relationship between public authorities and the media is a key to ensuring that the public is informed quickly and accurately.

The importance of good public communication was stressed at a September 2003 conference in Singapore that discussed communications guidelines in fighting epidemics. Lee Jong-Wook, director-general of the WHO, told the conference in a videotaped statement that communication is "as critical to outbreak control as laboratory analyses or epidemiology," and that "poor outbreak communications can undermine good decisions."[374]

One of the most important lessons in the BLD-SARS experience was a positive one: Good leadership always helps people through time so crisis and fear. BLD leadership guided members through a difficult and dangerous time, while at the same time setting an example for governments and their agencies.

The most important thing BLD did was communicate clearly with its membership. It gave them facts they should know and provided them direction. It also organized ways of making a difficult situation more bearable: for example, Mass by cable television, Communion delivered to the doors of those quarantined. Supplying facts, clearly and directly, is the best way to control fear. When people have facts that they believe are credible, they feel better equipped to face their difficulties.

BLD Chronology

March 16, 2003 – Eighty-two-year-old patriarch of a Filipino-Canadian family (the S family) brought to Scarborough Grace Hospital emergency with leg ulcer related to diabetes. Family members accompanying him exposed to SARS in hospital waiting room.

March 23 – Social gathering at Mr. S's home. Partygoers exposed to the SARS virus picked up in the Scarborough Grace waiting room. One attendee is a member of BLD.

March 26 – Mr. S ill again and admitted to Scarborough Centenary Hospital.

374. "Good communication helped S'pore beat Sars: WHO adviser," *Straits Times*, September 22, 2004.

March 27 – One of Mr. S's sons, F Jr., feeling unwell and goes to Scarborough Centenary, where he is examined and sent home. One of his brothers, FX, also is feeling unwell.

March 28 and 29 – BLD holds a retreat and Mass attended by as many as 500 people. The BLD member who was at Mr. S's house party attends.

March 29 – F Jr. still sick and visits Dr. K at the Lapsley Clinic. Prescribed antibiotics.

March 31 – Mr. S's wife and son FX attend Lapsley and are seen by family friend Dr. Yanga.

April 1 – Mr. S dies. Cause listed as sepsis, but changed to SARS following a postmortem review.

April 2 – Mr. S's wife admitted to Scarborough Centenary Hospital, where husband died the day before. Son FX returns to Lapsley and is seen again by Dr. Yanga.

April 3 – F Jr. goes to the Lapsley in worsening condition and is seen by Dr. Yanga. Sent to Women's College Hospital, then Sunnybrook Hospital, where he is admitted with evidence of SARS.

April 3 – Friends and family attend funeral home visitation for Mr. S. After the visitation son FX is brought to Scarborough Centenary by ambulance.

April 3 evening – Toronto Public Health doctor receives call from Scarborough Centenary about Mr. S's wife's admission and illness in other family members. Investigation begins.

April 4 – Toronto Public Health orders T family to cancel a second visitation for the Mr. T, and the funeral, scheduled for April 5.

April 4 – BLD leaders, who attended the funeral home visitation the previous night, consult personal physicians and advise BLD members to go into voluntary quarantine.

April 5 – Dr. Yanga goes to hospital ill, then into voluntary quarantine.

April 8 – Dr. Yanga admitted to Sunnybrook Hospital with SARS symptoms.

April 9 – Toronto Public Health connects BLD with the S family, the March 23 house party and the April 3 funeral home visitation.

April 12 – Dr. Sheela Basrur, Toronto Medical Officer of Health, issues an urgent message to Toronto hospital emergency departments advising them to be on the look-out for BLD members with SARS symptoms.

April 13 – TPH mired in tracking and contacting BLD people who might have been exposed, and issues quarantine order for BLD members.

April 14 – Nurse's aide who contracted SARS from patient of Lapsley Clinic dies in the Philippines.

April 14 – Pennsylvania man who attended March 28-29 BLD activities in Toronto returns home and falls ill with SARS.

April 14 – 100 Toronto city workers quarantined because two workers belong to BLD.

April 15 – Health care worker helping to treat Dr. Yanga in hospital falls ill.

April 15 – Roman Catholic Archdiocese of Toronto suspends taking Communion from chalice, kissing the crucifix on Good Friday and extending salutations of peace through handshakes.

April 18–20 (Easter weekend) – Easter Mass broadcast to quarantined BLD members via television and Communion delivered to their homes.

April 21 – Centers for Disease Control in U.S. adds Toronto to affected areas because of spread within BLD.

April 23 – Wife of Mr. S dies of SARS, age 85.

April 23 – BLD quarantine ends.

June 12, 2003 – Onset of last known SARS infection in Canada.

August 13, 2003 – Dr. Yanga, in hospital more than four months, succumbs to SARS.

The Lapsley Family Doctors' Clinic

People don't expect to get sick from visiting their family doctor's office. Doctors' offices generally are safe, even though sick people attend there. The spread of SARS at the Lapsley Family Doctors' Clinic in Toronto, however, raises concern that our doctors' offices are weak links against SARS and other infectious diseases.

Family doctors' offices fortunately did not become transmission spots for SARS. The Lapsley was the only doctor's office to become a vector for the spread of the disease,[375] but regrettably it was a tragic exception, with international implications. One of the clinic's physicians, Dr. Nestor Yanga, died of SARS and two of his colleagues became seriously ill.

Dr. Yanga, 54, known as a kind and gentle physician, left a wife and two sons, and was the only North American doctor to die of SARS. One of his sons, Ron, a Grade 12 student at the time, described his father:

> He was a kind, caring man. He cared about everybody – his patients, his friends, his family. He made you feel special.[376]

Horrific as the Lapsley incident was, it could have been worse. SARS could have created other Lapsleys by spreading through dozens or hundreds of other family clinics and doctors' offices. As the Commission noted in its first interim report:

> The Lapsley clinic showed that family physicians were clearly at risk, as a SARS case could walk through their door at any time. Many SARS patients did not only go to SARS clinics and hospitals. Many avoided them from fear of SARS and went instead to see their family physician.[377]

375. Although one doctor caught SARS in her office from a patient and a number of doctors had to be quarantined after suspected contact with SARS, these isolated incidents involved no further spread of the disease.

376. *Toronto Star*, September 27, 2003.

377. SARS Commission, first interim report, p. 150.

The Lapsley tragedy shows that more must be done to support family doctors and to better prepare them for the next outbreak of infectious disease, and to make their offices even safer than they are now.

The Lapsley Clinic was operated by four family physicians in northeast Toronto. Many of its patients were Canadians originally from the Philippines. Some were members of the S family, one of whom was associated with the BLD SARS cluster referred to above.

The Lapsley Family Doctors' Clinic is mentioned by name because it is already in the public domain through media reports and presentations at SARS Commission hearings.[378] Also in the public domain are the names of Dr. Yanga, who suffered four months before dying on August 13, 2003, and Dr. Rex Verschuren.[379] Because these names are in the public domain they are used in this report.

The tragedy began when the 82-year-old patriarch of the S family was brought to Scarborough Grace Hospital on March 16, 2003, by his wife and one son and a daughter-in-law. In the emergency room waiting area was a woman who had been infected with SARS earlier and who passed on the infection to the S family. The disease later killed the patriarch and his wife and severely sickened other, younger members of the family.

Sick members of the S family went to at the Lapsley Clinic late in March and early April. One son went to the clinic on March 29, was seen by Dr. K and was prescribed antibiotics. The patriarch's wife and another son attended the clinic on March 31 and were seen by Dr. Yanga, a family friend well-known in the Filipino-Canadian community. It is believed that during these sessions SARS was passed on to clinic staff and patients.

Three of the four doctors at the clinic became ill with SARS. Why the fourth, Dr. Verschuren, did not is a mystery, and public health officials believe it might have something to do with the location of his office in the clinic.

---

378. See in particular the presentation of Dr. Jan Kasperski, Executive Director and CEO of the Ontario College of Family Physicians, SARS Commission Public Hearings, September 29, 2003.

379. See Dr. Verschuren's lengthy CBC interview by Kelly Crowe, "Was Canada Ready for SARS?" April 30, 2003. Dr. Verschuren declined to speak to the Commission and the Commission decided that he had put enough of his story in the public domain and that it was unnecessary to issue compulsory legal process to secure an interview with him.

The two other doctors at the clinic became severely ill but survived.

Another horrible side story from the Lapsley Clinic began when an older female patient attended the clinic at the same time as some members of the S family. She became infected with SARS. Her daughter had a friend, Adela Catalon[380], who was a nurse's aide, and when the older woman was ill at home, Ms. Catalon was kind enough to stop by her house to provide nursing assistance.

During her Good Samaritan work Ms. Catalon unknowingly became infected, then travelled to the Philippines to assist her elderly parents, who were returning home to Canada. She arrived in Vacante, Philippines, on April 4, and two days later became ill. She died on April 14 in hospital, the fourth Toronto-area health worker to die of SARS. She infected her father, 74, who died eight days later. An entire village of 1,000 people was quarantined because she had been there. Police were stationed at the approaches to the village to stop people from coming and going. The Philippines Department of Health traced 257 people she was believed to have had contact with, plus the people who had been on the plane that brought her from Canada.[381]

The Philippines recorded 12 probable cases of SARS during the outbreak, eight directly connected to Ms. Catalon and therefore the Lapsley Clinic in Toronto. The other four cases were imported by others. The World Health Organization (WHO) placed the Philippines on its list of local transmission places but lifted the recommendation in May. Two SARS deaths were recorded, those of Ms. Catalon and her father.[382] The WHO credited fast emergency action by the Philippines for stopping the outbreak from growing.

The SARS situation in the Philippines illustrates the scale of the emergency effort needed to respond effectively to an imported case and to ensure that an outbreak is swiftly contained, keeping the number of secondary cases small. The imported case travelled to five provinces prior to hospitalization. Contact tracing identified 250 casual and close contacts who were closely followed up. Four of these developed fever and were quarantined until a diagnosis of SARS was excluded.[383]

The WHO also said:

380. Because Ms. Catalon's case has been widely reported and is in the pubic domain, she is referred to by name in this report.
381. "SARS-suspected village sealed off," *Manila Times,* April 23, 2003.
382. WHO Update 60, May 20, 2003.
383. WHO Update 60, May 20, 2003.

> The efficient surveillance and reporting system in the Philippines, which reflects strong political commitment and a high level of awareness among health staff, confers an additional level of assurance that no local transmission is now occurring.

At the outset, however, the case of Ms. Catalon set off widespread fear in the area in which she had travelled. The *Manila Times* reported on the precautions taken at her burial:

> Her coffin remained unopened inside the hearse that took it to the public cemetery in Alcala, the provincial administrator told the *Times*. Only members of her immediate family were allowed to come near the funeral car before it headed towards the cemetery.[384]

Meanwhile, at the Lapsley Clinic the situation had worsened. Three of the four doctors were ill.

Dr. Verschuren, the only doctor at the Lapsley who did not become ill, was quarantined. The clinic was forced to close, leaving hundreds of patients without a doctor. A private group of doctors tried to arrange locums to cover the clinic's backlog and some family doctors volunteered to work shifts there. Dr. Verschuren returned to the clinic after quarantine but had difficulty trying to keep up, seeing 160 patients a day instead of the usual 40 or 50.[385]

The spread of SARS through the Lapsley Clinic caused anxiety in the medical community and, of course the public. It raised immediate questions about safety and protection in family doctors' offices.

The Ontario College of Family Physicians told the Commission that as word got out about the clinic, fear amongst family doctors was heightened.[386]

Family doctors felt vulnerable when SARS began. Anyone falling ill would go to their family physician; however, family practitioners said they had not been warned or prepared to deal with SARS. These concerns were raised by the Ontario College of

384. "SARS-suspected village." *Manila Times*.
385. "SARS had immense impact". *Canadian Medical Association Journal.*
386. SARS Commission Public Hearings, September 29, 2003.

Family Physicians and by Family Physicians of Toronto, which represents 2,000 physicians working in the city. As they told the Commission at its public hearings:

> In the early days of the crisis, Telehealth, emergency department staff and media were telling people to go see their family doctor if they had SARS-like symptoms; yet no one in a position of authority thought to provide family doctors with the knowledge and the skills they needed to properly assess SARS or the policies and procedures they should follow or the supplies and equipment they required to protect themselves, their staff, their families and, most important of all, other patients.[387]

The Ontario College of Family Physicians told the Commission that too much of the fight against SARS was directed at hospitals and not enough at the work of family physicians:

> Many patients had booked appointments and others simply wanted to see their own doctors. If they had SARS-like symptoms, they were reluctant to go to the SARS clinics. They would tell us that they were concerned that if they did not have SARS, they would get it by being exposed at the clinic, and if they did have SARS, they wanted their own family doctor to look after them, and given the long-standing relationship that family doctors have with their patients, this is perfectly understandable and must be taken into account in future planning.[388]

When family doctors began to realize that patients with SARS-like symptoms were showing up in their offices, they began to take precautions, but their approaches were inconsistent as they lacked clear direction from a source of authority.

Family physicians were given insufficient information during the SARS crisis, said the College. They felt as if they were out of the communications loop and that they were operating under an umbrella of darkness.

The College was critical of the lack of support for the Lapsley Clinic:

> At no time did he [Dr. Verschuren] receive any calls or visits from those in authority and, to this day, he does not know if those who were exposed in his office were contacted. No one in authority offered the clinic advice

387. SARS Commission Public Hearings, September 29, 2003.
388. SARS Commission Public Hearings, September 29, 2003.

> on how to decontaminate their office. The clinic doctors and staff simply had to soldier on without help.[389]

Another of the Lapsley doctors confirmed with the Commission that some family doctors felt they did not have enough support. One doctor told how he bought protective goggles and masks at Home Depot:

> I felt somewhat abandoned, being a front-line health care worker and being unable to protect myself.

The College also warned about the future:

> We're not saying that the focus should not have been on hospitals – that was where the spread was occurring, but the Lapsley Clinic experience points out how easily this disease could have become a major community-based outbreak. We were lucky this time. We may not be so lucky next time.[390]

Better communications are key to fighting another outbreak, said the College. Communications during SARS were slow "and essential information did not get to the right people quickly enough and with sufficient authority to prevent the virus from getting a leg up." The old ways of planning how to respond to a crisis in the midst of a crisis must end. Communications about what must be carried out need to be done fast and accurately.[391]

The College said a pre-arranged plan for communication must document who will be responsible for communication within each sector and between sectors. It also called for a pre-arranged plan for the redeployment of human health resources "to adequately cover the hot spots, including plans for when and how to acquire assistance from other communities, provinces and the federal government."

Ontario must prepare for the next outbreak or pandemic finds and ensure there is a better system to protect family doctors and their patients.

389. SARS Commission Public Hearings, September 29, 2003.
390. SARS Commission Public Hearings, September 29, 2003.
391. SARS Commission Public Hearings, September 29, 2003.

For all its horror and agony, the Lapsley Clinic story offers hope. Despite the devastation of SARS, the clinic reopened and continued the important work of treating people. One Lapsley Clinic doctor who became ill almost died and was in hospital for six months. But when he recovered he returned to work at the Clinic and said he would work through SARS again. When he spoke with the Commission, he reinforced one of the most important messages of SARS: although the system is broken, there are many professionals who remain dedicated to helping others in times of health crisis. He said:

> I'm a Christian and through my faith . . . I believe that this is what I'm called to do. If there were something that would come about, if it were to happen that I were to get sick again, then that would be what was meant to happen. I believe that God will protect me through what will happen. So, yes, I will. I will probably slow down my volume [of patients] and take more precautions.

We cannot help but be moved by the doctor's courage and his faith. But for the next outbreak, the next pandemic, we need more than faith. We need systems of the kind tragically lacking when SARS struck, systems to protect family doctors and their patients from what happened at the Lapsley Family Doctors' Clinic.

Disaster at Sunnybrook

Introduction

In a matter of hours on April 13, 2003, nine health workers caring for a SARS patient, referred to as Mr. Z, contracted the disease at Sunnybrook,[392] one of Canada's best-known teaching hospitals.[393] Six health workers were in the room when the 54-year-old man, who had severe breathing difficulties, was intubated.[394] The three others were exposed a few hours earlier.

Sunnybrook was forced to close its critical care unit, its cardiovascular intensive care unit, its emergency department, its regional trauma service and its SARS assessment clinics.[395] As Dr. Mary Vearncombe, senior infection control specialist at Sunnybrook, said:

---

392. During SARS, Sunnybrook was part of the Sunnybrook and Women's College Health Sciences Centre.

    In June 1998, the Ontario government passed a *Special Act of Legislation* (Bill 51) creating Sunnybrook and Women's College Health Sciences Centre (Sunnybrook & Women's). This new health organization amalgamated Sunnybrook Health Sciences Centre and Women's College Hospital. On August 18, 2005, the Ontario government announced that Women's College Hospital and Sunnybrook would again become separate health care facilities.

393. For the full story of Sunnybrook during SARS, the reader is invited to view what was presented publicly during the Commission's hearings by Mr. Leo Steven, president and CEO; Dr. Bob Lester, EVP Academic and Medical Affairs; and Dr. Mary Vearncombe, hospital epidemiologist and senior infection control specialist. Their PowerPoint presentation and the transcript of their oral presentation are, and have been, available on the Commission's website. For the hospital's SARS story, the reader is invited to consult these Commission documents.

394. The Commission has no mandate to investigate any legal issues arising from the intubation that are the subject of pending lawsuits.

395. Dr. Mary Vearncombe told the SARS Commission's public hearings: "We had to close our critical care unit and, because our critical care unit is contiguous with our cardiovascular ICU, that also had to be closed. Our SARS unit had to be closed and because our critical care unit was closed, then our emergency department was closed which closed our trauma unit which is, I am told, the first time that the regional trauma service has ever been closed and we had to close our SARS assessment clinics because there was, then, nowhere for us to house the patients that needed admission." See: SARS Commission Public Hearings, Sept. 29, 2003, p. 144.

> The infecting of these staff members did put us in quarantine.[396]

This was a big setback for Ontario, and a serious blow to Sunnybrook, a major contributor to the fight against SARS, and one of Toronto's largest hospitals.[397] Five weeks into the outbreak, it also demonstrated that SARS was still not under control in Toronto, reinforcing its international reputation as a SARS hot spot.[398]

The events of April 13 do not reflect on Sunnybrook, whose dedication to the fight against SARS is noteworthy.[399] Sunnybrook was committed to doing its best to protect its workers, patients and visitors. The hospital believed its protective measures complied with Provincial Operations Centre directives. The workers who caught SARS did everything the hospital said they needed to do to be safe.

With the benefit of hindsight, the events of April 13 illustrate how limited, neglected, and malnourished was the health system's capacity to protect its workers. This systemic problem undermined the ability of Sunnybrook and other Ontario institutions on the front lines of the battle against SARS to effectively respond to the outbreak.

---

396. SARS Commission Public Hearings, September 29, 2003.
397. In its Sept. 29, 2003, presentation to the SARS Commission's public hearings, Sunnybrook described itself as follows:

    - One of Canada's largest academic health sciences centres with about 8,000 staff and physicians and 2,000 volunteers

    - Fully affiliated with the University of Toronto and each year we teach about 2,000 students and spend more than $70 million on research.

398. See "The SARS Epidemic: Precautions; Toronto, Hard Hit by Mystery Illness, Warily Celebrates Easter," *New York Times*, April 21, 2003; CNN, "China facing big SARS spread – WHO; More infected in Hong Kong, Singapore, Canada," April 22, 2003.
399. Among other things, it is worth noting that at time when Ontario's laboratory resources were woefully inadequate, Sunnybrook helped to fill that gap. As the Naylor Report noted:

    > With the provincial lab overwhelmed, some hospitals sent specimens directly to the National Microbiology Laboratory, bypassing the usual hierarchy of referral.
    >
    > The Hospital for Sick Children, Mount Sinai, and Sunnybrook and Women's had strong platforms in polymerase chain reaction technology—an elegant laboratory testing modality that identifies microorganisms by analyzing strands of their DNA or RNA. They became the de facto and unfunded referral centres for Toronto SARS testing.

SARS Intubation: A Risky Procedure

Patients are intubated when their respiratory system cannot provide them with enough oxygen and other forms of assistance aren't enough. A tube is placed into their windpipe and the airway is opened so oxygen or medication can be administered.[400]

When the tube is successfully inserted into a patient, respiratory secretions may, as occurred at Sunnybrook on April 13, be expelled into the air with great force. One expert graphically describes intubations as "a mucous gun."

About one in four SARS patients was intubated.[401] Intubating a SARS patient was risky because their respiratory droplets might contain "a high viral burden."[402]

How extensively it can disperse secretions was dramatically demonstrated in a WHO teaching film in which a computerized medical dummy was intubated. A small amount of a special gel visible only under ultraviolet light was smeared around the dummy's lips and chin to simulate respiratory secretions.

After the procedure was completed, the regular room lights were turned off, and an ultra-violet light turned on. To the surprise of the participants, tiny specks of blue were illuminated all over the room, indicating how far the gel had been expelled by the dummy.[403]

One participant said:

> We looked and said "What the hell is that?"[404]

400. "An endotracheal intubation places a tube into the windpipe (trachea). This is done to open the airway to administer oxygen, medication, or anesthesia. It may also be done to remove blockages or to view the interior walls." Source: Medline Plus Encyclopedia, a service of the U.S. National Library of Medicine and the U.S. National Institutes of Health.
401. Caputo et al., "Intubation of SARS patients: infection and perspectives of healthcare workers," *Canadian Journal of Anesthesia*, 51:A43 (2004).
402. Andrew Cooper, Amit Joglekar, Neill Adhikari, "A practical approach to airway management in patients with SARS," *Canadian Medical Association Journal*, Oct. 14, 2003, p. 785.
403. American Public Health Association, *Behind the Mask: How the World Survived SARS*, (Washington, DC: APHA 2005), p. 92 (*Behind the Mask: How the World Survived SARS*).
404. *Behind the Mask: How the World Survived SARS*, p. 92.

He was referring to the following scene in the film:

> Eerie patches of light blue are glowing everywhere – on the protective clothing; on the surgical tools used and set aside on a tray; on a couple of syringes with the rims, plungers and barrels all glowing.[405]

One physician who participated in making the film said:

> It was unreal. It was only then that it clicked how many times the doctor and nurse had touched that dummy's head and chin.[406]

There were even blue splotches on the heart monitor:

> Even if the doctor disrobed and disinfected after finishing the procedure, someone else – even cleaning staff – was going to end up touching that heart monitor. And the SARS coronavirus can survive outside the body for up to two days.[407]

Mr. Z Is Taken to the ICU

On the morning of April 13, 2003, Mr. Z was on the SARS isolation unit. As his condition deteriorated, he was examined by two physicians and had his x-ray taken by a technician. All three would contract SARS.

A physician said:

> Earlier that morning he had been okay in his room, just on oxygen by nasal prongs and he became progressively more short of breath and … needing more and more oxygen. We moved him onto a facemask of oxygen and that wasn't enough, so they moved him into ICU.

At about 9:45 a.m, Mr. Z was transferred to the Intensive Care Unit. His oxygen levels were very low, and he was, in the words of one health worker, "in extreme distress, extreme distress."

405. *Behind the Mask: How the World Survived SARS*, p. 92.
406. *Behind the Mask: How the World Survived SARS*, p. 92.
407. *Behind the Mask: How the World Survived SARS*, p. 92.

He also had a terrible cough. A health worker said:

> I do recall that he had this persistent cough, he was almost like a kid with whooping cough that just goes on and on.

In the ICU, Mr. Z was initially looked after by two respiratory therapists and a nurse. Two other nurses helped out when they could, and when they were needed.

Mr. Z's Condition Worsens

Despite the assisted ventilation known as a BiPap, or bilevel positive airway pressure device,[408] Mr. Z remained disoriented and was "coughing incessantly," recalled one nurse:

> He was also resisting efforts to treat him.

One health worker recalled:

> His condition continued to worsen and we were in the room for a long time, and he was becoming more and more, like, he was becoming violent. He pulled my mask off at one time. He pretty much punched the nurse and I. We were trying to restrain him.

Another health worker recalled:

> He was quite agitated…

A third health worker said:

> He kicked us and pulled and kicked and pulled and kicked.

This health worker recalled vividly how hard the respiratory therapist (RT) worked caring for this extremely agitated patient:

408. "Bilevel positive airway pressure (BiPAP) delivers a higher pressure on inspiration, helping the patient obtain a full breath, and a low pressure on expiration, allowing the patient to exhale easily. BiPAP is a common choice for neuromuscular disease." Source: *Gale Encyclopedia of Surgery*. http://www.answers.com/topic/mechanical-ventilation

> I remember the RT that was working with us, how hard she worked to maintain him. Her face was so red. She worked so hard … He was just very sick and she worked like a dog to maintain that man before intubation.

In his distress, Mr. Z would pull off the BiPap mask, cough and expel secretions into the room.

One health worker recalled:

> When the BiPap [mask] comes off which he was pulling off, you know, he was coughing also, and it does spray. And the other thing too, we were in the room for such a long time trying to set this up that I was sweating and I could feel my mask literally disintegrating, like I don't even think I had a mask on at that time when you think about the condition it was in.

As time passed, health workers were becoming increasingly concerned about Mr. Z's condition.

One health worker said:

> We were all very frightened of what was going on.

Mr. Z Is Intubated

Efforts to use the BiPap therapy continued over a few hours, but they were not effective.

One physician said:

> We tried him on BiPap, which is a kind of ventilation mask that has a tight fitting mask over their face which blows air in and out. But we weren't able to give him enough oxygen that way.

The decision was made to intubate Mr. Z:

> After an approximately two-hour attempt to provide oxygen through BiPAP, the patient was intubated.[409]

The three physicians on duty that morning in the ICU came into the room and one of them intubated Mr. Z.

Once the tube had been inserted into Mr. Z's airway, there was, said one nurse,

> Just a huge spray … I am sure everybody was covered with it because I remember myself looking at my yellow gown and seeing the droplets, the little red droplets all over, all over my gown. I remember seeing droplets at the foot of his bed, on his sheets. So I remember thinking anybody that was at, or around, the bed, was probably sprayed.

A health worker said:

> It was quite messy actually… when the endotrachial tube went in, there was lots of secretions that actually shot out of the tube, under force. It was very messy.

A report by the CDC said:

> During intubation, he had copious frothy secretions that later obstructed the ventilator tubing, requiring disconnection and drainage.[410]

After the intubation, the tubing quickly filled with liquid and had to be changed.

One health worker said:

> And it was so bad that when I actually put him on the ventilator, the tubing was filling up with fluid … we actually changed the tubing on the ventilator … normally the thing you would do is just change the circuit and we did that. And that exposes you as well. So we did a four-man

409. "Cluster of Severe Acute Respiratory Syndrome Cases Among Protected Health-Care Workers – Toronto, Canada, April 2003," *Morbidity and Mortality Weekly Report*, May 16, 2003 / 52(19), 433-436 (Cluster of Severe Acute Respiratory Syndrome Cases).

410. Cluster of Severe Acute Respiratory Syndrome Cases, pp. 433-436.

> circuit change. Normally you do it by yourself, but we did it with four people so that we could quickly take everything off and put everything back on so he wouldn't even miss a breath.

Later that evening, Mr. Z's condition stabilized.[411] But he eventually died.

Aftermath of the Intubation

The health workers who cared for Mr. Z in the ICU on April 13 ended their shifts exhausted and concerned they might have contracted the disease.

One health worker said:

> We had been very unnerved by the whole situation.

Another health worker said:

> I went home and luckily avoided a lot of my friends. I just felt, I felt really dirty this whole time. When I went home I just felt like my skin was crawling. I basically went home and had a shower and laid low the next couple of days. I didn't go out really or do anything. I just kind of kept to myself. I had a roommate as well so I was trying to avoid her. I was just so afraid. I thought: "I don't want to spread this to anyone." … I don't know if I was confident I was going to become infected. I was terrified of it. I think we all were.

A third health worker said:

> I remember that I had this mask on and how it was wet and had come down off my nose, how it didn't fit properly. And I was feeling scared that I was going to get SARS.

These fears were realized in the coming days.

411. Cluster of Severe Acute Respiratory Syndrome Cases, pp. 433-436.

Over the next week, two respiratory therapists, three nurses and a physician who cared for Mr. Z around the time he was intubated began developing SARS symptoms. As noted earlier, two other physicians who examined Mr. Z on the SARS isolation unit and an X-ray technician were also infected.

A CDC investigation said:

> During April 15-21, nine HCWs who had cared for this patient around the time he was intubated had illnesses consistent with the World Health Organization case definition for suspect or probable SARS; another two HCWs had symptoms that were not consistent with the case definition. Six of these 11 HCWs had been present during the intubation procedure.[412]

The CDC Is Asked to Investigate

By the evening of Friday April 18th it was clear to officials leading the fight against SARS that something had gone terribly wrong at Sunnybrook Hospital.

As one hospital official said:

> That was Friday night and we had the conference call … We knew people at Sunnybrook were now sick.

An investigation by an outside agency was needed. As one hospital official who recommended that an outside agency be brought in to help recalled saying to collagues during a conference call:

> We need fresh bodies to come in and look at this because we do not have the time to do it, and our health care workers, we have to do it for them, we need somebody fresh to come in and their only job is to come in and work out this problem with transmission to health care workers through precautions.

Everyone agreed. The CDC was contacted that weekend, and it assigned a team to investigate the events of April 13th.

412. Cluster of Severe Acute Respiratory Syndrome Cases, pp. 433-436.

The composition of the CDC team is worth noting. As would be expected, it included field epidemiologists and infection control practitioners. But unusually for Ontario it also had an occupational hygienist from the National Institute for Occupational Safety and Health (NIOSH), part of the CDC.[413] That an occupational hygienist was an integral component of the team was not an anomaly at the CDC. Worker safety has a high profile at the CDC, and the expertise of occupational hygienists is highly valued. As one senior CDC official told the SARS Commission:

> Over that weekend we started talking about the makeup of a team and right away we had the idea that we would want a NIOSH person.

Ministry of Labour officials told the Commission they were not aware that a CDC-NIOSH investigative team was in Toronto to look into the events of April 13.

It is unfortunate that the Ministry of Labour was not asked by the Provincial Operations Centre to participate in the investigation. Not only is the ministry the workplace regulator in Ontario, it has first-class worker safety experts, including some who before SARS helped set the Canadian Safety Association's respirator standards.[414] It was another regrettable example of how the Ministry was sidelined during SARS and how little awareness there was in the health system of the labour ministry's expertise and responsibilities.

It is also symptomatic of the general lack of awareness in the Ontario health system during SARS of the importance of workplace safety expertise. As one hospital, which

---

413. NIOSH's duties include:

- Investigating potentially hazardous working conditions as requested by employers or employees.
- Evaluating hazards in the workplace, ranging from chemicals to machinery.
- Creating and disseminating methods for preventing disease, injury, and disability.
- Conducting research and providing scientifically valid recommendations for protecting workers.
- Providing education and training to individuals preparing for or actively working in the field of occupational safety and health.

See: http://www.er.doe.gov/ober/humsubj/appendix_b.pdf

414. See Canadian Standards Association, Z94.4-02 Selection, Use, and Care of Respirator, (Toronto: CSA, April 1, 2003).

was unusual in Ontario in having worker safety experts on staff before SARS, said in its submission to the Commission:

> It was interesting to note that an occupational hygienist was part of the CDC team called in to help review how SARS was being spread; earlier recognition and utilization of local professional resources (e.g. through the Canadian Registration Board of Occupational Hygienists, the University of Toronto graduate program in occupational hygiene, etc.), may have helped contain the problem much sooner.

Random Errors Ruled Out

The CDC team's key finding was that the nine health workers probably got SARS because of systemic problems.

Individual error might make sense, said the CDC, if one or two people out of 11 who treated Mr. Z on the morning of April 13th got SARS. But this was unlikely when it involved nine of 11. This suggested a systemic cause that affected all nine workers equally.

One CDC official told the SARS Commission:

> A lot of human error is systemic, as you know, where we have a procedure that's wrong or something like that. But there's also human error which is not totally random but it's individual specific: It's an individual who feels like he doesn't need to comply with appropriate protection; or one health care worker had a beard and therefore the thing didn't fit well. But if you're going to say that for 11 health care workers then that becomes problematic because you're saying this is happening in succession in 11, in a close sphere, so it's probably a systemic problem.

Another CDC official said:

> If this were a breach in some of the protection that was being offered, it had to be a systematic breach, we can't argue there was a random breach and there is the possibility that just the level of contagion, if you want to call it, the level of virus load in the environment exceeded the level of protection that these health care providers were using.

Systemic Problems Identified

The CDC report identified a number of systemic flaws.

Instead of N95 respirators,[415] as required in the U.S., the CDC found the affected health workers at Sunnybrook wore PCM 2000 masks.[416] They have the same specifications as an N95, but their performance has not been independently tested and certified.

A member of the CDC's investigative team told the Commission:

> The masks that we were told that they used during those events was what we consider more of a surgical mask so it didn't have, it wouldn't have had the filtration efficiency of an N95.

During SARS, directives required health workers to use N95 or equivalent respirators. The term "equivalent," however, was defined very differently by Health and Labour. This issue is discussed in greater detail in a later chapter entitled "The Mask."

The Ministry of Health, reflecting Health Canada guidelines,[417] said PCM 2000 masks, even though they had not been independently tested, were the same as N95

---

415. Using highly efficient filtering materials, N95 respirators are one of the nine types of disposable particulate respirators that are independently tested and certified by the National Institute for Occupational Safety and Health in the United States, which is part of the Centers for Disease Control. "The N indicates that the respirator provides no protection against oils and the 95 indicates that it removes at least 95% of airborne particles during "worst case" testing using a "most-penetrating"-sized particle." Source: Yassi et al., "Research Gaps in Protecting Healthcare Workers From SARS," *Journal of Occupational and Environmental Medicine*. DOI: 10.1097/01.jom.0000150207.18085.41.

416. "Interviews with affected HCWs indicated that they all had worn the recommended personal protective equipment each time they entered the patient's room, including gown, gloves, PCM2000™ duckbill masks (Kimberly Clark Health Care, Roswell, Georgia), and goggles with or without an overlying face shield." "Cluster of Severe Acute Respiratory Syndrome Cases Among Protected Health-Care Workers – Toronto, Canada, April 2003", Morbidity and Mortality Weekly Report, May 16, 2003 / 52(19);433-436.

417. See: Health Canada, "Infection Control Guidance for Respirators (Masks) worn by Health Care Workers – Frequently Asked Questions – SEVERE ACUTE RESPIRATORY SYNDROME (SARS)," Revised 2003-06-05:

> 4. Health Canada recommends wearing an N95 mask or equivalent. What does "equivalent" mean?

respirators. A ministry document issued just days before the events of April 13 said:

> Question: Are the PCM 2000, P95 and R95 masks equivalent to the N95 mask?
>
> Answer: Yes.[418]

Labour took a very different position: A respiratory protective device was the equivalent of an N95 only if it was independently tested by NIOSH or to NIOSH standards by an equivalent body. "Equivalent" also applied to higher-rated approved respirators like the N99 or N100, which could be used if N95 respirators were in short supply.[419] One Ministry official told the Commission:

> Now, if somebody uses an N99 or an N100, they are equivalent and would provide even higher protection.

This approach was reflected in a document Labour prepared for its staff:

> Problem: Refusal to work with or serve a patient, client or inmate with

---

It should be noted that NIOSH is an American agency, and there is no equivalent agency in Canada which certifies masks for industrial use. N95 masks have been tested and certified by NIOSH. For more information on NIOSH, testing and certification, visit http://www.cdc.gov/niosh/homepage.html

Health Canada recognizes that many institutions and other health settings may not use N95 masks that are NIOSH approved, and considers masks fulfilling the following requirements as the "equivalent" to NIOSH certified N95 masks:

- Filter particles one micron in size or smaller
- Have a 95% filter efficiency
- Provide a tight facial seal (less than 10% leak).

5. Are N95 masks considered an "equivalent" to the TB masks?

Yes, NIOSH approved N95 respirators/masks or equivalent meet and exceed the TB mask criteria.

418. http://www.health.gov.on.ca/english/providers/program/pubhealth/sars/docs/qa_041103.pdf

419. The minimum efficiency of each tested filter is to be greater than or equal to 99.97% for N100 filters and 99% for N99 filters.

> possible SARS and symptoms e.g. fever, cough, history of travel or contact with confirmed SARS case, in healthcare setting or in corrections facilities.
>
> Solution: Health care facilities and corrections facilities must implement the infection control measures required by MOHLTC and public health units. These include gloves, gowns, **N95 or better respirators**, eye protection, handwashing facilities, plus the appropriate training and respirator fit testing.[420] [emphasis added]

The Ministry of Labour's position is the one that should have counted. Labour regulates workplace safety, sets workplace safety standards, and enforces worker safety laws and regulations. None of these statutory responsibilities falls under the Ministry of Health's ambit. And yet, in a dramatic example of how the Ministry of Labour was sidelined during SARS as a result of systemic flaws, its position on respirator equivalency was never spelled out in Provincial Operations Centre directives, or otherwise conveyed to health care institutions.

Amid this systemic confusion and lack of clear direction from the workplace regulator, it is not surprising that a number of leading Toronto hospitals,[421] including Sunnybrook, believed PCM 2000 masks were the same as an N95, and sufficient to protect their workers.

On a related worker safety issue, the CDC report into the events of April 13 also noted that:

> . . . individual workers had not been fit tested.

---

420. Document entitled "SARS Scenarios" which was attached to a copy of the Ministry of Labour's SARS protocol, which it provided to the SARS Commission in the course of its submission at the public hearings.

421. For example, see: Toronto Medical Laboratories/Mount Sinai Hospital Microbiology Department, Procedure Manual, Revised as at December 2003, p. 136. http://microbiology.mtsinai.on.ca/manual/ls/mi_ls.pdf; An article by experts at the University Health Network and Toronto West Hospital said: "The PCM 2000 Tuberculosis masks meet the N95 filtration criteria and fit the majority of wearers adequately." Kamming et al., Anaesthesia and SARS, "*British Journal of Anaesthesia*", 2003, Vol. 90, No. 6, 715-718. An article by Toronto experts in the *Canadian Journal of Anesthesia* contained the following description in a footnote for a PCM 2000 mask: "N95-equivalent mask". Source: "Intubation of SARS patients: infection and perspectives of healthcare workers", *Canadian Journal of Anesthesia*, ANESTH 2006 / 53: 2.

That the health workers who cared for Mr. Z were not fit tested does not reflect on Sunnybrook but reveals a system-wide problem.

Fit testing had been required by Ontario law since 1993.[422] Yet, for the first two months of the outbreak, this legal requirement was not explicitly spelled out for hospitals[423]. Many hospitals officials told the Commission they only became aware of this when the May 13, 2003, directives[424] were issued. This was a full month after nine health workers contracted SARS at Sunnybrook while caring for Mr. Z.

Hospitals should have been told from the start that if health workers were required to wear N95 respirators they had to be meet statutory safety equipment requirements, including fit testing.[425]

---

422. Section 10 of the Ontario Regulation 67/93 requires:

> 10. (1) A worker who is required by his or her employer or by this Regulation to wear or use any protective clothing, equipment or device shall be instructed and trained in its care, use and limitations before wearing or using it for the first time and at regular intervals thereafter and the worker shall participate in such instruction and training.
>
> (2) Personal protective equipment that is to be provided, worn or used shall,
>
> (a) be properly used and maintained;
>
> (b) be a proper fit;
>
> (c) be inspected for damage or deterioration; and
>
> (d) be stored in a convenient, clean and sanitary location when not in use. O. Reg. 67/93, s. 10.

423. Although early directives referred in passing to fitted masks, they did not reference the legal requirements for fit testing and they did not emphasize the importance of fit testing.

424. All six directives issued that day contained the following language:

> Personal protective equipment must be properly used and maintained
>
> consistent with the *Occupational Health and Safety Act* Reg. 67/93 s.10. N95
>
> or equivalent masks must be qualitatively fit tested to ensure maximum effectiveness. (See NIOSH website at www.cdc.gov/niosh -Publication No.99-143).

425. Section 10 of the Ontario Regulation 67/93 requires:

> 10. (1) A worker who is required by his or her employer or by this Regulation to wear or use any protective clothing, equipment or device shall be instructed and trained in its care, use and

However, the system that led the response to SARS did not give the Ministry of Labour a level of oversight over workplace safety issues, including references in the directives, commensurate to its statutory duties and responsibilities.

What compounded the systemic problems related to N95 equivalency and fit testing was the decision by the Ministry of Labour not to conduct any proactive inspections until June 2003. Proactive inspections would have permitted it to ensure that hospitals were aware of what was required under Ontario laws and regulations. In B.C., as noted earlier, the WCB started conducting workplace inspections in early April 2003 to ensure workplace standards were being upheld.

New Directives Issued

With the benefit of hindsight, we can see that even though SARS intubations were inherently risky, the dangers of intubations were not quickly recognized in Ontario.

As noted earlier, the intubation of Mr. M on March 17, 2003, at Scarborough Grace infected four health workers. One infected his daughter; another, a household member:

> In the ICU, intubation for mechanical ventilation of [Mr. M] was performed by a physician wearing a surgical mask, gown and gloves. He subsequently acquired SARS and transmitted the infection to a member of his family. Three ICU nurses who were present at the intubation and who used droplet and contact precautions had onset of early symptoms

---

limitations before wearing or using it for the first time and at regular intervals thereafter and the worker shall participate in such instruction and training.

(2) Personal protective equipment that is to be provided, worn or used shall,

(a) be properly used and maintained;

(b) be a proper fit;

(c) be inspected for damage or deterioration; and

(d) be stored in a convenient, clean and sanitary location when not in use. O. Reg. 67/93, s. 10.

> between Mar. 18 and 20. One transmitted the infection to a household member.[426]

Three days later, on March 20, 2003, a warning about the dangers of intubations was issued by the Centers for Disease Control.[427]

Four more days later, on March 24, three health workers at Mount Sinai were infected during the intubation of Mr. N:

> SARS developed in three of the five persons present during the endotracheal intubation of the patient. During this procedure, the patient's respiratory secretions were splashed onto the uncovered cheek of one of the health workers. No other healthcare worker reported direct skin exposure to the patient's bodily secretions at any time during his admission. Two of the three persons in whom SARS developed after the endotracheal intubation wore a gown, surgical mask, and gloves; one healthcare worker wore a gown, gloves, and N95 mask.
>
> Of the two health workers present during endotracheal intubation in whom SARS did not develop, one was a postgraduate medical trainee who assisted with manual ventilation (bag-valve-mask ventilation using a Laerdal bag) and was positioned to the side of the patient rather than directly over the patient's head. This health care worker wore gown, gloves, and surgical mask during the procedure. The second worker was a respiratory therapist who helped prepare the necessary equipment while wearing gown, gloves, and an N95 mask.[428]

In their presentation to the SARS Commission's public hearings, Ontario Nurses' Association and Ontario Public Services Employees Union noted that, in the U.S., the first directives for intubations had been issued on March 20, just days after the Scarborough Grace incident, and four days before the intubation of Mr. N:

426. Varia et al., "Investigation of a nosocomial outbreak of SARS.", p. 290.
427. Centers for Disease Control, "Infection Control Precautions for Aerosol-Generating Procedures on Patients who have Suspected Severe Acute Respiratory Syndrome (SARS)," March 20, 2003.
428. Scales et al., "Illness in Intensive Care Staff after Brief Exposure to Severe Acute Respiratory Syndrome," *Emerging Infectious Diseases*, Vol. 9, No. 10, October 2003.

> Directives to All Ontario Acute Care Hospitals for High-risk procedures in Critical Care Areas During SARS Outbreak, April 29 (Interim), May 1: Between April 15 and 21, nine HCWs at Sunnybrook and Women's Hospital were diagnosed with SARS following exposure to a SARS patient during a complex and prolonged medical intervention. Approximately a week later, the POC released these Directives to address the exposures that may take place during treatment and diagnostic procedures that can produce airborne respiratory secretions carrying SARS. The U.S. Centers for Disease Control published its first SARS-related document concerning aerosol-generating procedures on patients March 20.[429]

The first Provincial Operations Centre directive on how health workers who participated in intubations could protect themselves was not issued until April 29, 2003. These interim directives were superseded on May 1, 2003, and May 13, 2003.

ONA and OPSEU told the SARS Commission:

> One of the critical aspects of SARS is that it is primarily a respiratory infection, often requiring a variety of diagnostic and treatment procedures that generate airborne respiratory secretions. We question why these Directives were issued more than a month after the SARS emergency was declared and after nine HCWs were infected during a procedure where the risks of exposure were known to be greater.[430]

One study said:

> The first provincial guidelines for intubation were published one month after the onset of SARS 1. These guidelines focused on both the intubation procedures ("intubate while the patient is sedated and paralyzed if medical condition permits") and personnel requirements ("the most experienced staff member should perform the intubation with a maximum of two to three persons present"). The time course suggests a lag in gathering local knowledge and providing feedback to practitioners. Responses from the HCWs suggest that the process underlying the development of guidelines was suboptimal as it did not incorporate the

429. SARS Commission Public Hearings, November 17, 2003.
430. SARS Commission Public Hearings, November 17, 2003.

> experiences of front-line staff, and guidelines were inconsistently implemented.[431]

The Commission finds with the benefit of hindsight, that, there was a lack of systemic awareness in Ontario on April 13, 2003, of the dangers of SARS intubations, and a concomitant lack of special procedures for intubating SARS patients.

Conclusion

The problems revealed by the events of April 13 were the result of inadequate systems.

With some exceptions such as the Hospital for Sick Children, the health care system's capacity to protect its workers was generally inadequate. The health system had too little worker safety expertise, too few worker safety resources, and too little knowledge of Ontario worker safety laws and regulations.

By April 13, 2003, more than a month into the outbreak, the system that responded to SARS, through the fault of no individual or institution, had failed to make it clear in Provincial Operations Centre directives that non-certified devices like PCM 2000 masks were not the equivalent of an N95 respirator, and that N95 respirators had to be fit tested.

Five weeks into the outbreak, hospitals lacked clear regulatory direction on what personal protective equipment to give their workers and what needed to be done so this equipment was safely used and provided the required protection

The events of April 13 also reveal that the health system was unable to react to earlier danger signals about intubations, and to develop procedures quickly enough to ensure these life-saving procedures could be done safely.

This highlights another difference in the experience of Vancouver and Toronto.

As noted in an earlier chapter, B.C. had made a much stronger commitment to work safety in health care before SARS. This made it better prepared to combat this new disease.

---

431. Caputo et al, "Intubation of SARS patients: infection and perspectives of healthcare workers," in *Canadian Journal of Anesthesia*, (2004) 51:A43.

It is worth recalling that on March 8, 2003, more than a month before the events of April 13 at Sunnybrook and even before SARS was itself identified, the B.C. index patient was intubated at Vancouver General Hospital. There was no transmission to staff.

Many of the circumstances in the intubations in Vancouver on March 8 and Sunnybrook on April 13 were different, and it is not possible to directly compare them.

Nevertheless, what can be said is that an intubation was safely conducted in B.C. in a health system oriented to worker safety at the start of the SARS outbreak before the dangers of SARS or of intubating SARS patients were known.

Conversely, in a health system that was woefully unprepared to protect workers, nine Sunnybrook staff got SARS more than a month into the outbreak despite all that was known by then about safeguarding workers, and despite the facts that two cases had occurred in the interim in Toronto, highlighting the dangers of intubating SARS patients, and that the CDC had issued its warning.

WHO Travel Advisory

On April 23rd, the World Health Organization, without consulting Canada, issued an advisory asking people to avoid travel to Toronto unless absolutely essential.[432] The World Health Organization is a United Nations body with headquarters in Geneva. It is well known to the public in Europe and in other parts of the world but not in North America.

The advisory had a powerful influence. Countries around the world took notice, and even Nova Scotia briefly warned residents not to visit Toronto.[433] The WHO warning was criticized by Ontario and federal experts as unjustified. It was lifted a week later, after Ontario's health minister, Tony Clement, and a group of experts flew to Geneva to convince UN officials that Toronto was safe.

Although the advisory was in force only a week, it had a lasting economic effect. Toronto lost an estimated $950 million. The travel and tourism sector accounted for $570 million of that total.[434]

If any travel advisory was needed, it came at the wrong time. When it was issued, officials on the front lines felt the outbreak was abating, and they closed ranks in condemning the advisory. When the advisory was lifted, it had the unfortunate effect of creating a false sense of euphoria, causing many to let their guard down prematurely.

One expert closely involved with the SARS response described the advisory's effect to the Commission:

---

432. Beijing and Shanxi Province in China were also included in the advisory. Advisories had already been issued for Hong Kong and China's Guangdong province.

433. Just hours after the WHO issued its travel warning, the government of Nova Scotia also advised people to put off any non-essential travel to the city. Later in the day, Nova Scotia Health Minister Jane Purves cancelled the warning after speaking with federal and Ontario health officials (CTV News, April 23, 2003).

434. Conference Board of Canada, "The economic impact of SARS," special briefing, May 2003. The Commission's first interim report also dealt with the economic impact of SARS, in Appendix E, pp. 219-222.

> The travel advisory was sort of a shift in the whole psychology in the city, and all of a sudden everyone was together. I mean when the travel advisory came down it was the City, the Province, Health Canada, everybody was outraged and fighting together, and when the travel advisory turned back, everybody celebrated about that, and then, once everybody was getting back to normal . . . there should have been somebody that says, well what do you mean it's getting better? Nobody questioned it. [Dr.] Jim Young went off to China to talk about our successes and how we controlled it and [Dr.] Bonnie [Henry] went with him and [Dr.] Tony [Mazzulli] went with him and nobody said, well how do you know its over, including myself. None of us said that, well, just because. And it is such a simple question to ask and we blew it. I mean, it is just amazing that everyone blew it.

The advisory was a total surprise to Canadian officials.[435] Health Canada sent a formal protest, and Toronto Mayor Mel Lastman reacted angrily. He told a news conference:

> I've never been angrier in my life. I'm shocked. The medical evidence before us does not support this advisory. I can't believe [the WHO] issued a press release saying they're not coming back for three weeks. I want them to investigate Toronto tomorrow. I think they are doing this city and this country a disservice.[436]

Two factors seem to have generated the WHO warning. The organization was used to dealing with the federal government. As with other countries, it received official information from the central government. In Canada's case, the serious communications lag between Ontario and Ottawa got in the way. The second factor was that the travel warning was the first ever issued by the WHO itself rather than by member countries. The WHO saw it as a "rollout" for its new role under the International Health Regulations (IHR) for diseases spreading internationally, then under revision.[437] As a result, the assessment procedures used by the WHO were far from

435. A high-ranking WHO official told the Commission that an advance notice of the advisory was sent by email to the federal government but was either misdirected or not picked up. The Commission could not confirm this account independently.

436. CTV News report on April 23, 2003, news conference.

437. Mary Ann Liebert, *Biosecurity and Bioterrorism: Biodefence Strategy, Practice, and Science* 1, 4 (2003). Interview with Dr. David L. Heymann, MD, Representative for Polio Eradication and Former Executive Director, Communicable Diseases, World Health Organization, pp. 234-235 (Liebert Interview).

perfect. For example, there was considerable confusion about the definition of a SARS case. As Naylor noted, the symptoms included in the WHO's definition may not have been the most appropriate:

> A further concern has been that the WHO case definition did not distinguish between Toronto, as a so-called "SARS affected area," and specific exposure sites that were publicized by both provincial and federal public health officials . . . This sometimes led other countries to treat individuals who had visited Toronto or even transited through Toronto's Pearson Airport as potential SARS cases.[438]

On the federal-provincial issue, the Commission noted in its first interim report:

> If a greater spirit of federal-provincial cooperation is not forthcoming in respect of public health protection, Ontario and the rest of Canada will be at greater risk from infectious disease and will look like fools in the international community.[439]

The Naylor Report also noted the glitches in reporting procedures between the various levels of government:

> Although Health Canada regularly transmitted information to WHO during the SARS outbreak, it was unable to supply as much detail as was formally requested. The absence of formal reporting processes between municipal, provincial and federal governments contributed greatly to deficiencies in data acquisition and sharing. Some experts told the Committee that Canada was simply unable to maintain the confidence of WHO due to incomplete accounting of the outbreak and control measures as well as obvious inter-jurisdictional tensions.
>
> Health Canada officials have stated that they repeatedly asked the Province of Ontario for more detailed information regarding the cases of SARS . . . The federal perspective is that Ontario continued to submit incomplete data during the first part of the outbreak, and federal officials often gained new information from Ontario's daily press conference rather than through intergovernmental channels . . . The perspective of

438. Naylor Report, p. 200.
439. SARS Commission, first interim report, p. 163.

> the Public Health Branch of the Ontario Ministry of Health and Long-Term Care is sharply different.[440]

Dr. Naylor noted that public health officials and Health Canada gave his committee sharply divergent view on how well information flowed but:

> Multiple informants noted that relationships among the public health officials at the three levels of government were dysfunctional.[441]

The communications difficulty between various levels of government was not unique to Canada. In an interview on October 28, 2003, after the SARS outbreak, Dr. David L. Heymann of the World Health Organization said:

> If there was one difficulty that all countries had, it was relationships between federal and state- or provincial-level governments. China indicated to us that the reason they couldn't advance as rapidly as they wanted to was because of difficulties between the provinces, to which public health had been delegated, and the central government, which only had legislation for yellow fever, cholera and plague. They didn't have legislation that would require a provincial level to work with them on this issue. Our official relations are, of course, with central governments rather than with peripheral governments, so communications were also difficult between WHO and federal[442] governments. In Canada, provincial governments would sometimes provide information directly to WHO and not to their country.[443]

A WHO official interviewed by the Commission also noted the problems in China, and added:

> The same issues occurred in Canada but it was compounded, I think, or became difficult, because our relationship is with the federal government and that's where we work and we know all the people in the federal government and we actually had been working with them in our global alert and response preparedness . . . The issue came when the province,

440. Naylor Report, pp. 201-202.
441. Naylor Report, p. 29.
442. Naylor Report, pp. 201-202.
443. Naylor Report, p. 236

> Ontario, was many times more aggressively reporting to us, or trying to report to us at WHO and bypassing in some instances the federal government. And at the same time some of the messages that we thought we were providing to the federal government we felt weren't getting through to the state [provincial] government. So those were some of the issues that were perceived here at WHO.

The WHO decided to act on the basis of the information it had. This included a perception that infected people were travelling internationally and that the outbreak in Canada may not be under control. WHO officials used the International Health Regulations (IHR) as the authority for their decision. The IHR are a protocol for dealing with public health emergencies of international concern. They were first adopted by the WHO in 1951, revised in 1969 and again in 2005, unanimously, by the 192 member countries after a decade of discussion.[444]

> In the interview after the SARS outbreak, Dr. Heymann said:
>
> The SARS outbreak was the first that really began to spread internationally. And when something spreads internationally, that's when the International Health Regulations come into force. And so, the SARS outbreak was a rollout of the way we would hope that the IHR would work in the future: making evidence-based travel recommendations; helping countries contain the outbreak; getting together networks of clinicians, laboratory persons, and epidemiologists to put into the public domain the necessary information.
>
> For those struggling to contain the outbreak, the advisory seemed to go against the facts on the front lines of SARS. As one expert told the Commission:
>
> So the 22nd [of April] things were actually starting to look good. I remember Dr. [Allison] McGeer, was, I think it was on the Tuesday night, we were in the office, I said it's over, this thing is over. And then the next day the WHO announces that they're going to put a travel advisory on us and that just didn't make any sense. And everyone was quite irate about that, and on the 24th, we had a conference call with the WHO… [Dr. Heymann] I think he was either in Bangkok or he was in

444. Michael G. Baker, David P. Fidler, "Global public health surveillance and new international health regulations," *Emerging Infectious Diseases Journal*, (July 2006).

> Asia someplace. So Dr. Heymann wasn't there. There was I think three people from the WHO that were on the line. And it was amazing because one is they obviously had no criteria for what made a decision to issue a travel advisory, so no criteria. It was an international group. And two is that the criteria or the argument they were trying to build for the rationale of issuing a travel advisory made no sense. They actually started to invoke rumours about other people that had the disease that had gone from Toronto to other countries, that hadn't even been confirmed and they were starting to bring that up as a reason for the advisory… There was the Philippines story, it was just in its early stages.[445]But there had been somebody in either someplace in Eastern Europe, supposedly had landed with a respiratory infection from Toronto, it never turned out to be anything. But they were starting to invoke those kinds of excuses that people were leaving Toronto with disease and the only way they can control this is by stopping people coming into the City.
>
> So the arguments that I heard about the travel advisory, one was WHO was upset with Health Canada because there weren't getting the information they needed to them fast enough. That they didn't hear about the BLD community except through the media …And that Health Canada had not instituted airport precautions to their liking. So those were kind of three rumours that were floating around as to why WHO was upset with Canada and it might have been one of the reasons why they issued the travel advisory …They were getting a sense that there was a data lag of several days and maybe even longer between what was happening in Toronto and what Health Canada was giving them and part of that may have been the slowness going from the Ministry to Health Canada.

Dr. James Young, Commissioner of Public Security, also questioned the timing of the advisory. He noted that the peak of new cases originating from the BLD group had already passed. He told the Commission:

> The religious group, the infection of hospital [a] care worker over Easter weekend and fact, the WHO advisory which came well after we had already understood that we had the cluster underway. What I would point out to you, Justice Campbell, is that, if you look at where the emer-

445. The transmission of SARS to the Philippines by a health care worker from Toronto is described in the Lapsley Family Doctors Clinic story in this report.

> gency was declared and you look at the cluster of cases around that, those cases, in fact, probably had already occurred as we were declaring the emergency and so that the people were already infected and the question or the issue was to stop the infection at that point and stop it from spreading and stop the graph from continuing to go upward. At the end of SARS I, we had had 20 days with no cases. That is the period the WHO were advising.[446]

After the outbreak was over, when questioned about the advisory by the Commission, one WHO official explained it as follows:

> What we did was we looked at the criteria and then we looked at other factors. Canada was also having some cases, which were not traced back to other cases at this time yet. Maybe that they were traced back later, but there were cases that one criterion was environmental transmission, there were other cases that were not traced back to other cases, it could indicate environmental transmission. That was one of the criteria that they met, and in addition the criteria of the magnitude of the outbreak, and then in looking over other factors, it appeared to us that there were still cases which were travelling internationally from Canada elsewhere and that there was a poor control of the outbreak because of that. That wasn't optimal control of the outbreak because those people were traveling . . . I don't want to comment on the quality of work in Canada. I will say that from the information we had, we felt that contacts were not, cases were not all being traced back to contact. That the outbreak was of the magnitude that caused concern and that the control was not keeping people who were infected in Canada . . .
>
> Now on the criteria, you said that we judged you on the case that was exported. That was an indication, that was not because it was exported, it was because it was an indication again that this outbreak may not be under control. I want to stress that because that was the criteria, checking cases for making sure they had a contact, making sure that there wasn't anything in the environment and if there was any indication that they there might be, to be very concerned.

446. SARS Commission Public Hearings, September 30, 2003

Some in Ontario questioned whether there was a political basis for the advisory. As Dr. Naylor reported:

> Some informants have since speculated that WHO officials were concerned about the appearance of a double standard favouring Toronto. WHO travel advisories had already been issued for Hong Kong and Guangdong, and advice against non-essential travel to Beijing and China's Shanxi Province was given on the same day as the Toronto advisory.
>
> Singapore had 189 probable cases on April 23, 2003, compared with 140 for Toronto, as well as transmission at a community market. Epidemic curves comparing the outbreaks in Toronto and Singapore are strikingly similar (see Chapter 11). However, Singapore's management of the outbreak, not least its communications strategy, was superbly organized and reflected a remarkable degree of social solidarity that could not have been lost on WHO. The Committee has also learned that regional WHO offices had different levels of interaction with nations affected by SARS, and were therefore more or less able to vouch for the containment of the outbreak.[447]

When asked if there was a political basis for the advisory, a WHO official responded as follows:

> I would say that [politics] was never a factor in our decision-making process with the director general. I am aware that there were accusations that that was the reason that the WHO did this but looking over the criteria, we came to the conclusion that Canada needed to be on that list because of the conditions of the outbreak and because we had information that people were still travelling internationally from Canada with the disease, with probably disease.

Dr. Heymann, in a post-SARS interview, made the following comments about the travel alert:

> The most difficult time for all of us was early on the 15th of March. We

447. Naylor Report, p. 37.

> knew this outbreak was spreading internationally. We knew from other emerging infections the economic impact that these diseases can cause. And we knew that we would have to have solidarity in the world if we were to contain this disease. When we made our alert, we had not been able to speak with all of our governments, nor with our advisory bodies. We made that alert on a Saturday, based on the evidence that the disease had gone to Canada, Singapore, Hong Kong, Vietnam and New York City. And we had to make a decision rapidly. The concern was that the rest of the world would not agree with this decision. The rest of the world did agree. That, in itself, was reassurance[448].

Canada felt otherwise. Even long after the end of the SARS outbreak, federal and provincial officials questioned the basis for the advisory and do not agree with the WHO officials who defend it. The travel advisory brought into sharp focus the need for effective communication between the province and the federal government and the need to present a single voice to the outside world. As the Commission noted in its first interim report, and as discussed above, there were concerns in the international community about the timeliness and accuracy of information coming from Canada. This certainly contributed to the travel advisory. In its first interim report, the Commission said:

> There are sincerely held views on each side, the province thinking it was providing all it could and the federal government thinking otherwise. Apart from any underlying problems of attitude, there was an obvious breakdown in communication, which is hardly surprising given the inherent difficulties of federal-provincial cooperation and the complete lack of any preparedness or any existing system to ensure an effective flow of information in a time of crisis.
>
> This analysis is supported by the anecdotal recollection of others involved in the outbreak. There was a damaging combination of problems: lack of information systems, lack of preparedness, lack of any federal-provincial machinery of agreements and protocols to ensure cooperation, all possibly overlaid by a lack of cooperative, collaborative spirit in some aspects of the Ontario response.
>
> The federal official quoted above described the impact of this lack of

448. Liebert interview, p. 235.

> collaborative information flow, suggesting it may have affected the international community's perspective of how well the outbreak in Ontario was being handled:
>
> What we were lacking, as a result of whatever, in Ontario, was a real sense that they, that Ontario was able to present a daily picture in a dynamic sense of what was occurring, over and above just the figures. And if we attempted to do that, which is what we did do, unfortunately, it's another aspect of our relationship which I mentioned before, the lack of a clear message every day from Ontario, because there were numerous spokespersons, never sort of confirmed, was never able to basically support what our suppositions were, however late they ended up being because of lack of information. And that inevitably led to a sense of confusion in the outside world, WHO and other countries, as to how far we had this under control.[449]

One of the most troubling aspects of the Ontario advisory was that it took government officials, the public and experts working to battle SARS by surprise. How could it have happened that no one in Canada was aware that an international health organization was about to warn against travel to Canada's largest city? This underscores the need to have a close liaison, especially in times of crisis, with bodies like the WHO. It also calls for a system that would allow quick sharing of information on potential advisories.

It was only after the event that government officials travelled to Geneva to argue their case. As a result, the WHO announced on April 29 that it would withdraw the advisory the next day, seven days after it had been issued.[450] This raises the question whether the travel advisory would have been issued at all if high-level government contact had been maintained with the Geneva-based organization.

The announcement lifting the advisory pointed to an agreement by Canada to implement screening measures at airports.[451] It remains unclear to what extent the absence of airport screening contributed to the decision to impose a travel advisory and to what extent other factors were part of the decision. Clearly, the WHO did not have a good picture of the events in Canada. Ongoing contact with the UN body at the appropriate level and with relevant information about Canada's progress in the battle

449. SARS Commission, first interim report, pp. 67-68.
450. WHO web page, Update 42, April 29, 2003.
451. WHO web page, Update 42, April 29, 2003.

against SARS might have avoided the blacklisting of Toronto. Canada is a full-fledged and respected member of the WHO, and this should not have been difficult. As already noted, this was the first time that the WHO issued such an advisory, and the advisory seems to have been fuelled by erroneous information.

As Dr. Naylor pointed out, the WHO criteria were far from perfect and much of the information on which they were based was incorrect:

> The WHO travel advisory criteria themselves came under intense criticism – they included the presence of at least 60 probable SARS cases, export of SARS to other countries, as well as community spread. Yet none of these criteria have ever been validated as reasons for issuing a travel advisory. For example, the absolute number of cases in an outbreak is largely a function of the size of a community. Issuing a travel advisory does not prevent residents of a SARS-affected area from leaving and taking SARS with them. Indeed, of the six people thought to have spread SARS from Canada, only one was a visitor returning home after a trip to Canada. Finally, "spread into the community" was never explicitly defined – if a nurse with SARS infects his/her spouse, is this considered community transmission?[452]

Government officials hailed the WHO's reversal as a victory, a victory that, as noted by one expert involved in SARS, created a sense of false euphoria and arguably led to precautions being relaxed prematurely. Ontario Health Minister Tony Clement stated:

> We're extremely pleased the World Health Organization has rescinded its travel advisory for Toronto . . . I want to thank the organization for taking the time to meet with us face to face and re-examine the compelling evidence that shows how Ontario has been working successfully to contain SARS.

Dr. D'Cunha, then Chief Medical Officer of Health for Ontario, said:

> Today's ruling reflects the tremendous progress we have made in implementing our containment measures against SARS . . .

452. Naylor Report, p. 37.

But SARS was not contained. It was simmering at North York General Hospital, spreading to staff and other patients. Less than one month later, the second outbreak would explode into the open, causing more sickness and deaths.

Victory Declared

In May 2003, the government declared victory over SARS in a series of measures that led to the relaxation of precautions on May 13 and the lifting of the provincial emergency on May 17.

In fact, SARS was still with us, spreading undetected at North York General Hospital and ready to break loose with a vengeance when precautions were relaxed. How could Ontario declare victory when in fact it was on the edge of a fresh outbreak that would burst into public view on May 23, kill 17 more people and leave another 118 sick with SARS?[453]

The answer is not easy to find. Everyone wanted SARS to be over, and this desire no doubt influenced the decision to declare victory. The most identifiable cause for SARS II may be the lack of any formal effective surveillance program.

Dr. Richard Schabas put it this way at the Commission's public hearings:

> Unfortunately, what we did was we flipped from a state of SARS panic to a state of SARS denial because as SARS I was petering out, we made the crucial error of not introducing any programme of active surveillance for SARS.
>
> In fact, it was worse than that . . . I believe on May 8th the city health department announced that the outbreak was over. On May 12th the Chief Medical Office of Health for Ontario was quoted in the *Toronto Star* as saying "it was preposterous" – his word, "preposterous" – that someone could have acquired SARS in Toronto in late April . . . We have to realize that with there being no programme of active SARS surveillance in Toronto, there was no basis for saying that the outbreak was over. It was, in fact, an exercise in wishful thinking.

453. 118 is the estimated number of cases associated with the second phase of SARS. Source: Presentation of Dr. Colin D'Cunha, SARS Commission, Public Hearings, September 29, 2003.

> But even more so, the suggestion that it was ridiculous to consider that there might be cases, pointing ridicule at the suggestion that there might be cases, was sending out entirely the wrong message.[454]

The city was squirming under the weight of the SARS outbreak. Mel Lastman, the mayor at the time, focused on the economic impact of SARS at a special meeting of City Council. He said:

> … It's not the disease that's doing the damage – it's public perception about SARS that's hurting Toronto's tourism industry – and it's getting worse.
>
> There's a third level to this crisis that we cannot ignore – and that is the impact this is having on our residents and our businesses.
>
> People's lives are being adversely affected by both the disease and the public's perception of this disease …Toronto can expect both provincial and federal funds for an advertising campaign once we have put SARS behind us . . .
>
> Tourism Toronto is days away from tabling a marketing initiative designed to sell Toronto locally, nationally and internationally.

Provincial officials heard the message, but they waded into lifting the emergency with butterflies in their stomachs.

Premier Ernie Eves told the Commission:

> I remember the day that . . . our emergency order was lifted because when [an aide] phoned me and sent this little piece of paper over to my residence, I believe in the morning, I did not sign it. I asked him I think half a dozen times, "Are you absolutely positive that this is the right thing to do, that we are getting the right information?" . . . I'm sure that he went back to the Ministry of Health a gazillion times, saying, he [the Premier] does not want to sign this thing.

454. SARS Commission public hearings, September 30, 2003.

> [We kept asking] "Are you sure this is all right?" and we kept getting the answer I was told that oh yeah, we are 110 per cent sure . . . yeah well, you can never be 110 per cent sure in any of these things . . . It is funny how my gut just told me that I should be asking these questions. But you have to take the best medical . . . and scientific advice that you can get. You have to have confidence in those people, you have to go with it . . . I think that from what they knew at the time, they felt that it was the right thing to do. I have tremendous amount of respect for the abilities of both Dr. [Colin] D'Cunha and Dr. [Jim] Young. I can't perceive either one of them ever doing something that was expeditious as opposed to appropriate or correct and I think that they acted in their best judgment.
>
> The situation in North York was as I recall a fairly unique and unanticipated thing and . . . it certainly was very unfortunate. Believe me, nobody was more concerned than I when we found out that there was a second event, that's not exactly the thing you wanted to hear . . . I think that there was a perception on behalf of the nurses and a particular nurses' association that perhaps there was some plot at least if you read that media, that's what you would understand. I can assure you that nothing was further from the truth. In reality, we were trying to be as open and transparent as possible . . . I do not think that anybody can doubt the sincerity of all people involved.

Tony Clement, the Minister of Health, also had misgivings about declaring an end to the SARS outbreak. He told the Commission that while there was no pressure from inside the government to declare an end, he did feel pressure from the media:

> There certainly was pressure from the media and I thought to myself as the cases decline . . . they are going to start to ask me whether this crisis was over, and I'd be the craziest health minister alive to declare this over . . . I was asked probably a dozen times on television, "Is this over?" and my response was exactly the same. In early May, which is after the travel advisory [was lifted], I said, no, this is not over. We have to continue to be vigilant. There could be a recurrence and so our job is to continue to ensure that we have the right procedures in place in case there's another outbreak of this or any other communicable disease. I said that ad nauseam because I knew that if I ever declared it over and it wasn't over, I would be strung up from the nearest lamp post. I knew that as a politician, as well as a human being. So, I never declared it over. I never, ever, ever, in my discussions with stakeholders, with the media, with the POC

> [Provincial Operations Centre], with the Premier, I always said we have to be continually vigilant because this may not be over.

Mr. Clement said that while he did feel pressure from the media and from some institutions, none came from the senior people managing the crisis. But people generally wanted it to end:

> This is human nature . . . I think it's a normal human reaction to think that this is over, now we could get back to normal. My point to them always was: "We will never get back to normal." That's why I am the one who coined the phrase "the new normal". At a Science Committee, I said that we had to get a new normal because we were never going back to normal. We were in the midst of creating the new normal when the second outbreak obviously occurred. But I got a sense after . . . the second outbreak that human nature did its thing again, and there were some people who may have potentially let their guard down because they thought that it was over. But they never got that signal from me and never got that feeling from anyone in the senior management group.

The cautious message was not heard by the general public and by some health workers. Under a headline, "Clean bill of health revives hospitals," the *Toronto Star* proclaimed:

> **Greater Toronto comes back to life**
>
> On its first day as a city officially free of SARS, Toronto rolled out the welcome mat as hospitals slowly moved toward a new kind of "normal."
>
> Ontario's chief medical officer of health, Dr. Colin D'Cunha, called a halt to daily screenings at hospitals and clinics throughout the province, citing the clean bill of health given Wednesday by the World Health Organization.
>
> However, hospitals warn that it will be some time before they're fully up and running again.
>
> "We're going to have to, in the near future, learn how to live with SARS, learn how to protect ourselves while functioning efficiently in the emergency department," said Dr. Tim Rutledge, chief of emergency medicine at North York General Hospital.

> "Not all of us, in the long-term future, will be wearing masks and gloves and gowns all the time. But certainly there will still have to be procedures in place at the triage desk for the triage nurses to be protected at all times until we decide whether the patient needs to be in an isolation room," he said.
>
> "We will adjust to this new reality until this disease is eradicated."[455]

Ironically, it was at the North York General Hospital that the new outbreak was about to emerge and start the second phase of the spread that became known as SARS II.

While the WHO travel advisory was not reinstated, it took the WHO until July 2, 2003, to remove Toronto from its list of SARS-affected cities.[456]

455. "Clean bill of health revives hospitals," *Toronto Star*, May 16, 2003.
456. "Chronology," CBC In Depth, www.cbc.ca