



# RECOVERING FROM SARS: WORKER HEALTH AND PANDEMIC PLANNING

---

9-L11-4-002  
SEPTEMBER 2011



Professor Robert Hickey, School of Policy Studies, Queen's University, wrote this case with advice from Professor Vic Pakalnis, Department of Mining Engineering, Queen's University, and Micki Mulima, Director of Healthy Workplace Services at Kingston General Hospital. While loosely based on actual events, the case is fictitious and is intended as a case for classroom study and analysis. It is not intended to illustrate either effective or ineffective management practices.

---

Copies of this case and a list of other cases available may be obtained from

Materials Management Department  
Queen's School of Business  
Queen's University  
Kingston, Ontario, Canada  
K7L 3N6

---

## RECOVERING FROM SARS: WORKER HEALTH AND PANDEMIC PLANNING

9-L11-4-002  
SEPTEMBER 2011

### INTRODUCTION

SARS (Severe Acute Respiratory Syndrome) arrived in Canada on a flight from Hong Kong to Toronto on February 23, 2003. The international spread of SARS began when a doctor from China's Guandong Province stayed at the Metropole Hotel in Hong Kong. The physician had treated patients with atypical pneumonia but was asymptomatic upon his arrival at the hotel on February 21. While riding in the elevator and passing other guests in the ninth-floor hallway, the physician unknowingly spread the mysterious virus to at least twelve other guests. These twelve guests in turn carried SARS from Hong Kong to Vietnam, Singapore, and Canada.

SARS killed 44 people in Ontario and caused severe illness, including respiratory distress and failure, in more than 375 other victims. The loss of life was tragic. SARS was devastating to its victims and their families. At least one family member, who was forced to stay at home under quarantine, alone and isolated, was notified by telephone that their loved one had died in hospital. The tragedy of SARS was especially acute among healthcare workers.

Healthcare professionals saw their friends and colleagues succumb to the mysterious disease. Nearly half of all SARS victims were health care workers. Nurses became sick and died despite wearing gowns, gloves, and surgical masks, all standard protections against droplet and airborne pathogens.

**Table 1: Probable and suspect SARS cases contracted in healthcare settings**

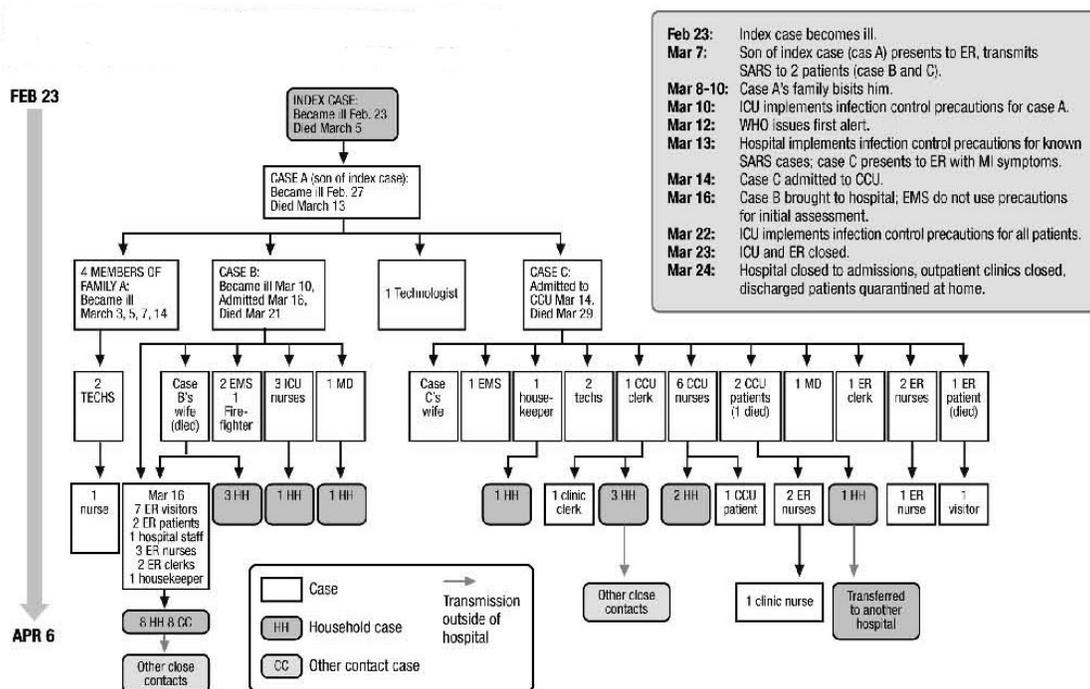
	Phase 1	Phase 2	Total number of suspect and probable cases	Percent of total number of cases (375)
Health workers	118	51	169	45%
Patients	23	35	58	15%
Visitors	20	23	43	11%
Total	161	109	270	72%

(Source: Campbell Commission Report, p. 1042)

Clinical diagnosis was hampered by the mysterious nature of the illness. Scientists struggled to identify the causative agent. Canadian scientists initially thought it was a human metapneumovirus, which they detected in six of the eight Canadian cases. It was not until the end of March that the true cause of SARS was finally identified as a novel coronavirus. The World Health Organization confirmed this on April 16, 2003. This scientific breakthrough was important, but timely diagnostic tools were still a problem for early detection and containment. Diagnostic tests could not detect for human antibodies to the virus for at least ten days after infection. Testing for the presence of genetic material of the live virus proved to be unreliable, resulting in a high number of false positives. Not knowing the causative agent made understanding the transmission of the virus more difficult. This lack of clinical clarity regarding the cause of SARS hampered the introduction of more proactive health and safety precautions.

One SARS victim, Mr. P, infected his wife and three other family members, nine ER visitors and patients, and 14 healthcare workers, including three ER nurses and three ICU nurses. Figure 1 details the transmission of 84 probable and suspect cases of SARS. While public-health measures prevented SARS from becoming an uncontrolled pandemic in the community, the chart of infections in the workplace show that poor health and safety measures made it a pandemic for health care workers.

**Figure 1: Transmission of 84 probable and suspect cases of SARS**



Source: Campbell Commission report, p. 5

## HEALTHCARE WORKERS AND SARS

In the emergency department, nurses and physicians are trained to handle life-threatening conditions. Managing the stress of horrific accidents, ever-changing conditions, and the chaos of a busy emergency department is part of the professional culture of hospitals in large urban settings. But SARS fundamentally challenged the established cultures and management practices of the health system in Ontario.

Was SARS avoidable? The contrast between SARS in Ontario and British Columbia suggests that it was an avoidable workplace tragedy. Unlike the outbreak in Ontario, the introduction of the virus causing SARS did not result in an outbreak in B.C. Vancouver demonstrated a precautionary principle, following the highest health and safety practices in the absence of scientific clarity.

Information regarding the World Health alert was shared with front-line medical staff so that nurses in the emergency department knew the signs of potential cases. When the first SARS patient arrived at a Vancouver hospital, the person was quickly quarantined in a negative-pressure room. BC hospital administrators required staff to wear N95 respirators, pending proof that less protection was needed. As a result, SARS did not become a crisis in B.C. In-hospital transmission, especially to healthcare workers, was controlled and prevented from becoming a tragedy.



### QUICK FACTS

#### Main Symptoms:

- High fever (>38° Celsius);
- Dry cough;
- Shortness of breath or breathing difficulties; Changes in chest X-rays indicative of pneumonia also occur;
- SARS may be associated with other symptoms, including headache, muscular stiffness, loss of appetite, malaise, confusion, rash and diarrhea.

#### How contagious is SARS?

Based on currently available evidence, close contact with an infected person is needed for the infective agent to spread from one person to another. Contact with aerosolized (exhaled) droplets and bodily secretions from an infected person appears to be important... the amount of the infective agent needed to cause an infection has not yet been determined.

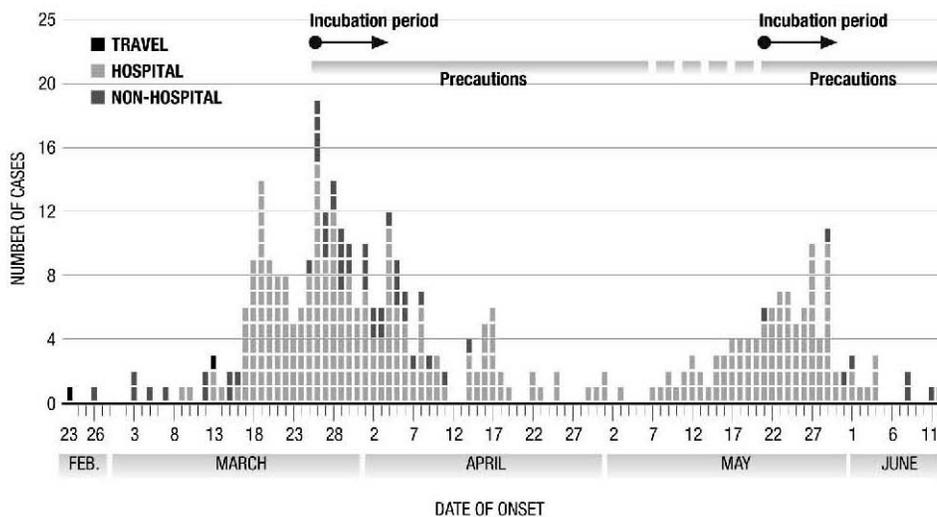
Source: The World Health Organization

The economic impact of SARS on Ontario was devastating. On April 23, the World Health Organization listed Toronto on list of travel advisories. Tourism and business travel to Toronto, which had finally climbed back up to pre-9/11 levels, immediately plummeted. The travel ban was lifted after a week. On May 17, the stringent public health measures, including the “Code Orange” declaration for public health emergency, appeared to have contained the contagion and were lifted.

Health and safety practices relaxed. Infection-control measures returned to a “new normal” for a post-SARS world. However, less than a week later, health officials called a press conference to announce that a new outbreak of SARS had occurred at the North York Hospital. SARS II, the second outbreak of the disease, was a workplace disaster. The path of disease was directly correlated with worker safety and infection-control measures. Precautionary measures controlled the spread. Relaxation of worker safety allowed SARS to once again wreak devastation. Figure 2 shows the occurrence of SARS across the two distinct outbreaks of the disease.

**Figure 2: Distribution of cases over time**

**The Distribution of Cases in the Severe Acute Respiratory Syndrome (SARS) Outbreak in Ontario, Canada, from February 23 to June 12, 2003.**



Source: Campbell Commission Report, p. 7

## THE AFTERMATH

Healthcare workers in general, and nurses in particular, were angry and mistrustful of administrators following SARS. They had been told that they would be safe if they followed standard infection control practices. They were not. Moreover, because precautions were not adequate, healthcare workers carried SARS home, thus transmitting the disease to other family members. At least one SARS death was epidemiologically linked to such a transmission.

The government convened a special independent commission to investigate SARS. Led by the Honourable Mr. Justice Archie Campbell, the Commission had a broad mandate to investigate. The terms of reference specifically asked the Commission to investigate “whether health care workers and patients in health care treatment facilities and long-term care facilities were adequately protected from exposure to SARS, having regard for the knowledge and information available at the time.”<sup>1</sup>

The Commission conducted extensive interviews and consultations with hospital administrators, public health officials, medical professionals, healthcare unions, and the public. Its final report identified a host of recommendations, ranging from legislative changes to health and safety practices. Much has changed in Ontario’s healthcare system as a result of SARS and the Commission’s work. Much remains yet to be done.

## **GOLDEN HORSESHOE GENERAL HOSPITAL**

The Golden Horseshoe General Hospital (known as GH<sup>2</sup>) is a 350-bed acute-care facility serving the centre of the horseshoe that includes West Toronto, Oakville, and Hamilton and extends down the Niagara Escarpment. The structure and operations of the facility are typical of major medical centres concerned with containing costs while provide timely, high-quality medical care.

GH<sup>2</sup> is a centre for complex acute and specialty care. The emergency department receives nearly 200 visits per day, about 40 of them by ambulance and one or two via a medical helicopter. There are 40 beds in the intensive care unit (ICU).

The following numbers provide a brief profile of the Golden Horseshoe General Hospital.

- 350 in-patient beds
- 600 medical staff, including physicians, psychiatrists, and consultants
- 3,500 staff including RNs, technicians, and building services
- 45,000 visits to the Emergency Department per year
- 800 Volunteers giving more than 70,000 hours of supporting care each year
- 300 outside contractors working in the hospital on a typical day

### ***Management Team***

Figure 3 displays the senior leadership team at GH<sup>2</sup>. Administratively, the hospital is divided into four divisions: Medical Administration, Operations, Human Resources, and Community Relations. Of the four divisions, Medical Administration and Operations have traditionally constituted the unofficial “inner circle”, where key management decisions are made. Management of clinical

---

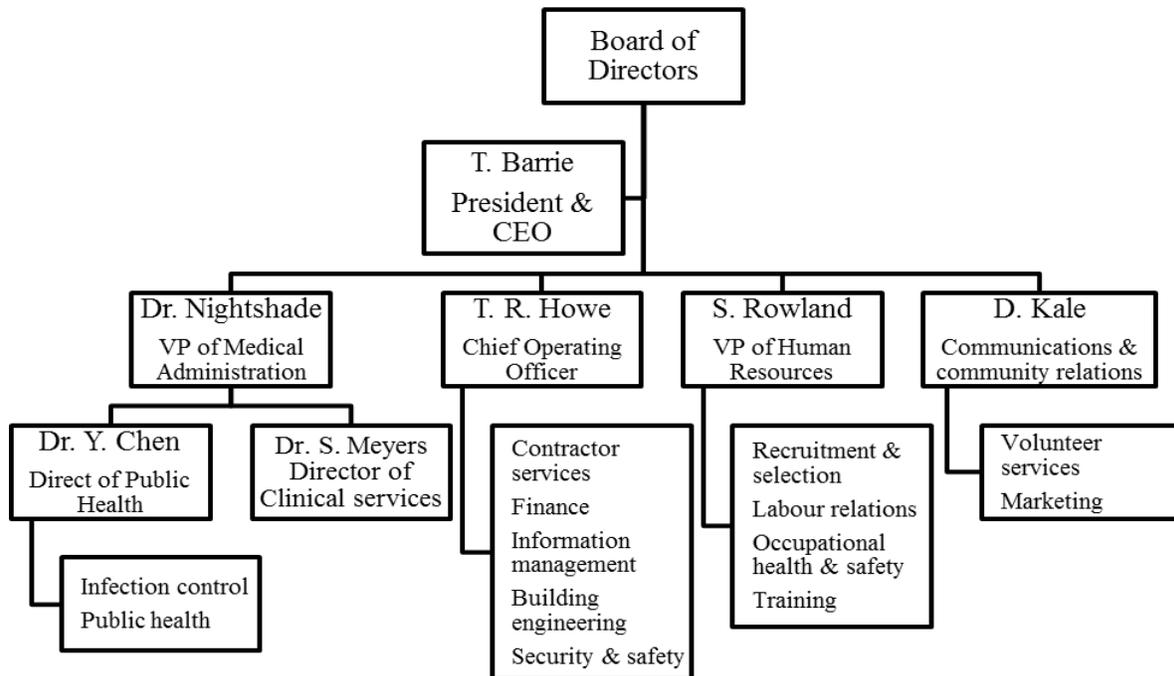
<sup>1</sup> *Campbell Commission Report*, p. 1193. The full report of the Commission is available on-line:  
[http://www.health.gov.on.ca/english/public/pub/ministry\\_reports/campbell06/online\\_rep/In dex.html](http://www.health.gov.on.ca/english/public/pub/ministry_reports/campbell06/online_rep/In dex.html)

services, supervisions of physicians, and accountability for medical outcomes are the responsibility of the Vice President of Medical Administration. Financial constraints and incentives have a major influence over hospital operations. The Chief Operating Officer (COO) interacts with the CEO on a daily basis. Over time, the COO assumed responsibilities for contracted services, building maintenance and security, and information management.

Before SARS, the role of the Human Resources department was slowly becoming more central to the strategic operations of the hospital. While still not part of the unofficial “inner circle” of senior executives, members of the Board of Directors had been raising more and more issues directly related to HR practices, recruitment and selection, and workforce development.

The workforce at GH<sup>2</sup> is highly unionized. Over 90 per cent of GH<sup>2</sup> employees are covered by a collective agreement. Nurses, one of the largest groups of employees, are represented by the Ontario Nurses Association (ONA), is a vocal and effective advocate for nurses across the province. The Canadian Union of Public Employees (CUPE) represents the service and maintenance workers and has been engaged in a running dispute with the hospital over efforts to outsource food-service and janitorial services. The 400 technicians and therapists are represented by the Ontario Public Service Employees Union (OPSEU).

**Figure 3: Senior Leadership Structure**



Labour relations have been contentious between the hospital and the unions, although Ontario labour law prohibits strikes and lockouts in the hospital sector. Union representatives complain that they are neither consulted about new policies

nor given an opportunity to help resolve issues before they become larger problems. According to the unions, communication between hospital administrators and the bargaining agents for front-line workers is the source of the problem. As evidence, they point to how emergency department nurses at the Vancouver hospital were aware of the WHO alert and took life-saving precautionary measures. If that same approach of information sharing and precautionary measures had been taken in Toronto, the SARS crisis might have unfolded very differently.

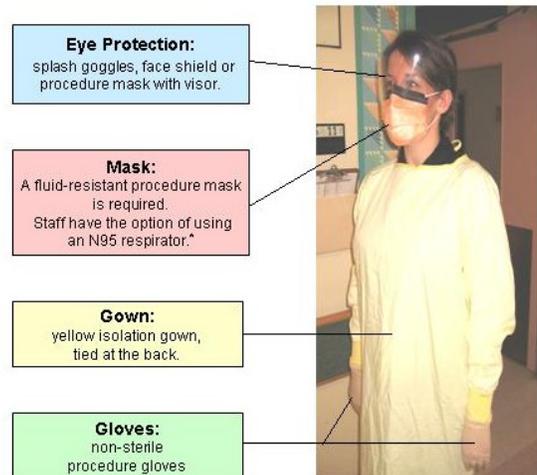
### Theresa Barrie, President & Chief Executive Officer

The Board of Directors was looking for someone to lead change at GH<sup>2</sup> when they hired Ms. Barrie three months ago. Ms. Barrie was recruited from the private sector but has extensive experience leading large organizations. “I want to know what is working and not working before I suggest any changes,” commented the new CEO at the recent Board meeting. “SARS was a tragedy, but it will be a double tragedy if we do not learn from those experiences.”

### Paul Nightshade, Chief Medical Officer

Dr. Nightshade is a skilled diagnostician and capable administrator. GH<sup>2</sup> deals with a host of antibiotic-resistant superbugs like MRSA and other infections like Clostridium difficile (C diff). The hospital is proud of its infection-control program, and it supports one of the most effective and efficient laboratories in Canada. Infection Control took the lead during the SARS outbreak, but Dr. Nightshade’s team encountered a host of frustrating problems. The lack of reliable diagnostic testing protocols during the early phase of SARS made the work of Infection Control particularly difficult. Without clear clinical guidelines to indicate more stringent use of protective gear, such as the N95 respirator masks, the hospital continued to use standard protections well into the crisis.<sup>2</sup> These included eye protections, which were rarely worn, a regular surgical mask, gown, and non-sterile gloves. Without a more specific indication of the vector of the pathogen, clinical management of Infection Control was not able to provide direction regarding occupational health and safety procedures.

When the health sector determined that N95 masks were necessary protective equipment, GH<sup>2</sup> was not prepared. Health Care workers were not familiar with the masks and had not been fit-



<sup>2</sup> “N95” is an efficiency rating for masks indicating that the device blocks 95 percent of virus particles 0.3 microns in size or larger. Surgical masks were originally designed to prevent exhalation of particulates to contaminate a sterile surgical field, not as protective gear for physicians or other healthcare workers. This demonstrates the differences between priorities from the perspective of Infection Control and that of worker health and safety experts.

tested. Unless the N95 masks are properly fit-tested, gaps between the face and mask render them ineffective. Furthermore, the masks are difficult to breathe in and were meant to be worn for short periods of time, not for an entire 12-hour shift.

The lack of direction regarding protective gear for the workforce was a symptom of a larger problem. Infection Control and the hospital's occupational health and safety program shared little communication and no coordination. Dr. Nightshade and the hospital's director of public health, Dr. Chen, rightfully focused on the health of patients and protecting the broader community. However, this left the HR department, the unions, and healthcare workers without a clear health and safety program in the face of the crisis. Like most hospitals in the Toronto area, GH<sup>2</sup> closed its doors to visitors, restricted and monitored access, and quarantined anyone with possible symptoms.

"The Ontario health care system was not prepared for SARS," recalls Dr. Nightshade. "We [GH<sup>2</sup>] were not prepared for SARS. For the first two months we were flying clinically blind – unsure of the transmission properties and aetiology of SARS." Dr. Nightshade has urged hospital executives to develop a comprehensive plan for handling such a crisis in the future.

### **S. Rowland, VP of Human Resources**

A skilled and experienced HR professional, the frustrations of her experiences during the SARS crisis are still palpable. "Hospitals are complex organizations," explains Ms. Rowland. Patients, visitors, doctors, nurses, janitors, volunteers...the hospital is a diverse community with all of the problems of a diverse community." When pressed to identify the source of health and safety problems at the hospital, Ms. Rowland insists that there is no single scapegoat. "We can blame the Ministry of Health for not being ready. We can blame the Ministry of Labour for not treating SARS as an occupational health and safety catastrophe," explains Ms. Rowland. "It is easy to point to the doctors and blame them. They are not employees, so we don't really have any control over them, but they are in charge of clinical services." Doctors are licensed by the medical association and have to be granted privileges to work at the hospital, but they cannot be managed as if they were regular employees.

"We have silos, even within HR, between performance management and training, between nurses and other staff, but the divide between Infection Control and worker health and safety is the biggest problem and most urgent challenge we face in preparation for the next crisis. And there will be another crisis. It is a matter of when, not if."

Ms. Rowland is optimistic regarding the new CEO. "She recognizes that people are the most important asset in our organization. As a result, Human Resources now has a seat at the table, in developing our strategic direction as a full partner with our financial and clinical experts." The HR director acknowledges that the HR division faces its own, internal, challenges. "Nurses told us that no one was listening to them. They did not feel safe even though the medical experts assured them that standard precautions were sufficient. Well, in the end, the nurses were right. We need to learn how to listen to all our employees. We cannot just give directives and expect others to follow along."

**Jaquie First, R.N., Emergency Department Nurse, Chair of ONA's OHS Committee**

Jaquie still remembers the man who walked into the emergency department on April 3, 2003, complaining of shortness of breath and fever. He turned out to have typical pneumonia, but the memory still stirs fear and resentment in her. "Nobody listens to nurses," she stated. "Some doctors are great, but that day we had a resident who treated me like I didn't know anything. He just would not listen to me. I insisted that everyone in the department needed full personal protective equipment, including N95 masks, but he said there was no clinical reason for all that. He said it would just slow us down, as though I just wanted to be lazy."

Donning and discarding the full array of personal protective equipment takes time and careful adherence to clean-room protocols to prevent the spread of the virus and contamination of equipment. The busy culture of the ER tried to control the spread of infection, but worker safety was not treated with the same level of precaution. "After SARS, I got involved in the ONA health and safety program," explains Jaquie. "That man needed my help that day. He was terrified. I was terrified. But I stayed there and helped him and came back the next day to help others. Most nurses at GH<sup>2</sup> did this, despite the fact that we did not feel safe. A few nurses refused to work, and their work refusals were supported by the Ministry of Labour.<sup>3</sup> There was no reason we should be forced to choose between our health, our family's health, and our commitment to our patients."

The Ontario government was no better than the hospital sector in responding to SARS as a worker health and safety crisis. The Ministry of Labour did not begin workplace inspections until June 2003, near the end of the crisis. In contrast, the government health and safety regulator in B.C. took decisive action immediately and began inspections in early April. Part of the problem in Ontario was stiff opposition by hospital administrators to independent worker health and safety experts and provincial inspectors from the Ministry of Labour. Traditionally, the administrators have viewed the internal joint health and safety committees as a source of problems rather than as a partner for addressing problems.

The joint union-management health and safety committee at GH<sup>2</sup> was all but ignored during the crisis. Organizationally, Medical Administration determines management practices and hospital procedures. For Jaquie and other nurses at GH<sup>2</sup>, the problems were all too clear, but their ideas were not listened to and their concerns were deflected. One concern raised was the lack of effective isolation facilities if someone arrives at the emergency department and presents with symptoms like those of the man Jaquie spoke about during the SARS crisis.

GH<sup>2</sup> does not have a negative-pressure isolation room in the emergency department. Negative-pressure rooms are key to controlling aerosolized pathogens. In BC., the person who presented with possible SARS conditions was isolated within a negative-pressure room within minutes of arriving at the

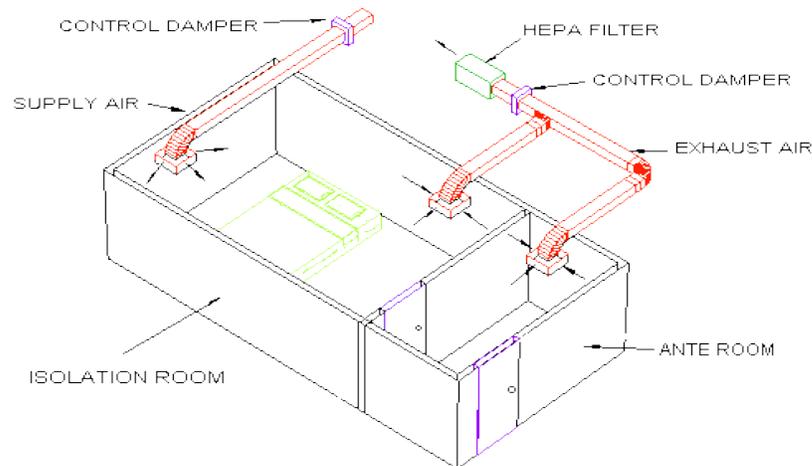
---

<sup>3</sup> Under the *Ontario Health and Safety Act*, healthcare workers and other first-responders such as firefighters and police do not have the same right to refuse unsafe work as other occupations. Work-refusal regulations were made clear in B.C. but remained a contentious and confusing issue in Ontario.

emergency department. In Toronto, the first SARS cases sat for 18 hours in a crowded and cramped emergency department.

Most healthcare practices protect against droplets, but aerosolized pathogens are microscopic particles that hang in the air. This increases the danger of transmission and changes the types of protective equipment needed. Negative-pressure rooms (as shown in Figure 4) involve a filtration system that actively draws air and any aerosolized particles out of the room. Such rooms are not cheap, and it can be difficult to retrofit an already cramped emergency department with them. Jaquie contends that they could be used as part of the regular emergency services, not just during a crisis.

**Figure 4: Negative-pressure isolation room**



### **Thomas R. Howe, Chief Operating Officer**

Mr. Howe led the hospital through some of the most difficult fiscal crises to face the healthcare sector. A dedicated public servant, Mr. Howe spent some twenty years with the Ministry of Health before joining GH<sup>2</sup>. “Hospitals are supposed to be the place where people come to get better, but during SARS, this is where people got sick,” recalls Mr. Howe. Nearly eighty per cent of SARS cases in Ontario were contracted in healthcare settings. “It was a catastrophic failure in our operations. For a while we controlled the problem by turning the hospital into a prison. No visitors, strict limits on access, and if you were in the work quarantine area, you did not go home for twenty-one days, the life cycle of the virus.” Many hospitals in Ontario closed emergency departments and ICUs.

“For a public institution, closing to the public is a real problem,” asserted Mr. Howe. “Our citizens have the right to access healthcare services, and they should be allowed to visit loved ones in a public hospital. Treating sick children during the crisis was the worst. It tore families apart – it tore me apart being responsible for keeping parents away from their kids.” Balancing the conflicting mandates over public access to public services and administrative restrictions to control the public-health crisis is a challenge that Mr. Howe continues to raise. “Prisons on lockdown may have good infection control – but we are not running a prison.”

The COO is also responsible for managing the hospital's complex web of contractors and outsourced services. On any given day, some 300 contract employees are working in GH<sup>2</sup>. During the SARS crisis, there was a great deal of confusion over how to manage contract workers. They could not be barred from the hospital, but at the same time, the COO's office has no capacity to manage health and safety or other human resource problems among contract-service employees. The hospital does not have an emergency plan for managing contract services during a crisis like SARS. The contractors have no connection with the HR department, nor do they interact with the joint health and safety committee at the hospital. These disconnections further exacerbated the lack of coordination and communication during the crisis.

### **Donna Kale, Director of Communications and Community Relations**

The primary focus of the communications division is running the capital campaigns and related public fundraising efforts. The hospital is not competing with other healthcare institutions, but it is competing for scarce resources with other public needs. The other important part of community relations is the program for volunteers at the hospital like the Child Life Council.

Volunteers play an essential role in the life of the hospital and experiences of patients. Whether it is providing respite for parents of a child in the hospital, visiting with elderly patients when their family is not available or staffing the gift shop, volunteers add to the quality of life of all stakeholders. Volunteer services are managed through the division of communications and community relations. Managing volunteers during the SARS crisis was fraught with problems. Initially, the hospital suspended all volunteer services and barred volunteers from the hospital. The situation quickly became unmanageable, and most of the volunteer services were reinstated.

Health and safety training for volunteers is minimal, and GH<sup>2</sup> still has no plans for volunteer services during an emergency or pandemic. "We recruit and schedule volunteers, but we do not have the capacity to manage the health and safety concerns of our volunteers," explains Ms. Kale. "At first, because of SARS, we suspended the volunteer program. This was a disaster for our patients and their families. Slowly, I started working with the HR team to get the volunteers back on the floors. I started going to the health and safety meetings, asking what it would take to get our volunteers back and make sure they were safe. Everyone on the floors understands the importance of our volunteers – especially the nurses. Convincing Clinical Services and Operations was our biggest problem."

### **Debbie Baines, ICU Nurse**

Ms. Baines has worked in the ICU for 15 years. "You can't compare the ICU to any other department in the hospital," explains Ms. Baines. "It can be an intense working environment, but we have the best infection-control practices because the lives of our patients depend on it." ICU nurses provide one-on-one direct care for people with critical illnesses. Anyone who requires a ventilator or similar life-support measures is cared for in the ICU. Patients in the ICU have complex medical needs, and ICU nurses have to be aware of everything going on in the environment. From monitors and detailed observations of patient conditions to

clinical orders, ICU nurses must retain sharp clinical skills. For that reason, news of the death of an ICU nurse from SARS was devastating to the nursing community.



“It could have been any one of us here,” said Nurse Baines. “The standard infection-control procedures were not enough for SARS. We should have had better isolation and clean-room practices. We should have had more information from the WHO. Somebody should have listened to nurses when the crisis was killing us.” The 150 ICU nurses form a tight-knit community at GH<sup>2</sup>. Out of any group, they are struggling with the lingering effects of the tragedy. “I know ICU nurses who are still suffering from post-traumatic stress disorder,” says Nurse Baines. “We felt under attack and the worst part was, we did not trust our leaders. Turns out we were right not to trust them.”

**Mohit Bhavindur, Housekeeping staff**

Mr. Bhavindur has worked at GH<sup>2</sup> for 22 years. “We provide vital services in the hospital. We may not be doctors, but if we don’t do our jobs properly, it could mean the life of the patient all the same.” Mr. Bhavindur volunteered to be part of the work quarantine team. He cleaned the rooms of patients suspected of carrying the SARS virus. As a result, he could not leave the hospital for 45 days during the SARS crisis. “Our kids are grown – my wife probably enjoyed the quiet time,” jokes Mr. Bhavindur.



“Seriously, a number of us volunteered because we believe that the work that we do for our patients is important. We care. I doubt that they will get any volunteers when they bring in contractors to do the janitorial services. I understand they want

to bring people in from temporary employment service agencies and pay them minimum wage.” While there have been discussions of contracting out janitorial services, the hospital has not reached a decision. Housekeeping staff earn well-above market wages, compared to non-union janitorial services for commercial buildings.

### **THE SARS COMMISSION REPORT – SPRING OF FEAR**

After the SARS crisis, the Ontario Government commissioned Justice Archie Campbell to study SARS. The Commission described the heroic efforts of healthcare workers in the face of the crisis. Without trying to assign blame, the Commission also catalogued the systemic failures of emergency planning, especially in terms of occupational health and safety, finding that Ontario hospitals did not have a safety culture.

Rather than assigning blame, the recommendations of the Commission focus on what is needed to handle the next SARS-like outbreak. Several of the recommendations address issues outside the control of individual hospitals, but the findings also speak to health and safety practices in hospitals.