

ONTARIO ASSOCIATION OF MEDICAL LABORATORIES

**THE SARS OUTBREAK IN ONTARIO, 2003:
THE COMMUNITY LABORATORY PERSPECTIVE**

June, 2003

Working to Keep Our Health Care System Healthy™



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INTRODUCTION

As we began to compile this report, the Greater Toronto Area (GTA) had sustained a second outbreak of Severe Acute Respiratory Syndrome. Staff from some of our member laboratories continued to be in quarantine because, in the course of their duties, they may have been exposed.

Public Health in the Greater Toronto Area reacted to this emerging pathogen with professionalism and dedication. At the height of the first outbreak they faced criticism for doing too little. As the situation became less critical, they faced criticism for having over-responded. It is apparent from this second appearance of the disease that we cannot be too vigilant.

The Ontario government moved quickly to establish a Provincial Operations Centre to ensure that the response to this unknown pathogen was co-ordinated and appropriate. As the infection spread within and between hospitals, the Ministry of Health was faced with the possibility that patient services could be severely compromised. In the early stages of the outbreak, and in the context of falsified data emerging from China, no-one knew the causal agent, no-one knew the mode of transmission and no-one knew the virulence of the disease. As Public Health worked to contain the outbreak and keep it from spreading into the community by closing down hospitals, the Ministry approached Ontario's Community Laboratory Sector to put in place a contingency plan to ensure that laboratory services could continue to be provided.

Ontario's community laboratories immediately agreed to step into the breach.

Our response to the SARS outbreak and what we have learned are the focus of this report. We think that there are valuable lessons to be gleaned from our experience. There will be many efforts to assess the impact of the outbreak. As community-based providers of health services, we have a unique perspective that may elucidate those assessments.

Sadly, health services providers will be called upon to respond to other emerging and re-emerging pathogens with increasing frequency. What we have all learned from the outbreaks of SARS can help mitigate the effects of other such outbreaks. To that end, we offer our lessons learned.

A handwritten signature in black ink, appearing to read 'Paul J. Gould'.

Paul J. Gould,
Chief Executive Officer

A handwritten signature in black ink, appearing to read 'Chuck Frosst'.

Chuck Frosst,
Board Chair

June, 2003

EXECUTIVE SUMMARY

SARS emerged in Ontario as a nosocomial infection, but in light of false information emerging from China, public health officials were dealing with an unknown entity and were forced to take draconian steps to ensure that it had not and did not spread to the community. The measures adopted by health officials were an appropriate response to an emerging and potentially fatal pathogen whose mode of transmission was vapour.

With the closure of hospitals, Ministry of Health officials turned to Ontario's community-based medical laboratories to perform testing for hospital outpatients. The community laboratories developed a contingency plan to accommodate the request. The impact of the closures was felt mainly in the Greater Toronto Area. Community laboratories ensured continuity of care for hospital outpatients.

Taking the proper precautions to protect patients and staff in our patient services centres was compounded by the shortage of the necessary supplies and by contradictory information emanating from a variety of sources. None of this information addressed the concerns of community laboratories specifically.

There was, in the first three weeks of the crisis, a real sense that those heading up the response to the outbreak, had little understanding of the nature of the work of community laboratories, nor any awareness of the fact that our staff are front line health care workers. Getting reliable, accurate information was difficult.

Once a clear line of communication was established between the Ministry of Health and the community laboratories, the situation improved and our input into the wording of directives and the design of the SARS screening tool was incorporated into revisions.

Screening of patients and staff was a drain on resources, as was the fact that a number of our staff were subject to quarantine.

The financial impact on the industry, in extraordinary costs, additional testing for hospital outpatients and loss of productivity, is estimated to have been over \$1 million.

Community laboratories have developed procedures, tested in the context of the SARS outbreaks, to respond to future outbreaks of disease. These will be updated regularly.

The community laboratory industry has undertaken a review of its response capacity to *force majeure* episodes, such as the SARS outbreak, to ensure that we are prepared for future public health crises or for other contingencies that may affect our ability to deliver services.

The "new normal" will require additional resources and staff. The OAML strongly encourages inclusive conversation among health care providers and government to determine how best to establish a new norm and how best to implement that norm.

THE PUBLIC HEALTH RESPONSE

On March 5, 2003, Kwan Sui-chu, 78, died at home of a chest infection. Kwan had visited Hong Kong in February and returned home to Toronto on February 23. She had unknowingly contracted SARS, while in Hong Kong. Before she died, Kwan passed the highly infectious illness to her son, Tse Chi Kwai.

Tse arrived at the emergency room of Scarborough Grace Hospital on March 7, complaining of fever, cough and shortness of breath. Two patients in the ER with Tse were infected. Thus, began the outbreak of SARS that would infect hundreds of people and kill 38 (at the time of writing). More than 10,000 people, most of them health care workers, have been quarantined.

Public Health officials had only the bluntest of instruments with which to respond. Once they determined they were dealing with SARS, they realized the necessity of containing the outbreak, but had no idea of just how widespread it might be. Health officials in China, where the disease was first identified, had falsified their reports about the scope of the epidemic there. The Toronto Public Health Department, on the available evidence, concluded that the disease might be present in the community at large.

As Public Health began its investigation, there were new suspected or probable cases of SARS reported every day. As the investigation continued, the investigators were able to trace every case back to the admission of Mr. Tse to the Scarborough Grace hospital. By the time the World Health Organization issued its travel advisory against travel to Toronto on April 23, 2003, Public Health officials in Toronto and those involved provincially through the Emergency Measures Organization - Provincial Operations Centre (EMO-POC) were convinced that the outbreak was, essentially, nosocomial.

This did not mean, however, that there was not a real danger of the infection being spread to the community and a communications campaign, directed at the general public, sought to reassure the population that the disease, while lethal, was contained and that simple precautions, such as those for avoiding the common cold, would help to prevent the transmission of the disease. Hand washing and avoiding close personal contact in public places were encouraged.

Concurrently, the EMO-POC began to issue a series of directives to hospitals and community health care providers. Some hospitals were closed and services were curtailed in others. Community health providers were directed to administer a SARS screening tool and to wear N95 masks to avoid contracting the disease from anyone who failed the screen. Specific instructions relating to how to handle a suspect or probable case were issued.

The measures adopted by Public Health officials and the EMO-POC were successful in containing the outbreak of the disease. The World Health Organization lifted its travel advisory on April 30, 2003, after reviewing the evidence presented by officials from the Toronto, provincial and federal governments. The time elapsed from the admission of Mr. Tse to hospital and the containment of the first outbreak was less than two months. During that time, a causal agent was identified. The genetic sequence of the virus was published by the Genome Sciences Centre in Vancouver. It was determined that the virus could live outside the body for up to twenty-four hours. The whole drama was played out against a background of sensationalistic media reporting.

Public Health officials and health care providers struggled mightily to be forthright, to care for the sick, to comfort the affected and to stop the disease in its tracks. These unsung heroes are finally receiving some of the recognition that is their due.

THE INDUSTRY RESPONSE

Providing Continuity of Care

As the Ministry of Health realized the implications for patient services of the closure of hospitals in Toronto, but possibly throughout the province, one important consideration was the provision of laboratory services to hospital outpatients who could not attend at a hospital laboratory. Ms. Dawn Ogram, Director, Laboratories Branch, approached the OAML on behalf of the Ministry of Health to ask the Association's member laboratories to put in place plans to accommodate the hospital outpatient load in community laboratories.

The community laboratory industry immediately drew up contingency plans to enable our staff to handle the anticipated increase in patient visits to specimen collection centres and worked with the Ministry of Health to determine the logistics of pick-up of specimens and delivery and distribution of test results. The industry has, as a result of this experience, developed procedures for responding to other, similar events.

The impact of hospital closures was felt mainly in the Greater Toronto Area, although smaller centres were also affected.

Protecting Staff & Patients

Directives from the EMO-POC detailed the precautions to be taken to protect staff and patients from infection. Our staff administered the SARS Screening Tool to patients as they arrived at our centres. Staff were provided with protective gear, although in the early stages of the outbreak, it was difficult to source sufficient numbers of N95 masks in a timely fashion. The inability quickly to acquire and distribute the proper protective equipment "caused a great deal of anxiety." Security of supplies is discussed below.

"Lack of information on necessary precautions and handling of samples required significant research."

With each reiteration of directives from EMO-POC, our members adjusted their instructions to staff so as to comply, as best we could, with the directives.

Until its final draft was issued, the SARS Screening Tool, instructed staff to take a temperature for patients who failed the screen because they had symptoms consistent with SARS. The industry found this problematic. Staff in specimen collection centres are providers of health services, but they do not work in a clinical setting. The SARS screening tool was a source of significant confusion, until well into the outbreak.

Communication

Timely and accurate communication of information is crucial in responding to public health emergencies. Reports from World Health Organization in mid-February identified the emergence of a new, sometimes fatal, pneumonia in China and Hong Kong. The OAML received a copy of these reports from Ms. Dawn Ogram on February 19, 2003. On February 20, 2003 Dr. Margaret Fearon, Ministry of Health, issued a memorandum to all microbiology laboratories in Ontario, with procedures to be followed as part of an enhanced surveillance program for Influenza A (H5N1). The OAML forwarded the information to all member laboratories.

Once the disease appeared in Ontario, however, communication was short-circuited by noise. New directives were issued daily or more frequently. It was very difficult for our member laboratories to obtain accurate and timely information as it pertained to the community laboratory sector.

“It was critical [to have accurate and updated information] to ensure we knew how to protect staff and patients in our specimen collection centres [and] in providing accurate handling information for our laboratory staff.”

“...a document control process, where changes [to directives] were specifically highlighted, would dramatically have decreased the ‘paper burden’ for health care providers.”

“Transport Canada advised that 1A containers were necessary to transport suspect or probable SARS samples. The Ministry of Health did not believe this was necessary, and did not provide additional containers though public health laboratories.”

There were also contradictions and inconsistencies in the information received. Management was burdened with sorting through reams of directives and bulletins to identify these inconsistencies. Information from the EMO-POC, the Ontario Medical Association and Public Health was often at variance. Information was coming from a variety of sources, some not as reliable as might be hoped.

In their zeal to respond to the outbreak, officials seemed to overlook the importance of community-based laboratories. More than 13,500,000 patients pass through the doors of our collection centres each year. With SARS-related hospital closures, our member laboratories were processing laboratory tests for hospital outpatients as well. Our dedicated staff are in the front line of health care, but they seemed to have been forgotten.

It became clear to OAML member laboratories that the industry needed to be kept informed of changes to directives, of new cases, of potential spread into the community in a timely and consistent fashion. A group of industry representatives began frequent, regular conferencing by telephone with Ms. Dawn Ogram, Director, Laboratories Branch, Ministry of Health, to ensure that information was accurate and current. These conferences also gave the industry an opportunity to raise practical concerns that needed to be addressed. Once this mechanism was in place, the quality of information available to the sector was greatly improved.

The industry was concerned that EMO-POC directives that were designed for clinical settings were being applied to the community laboratory sector without regard to the fact that specimen collection centres are not clinical settings.

“The materials designed for the community medical sector did not reflect a good understanding of the community lab environment...staff do not have the ability to make medical assessments...most patients walk in without appointments. As a result the recommended procedures did not make sense for community labs. Efforts to clarify these procedures took over a week.”

The OAML reviewed EMO-POC Directive HCO 0301 and submitted our written commentary to the EMO-POC, with suggested changes to the wording and substance of some of the elements of the directive as they applied to the industry. EMO-POC responded within a few days, accepting our suggested changes. The final draft of the SARS Screening Tool acknowledged the industry’s

concerns. Staff, who identified patients who failed the screen because of symptoms alone, were instructed to issue the patient an N95 mask and send them home with appropriate transport instructions.

Security of Supplies

Our member laboratories were not equipped with the supplies and materials necessary to deal with the emergency and had to acquire supplies very quickly. As an example, each laboratory had to source N95 masks from a variety of suppliers in order to acquire sufficient numbers. Specimen collection centres needed to be equipped to respond to directives. Among the items which would not normally be supplied to our staff were:

- N95 masks
- Disposable gowns
- Goggles for staff in SCC's and those making home visits
- Surgical masks for patients
- Hand disinfectant
- SARS Screening Tool (printed and distributed in massive numbers)
- Thermometer strips and equipment

The logistics involved in acquiring and distributing these supplies were compounded by the necessity to educate and train. Estimates of the expenditures of the industry on these items are provided, following.

Human Resources Issues

“The potential threat of transmission created fear and anxiety.”

The every day activities of industry employees were affected. All staff dealing directly with patients, patient specimens and other health care facilities were encumbered by having to wear masks gown, goggles and gloves.

“[We] provided services to [an affected nursing home] and to some SARS patients in their homes, so it was important to take every precaution to prevent the spread of SARS.”

“The need to provide screeners in each of our facilities was a big challenge...it was necessary to hire additional resources to screen and do data input.”

Quarantine of staff was a worrisome and expensive process. Absent official pronouncements from EI or WSIB, concerning compensation for staff who were required to go into quarantine, community laboratories made unilateral decisions to pay staff wages.

“Procedures put in place prevented employees with any potential SARS symptoms from coming to work. All employees were screened with follow up from our medical staff.”

Staff were subject to a variety of quarantine protocols. There were staff who were quarantined as a result of their work situations, e.g., having dealt with a suspected SARS case or having visited an affected facility to pick-up specimens. Others were subject to quarantine, as the spouses of

hospital staff. Still others had visited an affected facility within timeframes established by public health as requiring quarantine. As well, some staff were in “work place quarantine.” This meant that

they were unable to move from one location to another in the course of their work. They lost the opportunity to work additional hours and community laboratories were forced to hire to backfill. The industry's concern for affected staff was manifest in the fact that no community laboratory staff were additionally burdened by loss of wages.

Estimates of work days lost to staff quarantine total 503.3 at the time of writing. Scores of people were affected. The costs associated with these losses were absorbed by the community laboratories and are detailed below.

Employees throughout the industry were required to maintain currency with respect to constantly changing procedures. Some laboratories created specific SARS procedure manuals or issued regularly revised protocols to ensure employees understood and complied with procedures. A document control process kept the documentation current and reliable.

As SARS consumed staff time, so did it consume management time. As was the case in other health care sectors, industry management was absorbed in collecting and processing information, ensuring implementation of directives and ensuring resources were available.

Financial Impact

Community laboratories can quantify certain extraordinary costs and have done so. The industry will seek reimbursement, as other health care providers have done, to offset these extraordinary costs.

The financial impact on the industry of these extraordinary costs does not, however, take into account other obvious costs nor hidden economic impacts. Labour costs were increased by a variety of factors:

- payment of staff under quarantine
- additional staff to fill positions temporarily vacant because of quarantine
- additional staff to contend with the screening of patients, staff and visitors
- reduced productivity resulting from delays caused by the screening of patients.

The community-based laboratories provide insured testing services to patients and are paid through OHIP. These revenues are capped. However, uninsured testing services are also provided on a patient-pay basis. These latter revenues were also negatively affected by the SARS outbreaks, as patients stayed away from all health care facilities, for fear of contracting the disease.

Revenues were affected by the necessity to close some specimen collection centres.

It is reliably estimated that testing for hospital outpatients has cost the industry in excess of \$300,000.00

The extraordinary costs related to supplies and equipment, necessitated by SARS outbreaks, total more than \$350,000.00. The Ministry of Health currently provides physicians' offices with protective equipment at no charge. Community laboratories are purchasing such supplies and equipment themselves.

The direct costs to the industry of these extraordinary and hidden expenses of the outbreaks are calculated to have exceeded \$1,000,000.00.

CONCLUSION: LESSONS LEARNED

Force majeure

The SARS episode has alerted all of us to the impact of the unexpected emergence of a new pathogen. Other events can have similar effects on the ability of the health services sector to respond. These might include natural and man-made disasters. The community laboratory sector has undertaken a review of its responses to potential *force majeure* episodes and will be seeking regulatory change to protect its members from permanent loss of “capped” revenues caused by a recognized *force majeure* event. As current regulations read, “capped” revenues lost as a result of a *force majeure* event, which bring a corporation below its cap, are permanently lost, through a reduction in the “cap.”

The industry will also draft contingency plans for responding to a *force majeure* event that affects only a part of the industry, so that we may ensure continuity of care to the patients who are our primary clients.

Communications

In the earlier stages of the outbreaks, the industry was hampered in its response by the inability to get accurate, consistent and timely information. The OAML has worked closely with the Ministry of Health to ensure that community laboratories are well informed about any future public health crises and that the industry voice is heard by those making decisions that affect our operations and the health of our staff.

We are also acutely aware that timely communication among our member laboratories is crucial in responding to such issues.

Within individual laboratory corporations, procedures, tested in the context of the SARS outbreaks, are in place to respond to future outbreaks of disease. These procedures will be subject to regular review and update.

The “New Normal”

In many ways, the “new normal” is the “old normal.” Public health successes since the end of the Second World War have resulted in a change in the way Canadians live. But, it is not very long ago, that other potentially fatal diseases affected Canadians in large numbers. Tuberculosis, which is re-emerging in a drug-resistant form, once relegated its victims to sanatoria. Street signs threatened those who spat in the street with fines. Hospitals limited visitation to immediate family members and specific hours. Children were not allowed to visit hospitalized patients. It is only in the last quarter century that the “old normal” was abandoned in a well-intentioned attempt to provide a more comforting emotional environment for the sick.

In community laboratories, the “new normal” will require additional resources and staff. The OAML strongly encourages inclusive conversation among health care providers and government to determine how best to establish a new norm and how best to implement that norm.

Preparedness

The community laboratory industry understands the necessity to be prepared for future crises in public health and for other contingencies that may affect our ability to deliver services to the people of Ontario. To that end, the industry will use the lessons learned from the SARS outbreaks to plan for the future. This will include such practical steps as maintaining supplies and equipment, including masks, gowns, goggles and disinfectants in our locations to ensure our ability to respond quickly to similar events. As well, industry members will address more stringent infection control procedures in specimen collection centres. Procedures will be regularly reviewed and updated, both with respect to patient contact and handling of higher risk specimens.

We will work with government and other health services providers to ensure open lines of communication are maintained and to provide advice on the capacity of the industry to meet similar challenges.

Our member laboratories will incorporate the lessons learned into their orientation and training processes for all staff.