

How Toronto Pearson International Airport applied lessons from SARS to develop a pandemic response plan

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ABSTRACT

When severe acute respiratory syndrome (SARS) arrived in Canada, the nation's largest airport was caught in a major crisis while public health and emergency officials worked to limit the spread of the disease. World Health Organization travel advisories recommended limiting or postponing travel to Toronto due to concerns regarding local control over the outbreaks. Toronto Pearson International Airport worked with its extended community towards the development of local emergency and continuity strategies reflective of

the quickly-evolving multi-jurisdictional requirements. These strategies were developed and implemented through two consecutive waves of outbreaks over the spring and summer of 2003. The experience had a lasting effect on the airport and its related communities in terms of the evolution of its emergency and continuity programmes. Between late 2003 and 2006, a number of reviews, public commissions and enquiries delivered their findings and recommendations. The combined effect was a permanent change in the landscape within which Canadian transportation, public health, emergency response and management operate. But are the changes enough to be ready for the next possible major emergency such as a pandemic?

Keywords: SARS, emergency response, emergency management, public health, all hazards planning model, corrective action plan, command post model, non-conventional crises

BACKGROUND

Severe acute respiratory syndrome (SARS) surfaced in China in November 2002, arriving by plane in Hong Kong three months later. It was first recognised in Toronto in a woman who had flown from Hong Kong in late February 2003,

resulting in transmission to others and a subsequent outbreak among 375 people mostly in the Greater Toronto area and mostly in healthcare settings.¹ A global SARS alert issued by the World Health Organization (WHO) on 12th March was a direct response to a specific threat identified by the WHO Global Alert and Response system. On 15th March, WHO issued a rare emergency travel advisory.² A provincial emergency was declared in Ontario in late March, freezing hospital transfers, admissions, elective surgeries and in effect paralysing the health system.

Province-wide public health measures, including passenger screening at airports, brought the number of cases under control by mid-April. At roughly the same time, the WHO travel advisory was updated to include Toronto. This was overturned a week later when a delegation made its way to the WHO headquarters in Geneva, successfully arguing the lifting of the alert. With no new cases, no alert against the city and looking like the worst was over, a relaxation of precautions ensued. Roughly one month later, a second wave of SARS cases erupted, causing heightened fear and a crisis of confidence in public health and emergency officials. Of the 27 countries affected by SARS, outside of Asia, Canada was hardest hit. As of August 2003, there had been 438 probable and suspected SARS cases in Canada, including 44 deaths.³

DESCRIPTION

SARS was devastating to the economy, with travel and tourism chief among affected sectors. These sectors were still recovering from the blows dealt to them just 18 months earlier at the time of the September 11th terrorist attacks.

Toronto Pearson International Airport, the largest airport in Canada, is a

recognised leader in terms of its safety, security and environmental programmes. It had a well-established communicable disease plan at the time of the SARS outbreaks. This plan, honed over three potential communicable disease outbreaks during the previous ten-year period, had clear definitions of the roles and responsibilities of the key players at all levels of the airport, government and community; a well-defined incident management process; and the required logistical elements to support a successful outcome. During each of the previous public health occurrences, gaps had been identified at post-mortem debriefings and incorporated into corrective action plans with members of the airport's medical advisory committee. While certain of these gaps had already been addressed, some with longer-term corrective requirements were in progress and new ones had been created in the year before the SARS outbreaks, the impacts of which had not been fully assessed. These latter gaps manifested themselves during the SARS outbreaks and included such areas as jurisdictional issues, communication, chain of command, outdated legislation and lack of resources to properly assume responsibility. The next few pages will attempt to identify how these gaps occurred, followed by corrective measures to reduce or eliminate them. A roadmap for the future will be discussed subsequently.

IDENTIFYING THE GAPS AND CORRECTIVE ACTIONS

Communication: A global perspective

The air travel sector was quick to recognise the SARS situation as an industry-wide crisis requiring a coordinated and global approach. Establishing how to develop and deliver coordinated messages for an emerging threat to the

entire sector proved a significant challenge. The WHO, still working under the limited scope of the 1969 International Health Regulations, had to establish broader communication processes to provide international guidance on the implications of this new disease. Each airport of the various countries into which international air carriers arrived and departed on a daily basis had its own newly devised public health requirements for crossing its own ports-of-entry. Each air carrier's corporate requirements had to be reviewed in the context of these changing requirements and be communicated to employees globally to match flight schedules. The main impact of this mammoth coordination task was an early inability to effectively deliver a coordinated message to the world's airports and air carriers. The aviation sector's existing international bodies — the International Civil Aviation Organization and the International Air Transportation Association — actively collaborated with the WHO to develop global anti-SARS measures for proactive application at airports and on aircraft. However, getting this information into the right hands and concerted with the variety of other official sources of information proved to be a challenge.

No resources to properly assume responsibility — No on-airport quarantine programme

The Naylor Report found that Health Canada had transferred its airport quarantine responsibilities to the Canada Customs and Revenue Agency in 2002. Customs staff, however, had not been trained to do the job.⁴ The programme had previously been staffed by Health Canada quarantine officers posted at major Canadian airports with the corresponding Federal Government support network in place. Thus, while Health

Canada offices and examination rooms at Toronto Pearson's primary inspection line areas were still in place at the time of the SARS outbreak, the airport had no corresponding operational, administrative or management infrastructure in place. The immediate negative impact was the inability of the federal quarantine enforcement body to properly assume its responsibility at airports-of-entry.

For the first six months of the SARS outbreak, Health Canada therefore relied heavily on the Airport Authority for space allocation and fit-up; business equipment; transportation, security and access to areas of work; all logistical start-up material, storage and distribution points; administrative, purchasing and financial processes; communication tools and methods; integration of equipment and people into existing airport procedures; and development of SARS-specific airport processes and dissemination. During this period, personnel from around the country were assigned incrementally to the airport (eventually upwards of 140 were distributed in over a dozen locations at Toronto Pearson alone). However, these personnel were not familiar with the basic workings and restrictions of the airport environment, nor its community and culture. This resulted in a steep learning curve that hampered efficiency in the early start-up period and up to the first year following the outbreak. This manifested itself in many ways, with delays in attending calls due to unfamiliarity with communication tools, the layout of the terminal buildings, and the restrictions of the security system and its impact on routes within the buildings. In addition, there were delays in understanding the logistics of getting message materials and expectations to the targeted incoming flights as an integral part of the local surveillance process, and delays in establishing working enforce-

ment protocols due to the lack of available contacts within the airport community and with local public health authorities.

As a post-SARS corrective measure, the Public Health Agency of Canada was created in 2004. Established as a separate arm's length agency, and modelled on the US Centers for Disease Control, it is led by Canada's first Chief Public Health Officer. With this new agency came a new national focus on all matters of public health, including renewed presence at major Canadian airports and ports. This presence, led by physicians in charge of nurse quarantine officers, has allowed a renewal of interrelationships with the airport community as well as with the surrounding public health, pre-hospital and hospital care communities. Joint outreach airport community awareness and training programmes continue to evolve, as does the incorporation of this new airport community group into operational, incident and exercise programmes for the broader preparedness of all involved.

Better coordination between levels of government needed – Outdated legislation

The federal Quarantine Act had not been updated to reflect the impact of air travel. Instead the Act, largely unchanged since its original adoption in 1872, was reflective of ship travel timings and had strong controls relating to stopping ships from entering the country (including, ultimately, the power to order a ship to be destroyed to prevent infected passengers from disembarking). The Act did not, however, recognise the implications that the speed of air travel had brought to the equation. The ultimate scenario leading to the Canadian index case was an Asian flight to the USA connecting to Canada, with the passenger in question

asymptomatic until days later, when the passenger's symptoms prompted a visit to a hospital emergency room in a community outside the airport's response area.

Other potential cases that were followed during the outbreak period were of Pacific-rim passengers connecting via Vancouver to various North American cities. Some passengers, although successfully screened by quarantine staff at this first port-of-entry, raised sufficient concerns to be flagged to the receiving airports. If the receiving airport was also Canadian, the passenger was considered to be on a domestic leg, still to pass through the airspace of multiple provinces. Enforcement thus became an issue if findings were validated at the receiving airport. Federal authority did not apply as it was no longer a question of first port-of-entry; however, the various provincial public health legislations did not adequately address the question. Public health in Canada is primarily a provincial concern,⁵ as each province develops its own programme independently, rather than from a cohesive national basis. In addition, there is no provincial quarantine representation at airports. The newly reinstated federal process was therefore used to refer passengers to hospitals, using powers of persuasion and working collaboratively with local hospitals and MOHs.

Another aspect not addressed by the old Act related to outbound passengers and the potential for transmission to other countries. In the case of an outbound passenger found to have symptoms during the screening process, quarantine officials had to rely on powers of persuasion rather than legislation to encourage patients to voluntarily report to hospital for additional assessment and to defer travel. The assistance of air carriers was required to support the medical recom-

mendation, for example, by refusing to carry passengers by deeming them medically unfit to travel.

While it should be noted that most people complied willingly, where there was provision for enforceable compliance, such as in support of an issued quarantine order against a person or a group, the Quarantine Act only empowered federal peace officers.

Canadian airports are no longer routinely patrolled by federal police. As a result of devolutions from the Federal Government and the withdrawal of federal police from civil aviation security enforcement, in the five years leading up to the SARS outbreak airports had adopted locally suitable policing models. At Toronto Pearson, the local police of criminal jurisdiction in the adjoining region are contracted to the Airport Authority to perform policing related to civil aviation. While the federal police continue to be responsible for federal legislation enforcement for port-of-entry portfolios such as drug, immigration, terrorism and enforcement of quarantine orders, they no longer have the day-to-day response capability for operationally-related enforcement requirements. A stop-gap arrangement was made at the time to expand that authority to include Airport Police.

As a post-SARS corrective measure, a newly revised Quarantine Act received royal assent in August 2005 and was implemented in December 2006, although the related regulations have yet to be issued. In the new Act, the original intention of *quarantaine* (French for 40 days) had been recommended for the new federal agency to allow officials to retain authority throughout the country for a case having come in at a Canadian port-of-entry, while maintaining coordination with provincial authorities. In the end that provision was not adopted. Work continues in an effort to har-

monise the provincial, territorial and federal authorities, and it is hoped will be reflected in later versions of this legislation.

Welcome changes in the new Act include extending the enforcement powers of the new Health Agency to incorporate detention over outbound passengers for further assessment and determination of their risk to the public health of other countries, as well as that of Canada. In addition, enforcement powers are granted to any peace officer, expanded from the original federal police, for enforcement of quarantine orders issued by federal quarantine officers.

Establishing predefined chain of command – Lack of distinction in roles and authorities between public health and emergency management approaches

Over the previous decade, the Airport Authority had taken on the role of facilitator and often mediator during the development of the airport's local response plan for communicable diseases in attempts to arrive at a local workable model that was inclusive of the hierarchy of authorities, the responder and receiving agencies, and the airport operational community. A few notable infectious disease scares such as inbound flights with passengers potentially infected with Ebola or pneumonic plague had served as the catalyst for the call to action. The lack of clear authority, resources and direction had made it difficult during those earlier events to develop an efficient airport process without getting caught up in the governmental tensions surrounding the question of role, availability of resources and responsibility between the local, provincial and federal public health levels. This lack of delineation was amplified during the SARS outbreak with resulting lengthy, uncoordinated and not always consistent direction from authorities.

This situation was compounded further

with the blurring of the lead role between the provincial Emergency Management Office and Public Health Ministry during this declared provincial emergency. Decisions and directions, some uncoordinated, emanated from both groups.

Justice Campbell stated it well:

‘The most important thing in a public health emergency is public confidence that medical decisions are made by a trusted independent medical leader such as the Chief Medical Officer of Health free from any bureaucratic or political pressures. The Commission recommends that emergency legislation provide the Chief Medical Officer of Health with clear primary authority in respect of the medical and public health aspects of every provincial emergency ... Because there is no clear line between public health emergencies and general emergencies it would be wrong to introduce separate, freestanding, parallel emergency regimes, one for public health emergencies and the other for all other big emergencies. The existence of two parallel regimes would bring nothing but legal confusion and administrative disorder, two things no one wants in any emergency. The details of the consultation and cooperation between the Commissioner of Emergency Management and the Chief Medical Officer of Health need not be reduced to legislative form. The inevitable boundaries issues can be solved by cooperation, advance planning and above all by common sense. Both require not only confidence in their authority but also a clear acceptance of their mutual roles and limitations.’⁶

As a post-SARS corrective measure, there have been federal and provincial legislative changes and proposed amendments

to emergency management and public health legislation addressing some of the recommendations made in commission and inquiry reports.⁷⁻¹⁰ These changes have occasioned many reviews and working groups as the resultant programme changes are studied by various community agencies for the optimum approach for integration into existing programmes.

Some improvements for Toronto Pearson were in the establishment of a multi-level public health working group that met on an *ad hoc* basis over two years to better define the process at airports. This provincially-led committee has since expanded its scope to include land border points.

Separately, the Public Health Agency of Canada has developed a quarantine reactivation process for ports-of-entry. At Toronto Pearson, a standing committee composed of key airport stakeholders meets every other month to maintain preparedness in the event of the need for a reactivation of measures relative to a public health outbreak.

Difficulty in establishing clear communication

The lack of distinction in role and authority described above contributed to communication difficulties during the SARS outbreak. As a starting premise, very little was known about this emerging disease; recommendations were originating half a world away, and the science at the very core of the question was evolving daily. Further, as public and personal healthcare is provided at the local level, there was a very long chain to follow in order for the latest developments and direction to reach the right targets.

Although the source of the emergency was remote, as in any major emergency the airport community was looking for reliable methods of receiving up-to-date information that could be incorporated into operational processes for public consumption.

The use of established incident management communication tools and networks proved to be both helpful and confusing. This was mainly due to the sheer volume of sources and data, the speed with which new information was being received and the lack of time to properly analyse and distil its essence into usable and focused information to be translated into local action.

In this instance, there was an overload of information coming in from many sides. In addition, there were equally many opportunities for filters. For example, the over 50 international air carriers operating at the airport were receiving direction from their headquarters from as many countries, who were in turn receiving their information from their public health and/or emergency management authorities. This was colliding with the mixture of information being disseminated in Canada from the local, provincial and federal levels.

The logistics of positioning the right information tools far enough up the process in a global industry were significant. For example, WHO recommendations included screening of passengers departing from affected areas by means of a questionnaire or interview and, in the event of an ill passenger on a flight from an affected area, isolation of that person and identification of their contacts. Canadian health authorities directed that contact tracing forms be filled out by all passengers travelling to Canada on all flights originating from affected areas. Accordingly, once the forms were developed and available in sufficient numbers, stocks were sent ahead onboard all flights departing from affected areas for in-flight distribution by the cabin crew. These were to be collected upon disembarkation in Canada. A broader array of flights was also sent ahead hastily produced videos to be shown as part of the in-flight material, outlining the public health message on disease information,

processes and reporting expectations once in Canada.

Upon arrival, passengers arriving from affected areas were screened through a health alert notice with a questionnaire (yellow-coloured cards) and those with risk factors for SARS were assessed by a screening nurse. International passengers departing from Toronto's Pearson Airport were also screened with a health alert notice (cherry-coloured cards) and posters were displayed in airport terminals. Thermal image scanners, to detect passengers with elevated temperatures, a presenting symptom of SARS, were employed in Toronto Pearson and Vancouver International Airports.¹¹

International civil aviation networks were also key in the distribution of airport and aircraft-specific directions. Information was provided not only on passenger screening, but on such things as the possibility of in-flight transmission with an onboard SARS case, recommended precautions, isolation areas, protective equipment, disinfections and cleaning, infection controls in place at airports, disembarkation and transportation of SARS patients, and more. In the absence of established federal public health communication networks, established civil aviation networks were pressed into service.

In attempting to regularise a local communication process, the Airport Authority coordinated emergency briefings set on a reasonably regular schedule held with different community groups and with invited public health experts for higher credibility. On the subject of public communication of health risk, the Campbell Report on SARS stated:

'People trust their health to doctors, not to politicians or government managers. It is essential that the public get from the Chief Medical Officer of Health the facts about infectious risks

to the public health and the need for precautions and advice on how they can avoid infection.’¹²

Recordings of these sessions were made to allow for broader distribution of the messages throughout the community while minimising the need for large group gatherings. Airport operations bulletins were also used as an established consistent tool to pass along the latest medical community information and to highlight operational impacts.

From an occupational health and safety perspective, the various employers were struggling with the definition of sufficiently reassuring information packages and measures, including compensation for employees who had been quarantined or who were staying home with family members who were in isolation or who could not attend their usual place of work or school due to closures or fear of infection. The results were variable with labour unions and OHS committees looking for reassurances for their members and with work refusals a very real possibility at many turns. As a post-SARS corrective action, it has generally been acknowledged that the OHS and labour roles were considerably sidelined throughout the outbreak, a situation that will need to be rectified before another emergency occurs. Positive steps within and across many governmental and private sector groups have since been undertaken to address these social questions.

WHERE TO GO FROM HERE? ETHICAL AND LEGAL QUESTIONS

Overlapping jurisdiction

The Campbell Commission stated:

‘The Commission recommends amendment of the *Health Protection and*

Promotion Act to address the problems of: a tangle of enforcement powers, procedural gaps in enforcement machinery, overlapping jurisdiction between the Ontario Court of Justice and the Supreme Court of Justice, lack of one-stop shopping for enforcement of orders in respect of infectious diseases, legal uncertainty in initiating and continuing enforcement procedures in court and the lack of systems to ensure legal preparedness in the application of enforcement machinery.

Health professionals and the lawyers who advise them require not only the clear authority to act in the face of public health risks. They require also a simple, rational, effective and fair set of procedures to enforce compliance and to provide legal remedies for those who challenge orders made against them.’¹³

Emotional and financial support for victims

For those against whom orders are made, be it isolation or quarantine, a number of questions are raised. In a 2003 article on the public response to SARS in Toronto and the USA, ‘when asked about specific problems related to (being in) quarantine, the most frequently cited two “major” problems were emotional difficulty related to the confinement and not getting paid because they had to miss work’.¹⁴ Rounding out the top five reasons were: being unable to communicate with family members, being unable to get food or water, and being unable to get regular medical care and prescriptions. This is consistent with the results reported in many of the Canadian reports with recommendations that further definition of state-sponsored financial and psychological support responsibilities towards affected citizens and healthcare

workers be investigated for inclusion in forward planning for future public health emergencies.

The same article referenced the media's role in Canada and the USA and their balancing act responsibility during major events: 'Canadian and US residents expressed similar levels of interest in news about new medical and scientific discoveries and thus would be expected to react similarly to media accounts of the outbreak'.¹⁵

Rationing medical supplies

The Campbell Report further stated:

'The power of compulsory mass immunization is a paradigm for public health emergency powers. It bristles with legal issues that typify any emergency proposal to interfere with individual liberties for the sake of the greater public good. It exemplifies the legal and policy and practical problems that must be addressed in every analysis of every public health emergency power.'¹⁶

The power to ration medical supplies is another area raising considerable legal and ethical debate. Following SARS, major reviews on the topic of medical supplies were undertaken at all governmental levels. One focus was on physical surge capacity, protective equipment supplies and adequate resourcing for distribution. However, another focus was on sources and networks for the development of vaccines and on the distribution of what would surely be the limited or phased availability of vaccines. How to prioritise who received those limited supplies? The healthcare and emergency workers; the young and the old; or the sick and already vulnerable? Where lies the best opportunity for containing the spread?

Critical infrastructure

How does critical infrastructure, most of it in private hands, fit into this distribution network? What is the best opportunity for maintaining critical infrastructure and the resources needed to continue operating it in support of a major crisis, such as SARS or a pandemic? As an example, Toronto Pearson, a private entity, is a component of both the provincial and national critical infrastructure by virtue of its role in the transportation sector, accounting for one-third of all air travel in Canada, and as the fourth largest airport-of-entry into North America. From a medical perspective, the airport's medical clinics work closely with the federal quarantine nurses on matters of public health and are recognised mass vaccination distribution points as part of the local public health network. Two groups of port-of-entry staff are designated quarantine officers and the airport's responders, part of the first and emergency response network at the country's largest airport-of-entry. In addition, air travel, a critical underpinning of global trade and commerce, forms part of the medical supplies transportation network, particularly where speed of delivery is a factor. However, of the post-SARS and pre-pandemic work conducted by the various governmental committees on identification of essential workers, ie those who would receive priority distribution, none of them included the airport as part of their essential network.

The precautionary principle

The final Campbell Report stated:

'SARS showed that Ontario's public health system is broken and needs to be fixed. Since then, while much progress has been made, after long periods of neglect, inadequate resources and poor leadership, much more remains to be done. Every recommendation to the

Commission in respect of public health noted the need for more resources ... As one thoughtful observer told the Commission: The worst-case scenario is basically to get the obligation to do this and not get the resources to do it ... To arm the public health system with more powers and duties without the necessary resources is to mislead the public and to leave Ontario vulnerable to outbreaks like SARS.

Although Ontario got through SARS without any special emergency powers the prospect of pandemic influenza or indeed any outbreak more serious than SARS requires the enactment of explicit public health emergency powers and on the emergency response and management side of the equation for reforming the shortcomings of the public health system demonstrated by SARS.

The importance of the precautionary principle that reasonable efforts to reduce risk need not await scientific proof was demonstrated over and over during SARS. The Commission therefore recommends ... that the precautionary principle, which states that action to reduce risk need not await scientific certainty, be expressly adopted as a guiding principle throughout Ontario's health, public health and worker safety systems by way of policy statement, by explicit reference in all relevant operational standards and directions ...¹⁷

In a broader context, the use of the precautionary principle was exemplified by the Head of Public Safety for the City of New Orleans in a recent presentation. Since Hurricane Katrina, one of the major changes being instituted in New Orleans is raising the level of personal preparedness of the city's emergency responders in anticipation of future disasters such as

hurricanes, an often downplayed consideration with a potentially high impact. According to accounts, a high percentage of responders remaining within the city throughout the evacuation process had not pre-evacuated their families. The third shift of emergency workers had remained in their homes until needed by their shift rotation, while the other two shifts had been brought into their respective stations. Both of these groups became victims of the ensuing evacuation with their whereabouts unknown to their families and colleagues who continued to work throughout the disaster. It is now being recommended that all responders file their family's preparedness plans with their respective services and that all responders be pre-positioned at arranged accommodations as a precaution, in anticipation of a known timeline. This would result in two-way benefits providing peace of mind for the workers who would then be in a better position to focus on their professional tasks at hand.

The message of personal preparedness is resonating strongly in Canada with national, provincial and non-governmental groups such as the Red Cross profiling campaigns on 72-hour personal and family preparedness plans over the past two years, often in connection to and as part of pandemic plan preparations.

Also during Katrina, the New Orleans Airport became a community beacon as one of the few still standing and fully-functional pieces of the critical infrastructure. It took on a number of non-traditional airport functions in support of the broader community, including community reception and reconciliation centres, full field hospital and MEDEVAC station, and acting as a base for military activity and an impromptu Federal Emergency Management Agency trailer park. This should serve as a reminder to all critical infrastructure sectors, largely in

private hands, of the importance of their ongoing integration into a community offering a higher level of availability during times of crises.

Within an even broader context of the basic concepts of emergency management, in a report prepared for Electricité de France as part of the French energy provider's ongoing efforts to learn from major catastrophes affecting other players and other countries, the present state of emergency response culture is described as being 'a paradigm behind'.¹⁸ The authors urge people to engage in genuine transformative action in addressing:

- 'the basis of our scientific thinking: dealing with discontinuity;
- our organisational principles: developing cultures open to the unexpected;
- our governance doctrines: extending beyond today's outmoded social contracts'.¹⁹

The authors describe that 'the "all hazards" planning model is even more critical than is currently being highlighted'.²⁰ Furthermore: 'The "Command Post" model has reached its limits ... certainly a central overview for collating information, coordination and decision-making is indispensable'.²¹ But other factors are also critical:

- the ability to deal with major developments in the theatre of operations and adapt accordingly — for example, being able to realise and accept that one is not managing an airport any longer, but the critical survival point for many human lives — something which has nothing to do with the airport business;
- the ability to network with multiple cells dealing with intelligence, intervention, resources and decision making;
- the ability to handle small but critical bottlenecks such as the proper function-

ing of airport lavatories — without water, the system breaks down.

Finally:

'Among the number of destabilising events in a catastrophe of this magnitude (Katrina), we should highlight the rapid realisation that the theatre of operations is not contained. On every level, the usual or implicitly expected framework has been exceeded. The seriousness of the disaster makes it necessary to think of support structures on a national, continental or international scale.'²²

Since the SARS outbreak in Canada, a tremendous amount of energy has been concentrated on revamping both the emergency management and the public health systems to better position the country in all functions of public health, in areas such as organisation and jurisdiction improvements, increased infectious disease surveillance, increased epidemiological investigation ability, availability of laboratory processes and data system improvements. While some of the larger systemic processes have been addressed, continued attention must be paid to the question of command hierarchy in compound disasters between levels of government and disciplines, and must include the role of the private sector. Attention must also be focused on the social questions brought up throughout this paper — the emotional and financial support of victims, medical supplies and immunisation priorities — as, without people, there is no process to operate.

In this vein, the Toronto Pearson Airport emergency management group continues to work actively with local, provincial, federal and international emergency management, civil aviation and public health offices, and academic

groups to expand its partnerships, continuously to improve its programme in the areas of 'all-hazards' emergency management, communicable disease/pandemic and continuity of operations and business planning. Within the airport, the emergency management group intends to continue to develop the programme towards a comprehensive emergency management programme consistent with industry best practices in management systems to enhance the safety of all airport users.

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