MANAGING VITAL ACTIVITIES IN AN UNPREDICTABLE WORLD

Critical Networks and Pandemic Risks

Toronto Experience with Sars (2003)

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Introduction

EDF is currently – and will increasingly be – a key player in new, destabilizing, multi-faceted emergencies, without the activities in which we are involved necessarily being at the origin of this type of crisis (natural disasters, new forms of terrorism, pandemics, social crises, …).

Our ability to combine forward-planning, "out of the box" thinking and operational crisis management seems like a critical condition for success in managing such non-conventional events. This synthesis is at the core of the EDF Group's emergency planning.

Since last July, the foundations of a "Rapid Response Taskforce" have been laid. This taskforce takes an independent approach to supporting strategic management in the event of a developing emergency or fully-fledged emergency situation. This means the ability to ask "open" questions, spot false paths, define the attitude to adopt and key-reference points in unreadable situations, sponsor creative initiatives, and the mapping of players. As of now, it is contributing to the forthcoming plan on combating pandemic flu.

Within this framework, it seems essential that the Group benefit from the experience of other large-scale major emergencies involving other players and other countries. Hence, the feedback from the ice storm, which paralyzed Montreal in 1998, was critical to allowing us to deal with the storms at the end of 1999.

It is with this in mind that I asked Patrick Lagadec and William Dab to carry out a study in Toronto, which itself experienced, in 2003, two major emergencies. One was linked to the SARS epidemic and the other to the collapse in the electricity grid the Great Northeast of the United States. In pooling their networks and with the essential support of Jean-Pierre Roche, Risk Manager for the Aéroports de Paris, they were thus able to collate the points of view of the public health authorities, the airport authorities, the electricity industries and, particularly, those of our colleagues in Ontario Power Generation.

Patrick Lagadec's summary, which I am pleased to send to you, regroups the elements which to us seemed important for perfecting our emergency planning arrangements. Within it you will find a general overview of businesses management in an unpredictable world. The second section reports more specifically on the information gleaned from the Toronto study.

This note is intended to enrich thinking at EDF but is also intended to be shared by all those who contributed to the study. It is only by working together and shared thinking that we will be able to deal with the challenges presented by such emergencies. EDF is thus ready to share as widely as possible its thinking on these issues.

I hope you find the information interesting and I would be pleased to receive your feedback.

Pierre Béroux
Senior Vice President, Corporate Risk Management

This note consists of two parts:

I. A summary of thinking on overall management.

II. A report on the information collected during a study to collect feedback from experience conducted between 10 and 14 October in Toronto by Pr William Dab and Patrick Lagadec.

I – ISSUE MANAGEMENT "PANDEMIC FLU": CORE STRATEGY

Patrick Lagadec

Severe turbulence

As with all large scale issues such as terrorist threats or extreme weather conditions, that of avian flu – and more widely every large-scale public health risk – calls for some thorough strategic thinking from all of us, and particularly the operators of large networks, in charge of our countries' vital services.

This ability to step back is all the more crucial in that, with every major public health threat there is the risk of serious difficulties and fatal consequences.

Difficulties: scientific knowledge, technological capacity, organizational cultures out of step with the threats themselves – non localized, subject to constant change, characterized by successive waves over the long term, and with the prospect of large scale mortality.

Chain reactions: decision-making disarray, confusion in the media, unforeseeable chaos effect – all on a global scale and governed by the needs of the moment and by emotions. The situation itself and the reactions to it lead to a more and more worrying spiral of events: tensions, over-simplifications, piece-meal decision making – the large operators needing to await governmental instructions at one moment then asked to take responsibility the next.

Currently, as is most often the case, attention is particularly focused on reporting the technical details of the threat (what is avian flu and its virus?) and on a number of technical responses, Tamiflu becoming sometimes the only preoccupation, just at the moment when it is no longer available.

At each moment we need to develop a core strategy, which will ensure the preservation of a coherent overall approach, moving from the thousand and one contradictions and disruptions which always go hand in hand with this kind of inconceivable emergency. It is this need that the first section aims to address, dedicated as it is to the critical questions: the pitfalls to avoid, the fundamental approaches which can serve as reference, the need for ongoing work by on management.

I. Pitfalls

What we have learned from experience of severe emergencies is clear: the first risk for decision-makers is to immediately rush up blind alleys, from which it is then very difficult to escape. This reaction is all the more worrying in that the pitfalls to be avoided look like "common-sense solutions" "particularly reassuring" at a time when one feels the earth giving way beneath one's feet and anxiety is rising all around.

1. *Avoiding the issue*: it will be claimed that "nothing has yet been proven" and that "pessimism should be avoided", as should "paranoia", "as was the case with the year 2000, mad cow disease, SARS etc"; there will also be those willing to argue that it is above all a public health problem "to be dealt with by the government". The company can then, indeed must then "follow" the instructions given to it in time, as the case may be. We may even come to believe, if the emergency becomes one of enormous proportion "that there is no point working on it, especially since organizations are not made for such situations".

2. *The constantly talked-of fear of a population "panic"*: it is emphasized on every occasion that we should "reassure", and not "frighten"; we will be constantly reminded that "solid arrangements" have been made that that we are "ready". This after letting it be known that migrating birds were not able reach our country directly but, perhaps, in time having passed through Africa – retrieving on the way the symbolic inheritance of the Chernobyl cloud. This type of discourse, often reassuring to those in positions of power, will be delivered at the very moment when meetings of experts and then of those responsible are multiplying – against a background of a collapse in the front line, the flags of the advancing illness, in the form of the birds, getting ever nearer.

3. *Frenzied surfing*: on the other hand, we risk an abrupt move to the other end of the spectrum, amplifying every anxiety, dramatizing each reaction, systematically going to extremes in every analysis of the situation or decision taken. This runway doom-mongering is likely to be all the more pronounced when we have been blind, passive and "reassuring" for too long and when there is a visceral need to seen to be compensating for this. The purveyor of the "worst case" looking to recover from the previous stance as unshakeable "optimist" (as long as nothing happens).

4. *The technical illusion*: this allows, with decisions like "building Tamiflu stocks", to dispense with any other thinking. This technical stance and the illusion of "reassurance" make good bedfellows. But with some difficulty in the end, in that Tamiflu is no longer available, at least in the short to medium term. The proliferation of posturing, combining elements such as: "technical miracle cure" —"limited stocks and impractical nature of the miracle cure", rapidly leads to significant and definitive collapses in credibility.

5. *The organizational and managerial illusion*: this is looking for simple solutions of the style: "we are requisitioning critical personnel", "we are sending those who cannot do anything back home", "we are quarantining all the sick", etc. The notion of "useful person", in an emergency which may last weeks, coming in successive waves, is not only not very helpful as a general rule but dangerous in terms of social cohesion and the idea that we are all in this together. Certainly, it can be relevant in certain limited cases, but not as a catchall "miracle cure".

6. *The communication illusion*: in line with the recent trend of seeing crisis resolution primarily in terms of media communication, the risk here is to think of resolving the problem by posturing on television. Even the ritual and ever-present incantation of "transparency" is quickly seen to be unproductive. Especially if, at the same time, the display of "optimism" is kept up in the face of every setback (as long as the setback is not real), difficult questions are avoided, and the aim is systematically to "reassure". Rapidly, the perception becomes that TV stars are not credible, and that all these speeches simply show a low level of confidence in the recipients, whether they are ordinary citizens or employees in an institution.

7. *The governance model*: just at the moment when we are going to need the intelligent and diversified commitment of as many of us as possible, and a shared confidence in each other, there is the risk of prioritizing (clear or implicit) military and police measures, even Martial law. As if, while still claiming to be "optimistic", we moved straight to extremes in terms of "maintaining order" (and even before, moreover, being sure that we have the effective means of pursuing such a policy). On the same note, there is the risk of immediately adopting as sole hypothesis the idea that everyone will abandon their posts requiring "governmental requisition" as the central mode of functioning. The very fact of accepting the idea that this is the model which has the most probability of emerging can result in the imposition of such a model in expectation and eventually behavior. Of course, not to be trapped in these polarized points of view does not mean that we should stay with a rosy vision of situations that could develop. The important thing, here as elsewhere, is to be able to take into account diverse, contradictory hypotheses, without being taken hostage by any one of them.

All traps have something in common: if, faced with an out-of-the-box situation, it is impossible to escape from the irrepressible need for a simple solution allowing the issue to be "filed", to feed it into the usual diagrams with ready-made answers, the risk of running rapidly into dead ends is very high.

The problem, obviously, is that our decision-making cultures have scarcely prepared us for these inconceivable worlds. The risk is that we have very little time to get through the necessary stages but it must be done. At the very least we should be very vigilant when it comes to "easy", "reassuring" solutions which appear to "recommend themselves".

So that we may at all times rediscover our freedom of judgment and our margin for maneuver.

II. Posturing

Some points can serve as structural reference points.

1. *Seeing the problem for what it is:* One conviction is central to our cultures: in the event of a situation which is not "totally" controlled, it is the duty of those in authority not to identify the situation as such, the reason for this being that “for people to see the situation as it is would risk precipitating unmanageable chaos". Experience teaches us otherwise. It is the awareness that those in authority claim to have everything under control, while demonstrating their impotence, yet denying their listeners access to thinking or to action, which prompts the greatest instability. On the other hand, an initially strong message, indicating the areas of uncertainty, the stakes, the rationale for action taken, what is expected of everyone and the clear affirmation that the people in charge will take responsibility for the problem has more chance of creating a situation where people are motivated and committed, finding creative solutions together. And if, by chance, incidences of stalling and panic emerge, they are more likely to be able to be contained and managed. In this instance, it is much more effective not to leave the monopoly on panic communication to the media, best-sellers, experts, non-experts and special interest groups. The person wanting to be recognized as in charge must come over, from the start, as lucid, clear and open to co-operation from everyone. It is through force of attitude, courage in diagnosis, the clarity on the impossibility of establishing in advance the script for the emergency, the example *of personal* motivation, that one is able to convince, reassure and motivate. Not by badly hidden verbal evasion, with less and less authority, skating on the brink of a gulf which is never admitted to but which is seen by everyone as terrorizing the decision-maker. The worst case is thus the destructive combination of a "reassuring" discourse and behavior which is incompatible with it. It is worth underlining the professional and facts based attitude that was adopted by Ontario Power Generation (OPG) during the Sars crisis.

2. *A rationale of responsibility*: In the same vein, the fear of having to leave the customary rationale in terms of management and responsibility often leads to a certain tension, a retreat into oneself leading to wanting to manage everything single handed. On the contrary, the greatest ordeals can never be traversed without the involvement of many others. Non-specific, but global, emergencies, known as "crises of texture" as they have an in-depth effect on the "fabric of society", the "material", call for the involvement of an infinitive number of players, who give the depth needed for effective defense. A rapidly emerging and relatively isolated emergency can be dealt with by a few people; a long-term, unforeseeable emergency, which can potentially be very draining, presupposes this in-depth defense. The requirement is then for confidence, the delegation of responsibility, the co-ordination of multiple creativities, and especially not the crushing of initiative. But, here too, such a redistribution of capacities presupposes that leaders are prepared and not destabilized by the prospect of shared information, the realization of relative impotence, and the need for action to be shared.

3. *A solid foundation of values and social responsibility*: In recent years, the theme of "business continuity" has increasingly been brought to the fore. When the time comes for threats as great as that of pandemic flu, and as far as the large essential networks are concerned, the approach must have much wider foundations than that of pure "business".[1] The vision must rather be of a continuity of vital services in societies which have become structurally dependent on the availability of critical commodities such as energy, water, food, information, transport etc. In this instance, accounting, financial, insurance and stock market rules (…) can only leave the foreground to the more pressing need for survival. Getting the priority of such preoccupations wrong can only lead to serious consequences. And, once again, anyone showing that they have not understood the stakes of an emergency, runs a strong risk of being immediately and definitively disqualified. OPG gave us very interesting clues in that respect regarding for instance the management of the sick leaves during the Sars epidemic.

4. *The ultimate foundation: integrity.* The prospect of difficult times ahead cannot be ruled out. So too, finally, a major non-confirmed alert. Whatever the scenario, whatever the seriousness of the possible developments or the possible consequences of a "non-event" (the most fearful throwing off their paralysis to come forward and denounce all those who believed in the reality of the threat for "playing Cassandra"), the real test is the integrity of the position taken. If nothing happened, let it be seen that one is reliable (it will not be the last alert and the next should not be dealt with from a position of ruined integrity). If the situation results in tragedy, one should always be in a position to demonstrate attachment to strong values and thus a high regard for individuals, organizations and institutions.

5. *Immediate mobilization: a shared, coherent response*. In testing times, when words risk meaning nothing, it becomes important to set to work on a specific, ambitious, previously discussed and shared program of measures. It's through involvement in precise areas of activity that one inspires confidence in oneself, assuming the responsibility and credibility critical to weathering the storm. Here too, it is crucial to avoid monopolizing the action taken, by preventing the flow of information and resources and discussion. On the contrary, it is vital to promote involvement and empowerment in programs mobilizing large networks of players, founded on a clear mutually-debated view, adjusted at each significant stage of the emergency. The way OPG has maintained an open process of communication and education during the Sars episode is an encouraging model.

[1] On this level, we shall be watching Roche'position on Tamiflu..

III. Management

One rule must always be prioritized when dealing with a non-conventional emergency: clearly, everything which can be planned and codified in advance must be. But the real test will be the capacity to show creativity, flexibility, and strategic responsiveness when surprising or unfamiliar situations arise.

This is mostly totally opposed to the culture of urgency – to reflex response – which often dominates our emergency cultures. This penalizing culture leads us to produce paper, referring to such documents when the situation runs out of control, just when it is important to mobilize all the resources of collective creativity, precisely built ahead of time in order to mobilize effectively at a time when the plans foreseen are no longer applicable.

During our visit to Toronto, we were strongly advised to get in touch with the Royal Bank of Canada, reputed to have exemplary planning for pandemic flu. A telephone interview (on 7 November) with Mr. Glenn Blaylock, Senior Vice President of Operations, and responsible for these preparations, fully confirmed the point outlined above. The key, he told us, is not sophisticated plans. “We have especially introduced common sense rules. The key is the capacity to adapt very quickly. It’s for this reason that we firstly need a team which can think creatively on emergencies.”

In other words, large organizations have two functions to provide and run. The first is to implement all the responses it is already possible to make to deal with foreseeable issues, notably – but not only – within the framework of existing emergency planning (particularly governmental). The second is to give themselves the capacity to anticipate, ask questions and make permanent adjustments to help the organization, primarily its management, to continue to manage the company even in a world on the edge of chaos.

The first component is natural, the second still very rarely developed within our organizations. And yet, the more complex and difficult to read the emergency, the more you need the permanent availability of a think tank which can stand back, the more you need creativity in approach and behavior, in lines of contact both inside and outside the company. Out-of-the-box situations require this kind of competence and we need to get it without delay.

This is the approach adopted by EDF within the framework of the "pandemic flu" project, separating operational (the responsibility of the Security Division) and strategic management (the responsibility of the Group Risk Control Division).

The independent thinking needed in strategic management is founded on four main lines of questioning:

1. *What is it?* Experience shows that action is often taken on the basis of an erroneous or very partial view of reality. Out-of-the-box situations require a reassessment and redefinition of the situation on the ground, the stakes of intervention.

2. *What is the mapping of those involved?* Out-of-the-box emergencies cannot be dealt with on the basis of traditional mapping exercises. Numerous players not figuring on the control screens erupt on the ground – we saw this in New Orleans with the desperately poor, and during the heat wave in 2003 with isolated people and the

elderly. The same for pandemic flu when there could be surprises in store with homeless people, and tourists, for example; or, in other areas to consider, with governments, towns, businesses, NGOs or foreign media which have no respect for frontiers.

3. *What are the pitfalls to avoid?* Frequently, the instinctive response leads organizations into traps from which it is then very difficult to escape. The forward thinking previously proposed is needed throughout the emergency, systematically and explicitly. It is especially important to clarify on an ongoing basis the list of "false good solutions" since the profound anxiety prompted by this type of situation often leads to an obsession with "simple", "easy", "miracle" solutions which are anything but.

4. *What constructive initiatives do we propose*? An abnormal situation naturally crushes creativity and one tends to only look for solutions which have been used in the past. And yet, resolving emergency situations is going to require inspiring a strong dynamic, most often working with unsynchronized initiatives and with players which, too, lack coordination.

It is important that everyone is aware that this independent strategic thinking exists. The organization is armed for battle, to espouse the ever-changing face of crisis, to implement the possible changes to our response in case of breakdowns and interruptions over the long term.

II – THE TORONTO MISSION

LEARNING FROM THE SARS CRISIS AND PREPARING FOR THE PANDEMIC FLU
For operators of large networks

October 10-14 2005

Pr William Dab – Patrick Lagadec

I. The mission: background, objectives and implementation

It was Pierre Béroux, Senior Vice President, Corporate Risk Management at EDF, who first introduced the idea of a feedback mission to Toronto on September 27 2005. The mission was carried out jointly by Patrick Lagadec and William Dab.

The idea was inspired by the feedback gained in April 1998 on the ice storm that struck Montreal in January of that year, thanks to a team headed by Jean-Pierre Bourdier. The storm destroyed a large portion of Quebec's electricity network. It proved most useful to be able to get feedback from players that were directly involved in such major events and were thus in a position to provide strategic and operational advice. For instance during the storms that swept through France in December 1999.

This time, the objective was to prepare ourselves for the possibility of a pandemic flu pandemic, and seek out points of reference for the Rapid Response Taskforce that Pierre Béroux was planning to assign to this problem in the very near term. The first seminar bringing together EDF staff involved with the Rapid Response Taskforce project was held early in July 2005, under the leadership of Patrick Lagadec and Xavier Guilhou. An additional step was taken with the mobilization of this team on pandemic risk. Needless to say, an ad hoc team was already working to plan the operational measures that needed to be taken to ensure that the EDF Group was prepared, similarly to the governmental plans and measures in place.

In sum, our purpose for going to Toronto was to meet with those who played key roles in the SARS crisis of 2003, a major precedent in the field of infectious diseases. We also aimed to find out how the insight gained from the SARS crisis was being used to prepare for a possible pandemic flu. While our field of investigation was wide, we did focus more specifically on what actions were being taken by industrial groups responsible for critical infrastructures, and in particular those involved in electricity provision.

We worked in a number of ways to establish the necessary contacts.

Patrick Lagadec had met a top executive in charge of critical infrastructure safety in Stockholm in 2003, and asked that person to help him gain access to the public institution in charge of critical infrastructures. He was ultimately put into contact with the main advisor to the Canadian government on questions of emergency management, Dr Young. The latter not only agreed to meet with Patrick Lagadec, but went much further by proposing that the group in charge of emergency and crisis management for some 20 Ontarian electric companies invite Mr. Lagadec to the meeting they would hold on the afternoon of October 12. Even better, the meeting agenda was modified and the pandemic flu became practically the sole topic of discussion. Patrick Lagadec offered to do a talk to emphasize the spirit of information exchange, and his offer was warmly accepted. Mr. Lagadec and Mr. Young agreed to meet face to face after the meeting, which they did.

Meanwhile, William Dab was seeking contacts in two other areas. First, with the help of Jean-Paul Bouttes, he was trying to establish relations with electric companies, and was able to set up a meeting with the vice president of Power Ontario (on Wednesday the 13th). He spent the morning of the 13th contacting public health authorities, and was notably able to meet with the person in charge of emergency management for the health ministry that afternoon. On the last day (the 14th), meetings were set up with key people in charge of crises and emergency exercises at Power Hydro.

Jean-Pierre Roche, who is in charge of risk and unconventional emergencies with *Aéroports de Paris*, wanted to join the team and add to it by meeting with those that handle emergency and crisis situations for the *Greater Toronto Airports Authority*. This decision was approved on 4 October during a meeting of the ADP emergency planning and analysis group. Through ADP, contact was made with key people working for the Greater Toronto Airports Authority, and a meeting was planned for the morning of the 12th at the organization's crisis center.

Each meeting was an opportunity to exchange information about the different parties' past experiences and work programs. Documents were exchanged, and real interest was established for working together and exchanging best practices as well as views on and approaches to difficult situations.

More documents were sent to us after our return from these onsite visits, giving further testimony to the spirit of cooperation underlying these exchanges. A final contact with Glenn Blaylock, Senior Vice President of Operations at the Royal Bank of Canada, further consolidated the strategic lessons learnt from the mission.

We would like to take this opportunity to thank all of those with whom we met for the warm welcome we were given and all of their most constructive help.

II. A remarkable experience

The Toronto experience had a symbolic dimension given that what we have known for a long time about risk information was reinforced. As we mentioned, Dr Young, the Federal Prime Minister's crisis expert, was part of the group in charge of handling emergency situations for electric companies with which we met. Dr Young was asked numerous questions about pandemic risk and possible treatments, and the experience with SARS. His responses—focused on clarity, responsibility and intelligence—were a model of "simulation" and demonstration.

One might have feared that Dr Young's comments would frighten the audience and cause listeners to lose their confidence, but the opposite occurred. The content of his responses was in fact infinitely less powerful than the attitude of responsibility with which he approached the subject. The ease with which he responded to questions gave listeners a feeling of serenity, confidence and increasing responsibility. To achieve this effect, Dr Young did not at any time try to sound reassuring when there was no good reason to do so. In most cases, excessive efforts to be reassuring are a sign that the speaker himself is "paralyzed". Whatever the elements of language used and in spite of the best efforts to be optimistic, this type of paralysis can only be unconstructive and discrediting. Leaders that are unprepared automatically fall into these pathological behaviors, which go hand in hand with fear.

III. A few key lessons

There were a few causes for concern in the feedback we received in Toronto on the SARS crisis and the future risks of a human pandemic.

- *Surprises*: The person who introduced SARS to Toronto arrived in the country via the US, and not on a direct flight from Hong Kong. He showed no symptoms. On another level, whereas there is often talk of imposing a mandatory quarantine, another solution must also be envisaged: quarantine is not the ideal answer, but individuals, families, groups or even communities can set up "preventive quarantines" and refuse exchanges. Certain Canadian cities actually did shut off access during the pandemic of 1918. In one case, the government ordered the city to host soldiers, and this had grave consequences in terms of disease spread. [2]

- *Using the right references when it comes to making decisions:* When unforeseen situations arise, decision-makers look back to past experiences to find a reference that will serve as a model for what do no or not do. This is a spontaneous attempt to deal with a paralyzing uncertainty. Where the SARS crisis is concerned, the first mistake was for public authorities to follow the same model they use for natural catastrophes. The number of unknowns is rather limited in this type of situation, whereas when an epidemic like SARS is breaking out, a large number of questions remain unanswered. Nevertheless, the medical management of the Sars threat inside OPG shows that with very basic public health principles, it is possible to handle highly uncertain situation.

[2] "Sadly all too often we forget the lessons from the past ", Joseph Scanlon, Professor Emeritus and Director of the Emergency Communications Research Unit at Carleton University, talking to Patrick Lagadec, June 2004.

- *Cumbersome logistics processes and organizational confusion*: When the SARS crisis broke out, the Toronto and Vancouver airports deployed 12 thermal scanners, 11 of which were used, between mid-May and mid-December 2003. In all, 4,569,759 arriving and departing passengers were assessed by the scanners. Of these, 1,435 people were identified as having an elevated temperature (0.031%). None were assessed as having SARS. More worryingly, between the 1st of September and December 10, 2003, the scanners showed that 733 people had an elevated temperature, but after individual testing (oral thermometers), only 49 (6.7%) had a temperature of more than 38°C. After the SARS crisis, the Toronto airport recognized that it needed to expand and increase its stocks of emergency supplies. But it was also complicated for it to ensure the presence of healthcare professional at the airport, to establish contacts between the different players, and to ensure attendance at crisis management meetings.[3]
- *Other challenges*: Business must be kept up with 40% fewer staff. This has not been factored into the business continuity strategies outlined in recent years.
- *Traps*: One case of contamination (at an electric company) was traced back to a retirement party, i.e. a time when people may have been less vigilant.
- *Moving outside reference frameworks*: One underlying principle of crisis teams is that they work together for a limited period of time. What happens if a crisis lasts? Can emergency teams be kept away for several weeks?
- *Destabilization*: Crises are always challenging, but what happens when circumstances become particularly deadly, when everyone feels vulnerable and families are threatened?
- *Major ethical issues*: In any crisis situation, people are faced with tough choices. But where pandemics are concerned, a number of ethical questions that are both contradictory and inextricable are quick to appear. The idea that critical players must be protected first looks good on paper, but may appear less reassuring when those players begin to worry about their family's survival.
- *Organizational challenges*: This ethical question may be compounded by an unfathomable organizational challenge. The idea of "critical staff" becomes increasingly elusive when crisis situations begin to appear lasting and significant. The farther the crisis moves beyond the specific "accident" scenario (i.e. can be handled by highly specialized staff in a short time), the more it appears complex and demands complex and smooth inter-dependency. In this case, the most convenient definition of "critical staff" becomes vaguer.

  Moreover, like many complex organizations, Ontario has not defined a clear distribution of responsibilities. The Province is divided into 36 public health offices that enjoy a certain amount of autonomy, with the health ministry ensuring coordination. The City of Toronto is equipped to respond to epidemic risks and has several public health offices within its jurisdiction. The international airport is under the jurisdiction of the federal government and its health ministry. To make matters worse, hospitals are free to enforce containment or not, and private

[3] Deane Johanis (Manager, Emergency Planning): "SARS 2003 Outbreak – Toronto-Pearson International Airport Case Study Input", Greater Toronto Airports Authority, Toronto-Pearson International Airport, September 23, 2005 (9 pages).

doctors are deeply attached to their independence and tend to resist any attempts by public health officials to intervene in the sector. It is thus not surprising that risk management procedures were very slow getting into place, and that there were significant delays between when decisions were made and acted upon.

- *Discovery of missing links between decision-makers and those in the field*: The reactions of Ontarian doctors furthermore showed that they were not concerned about providing authorities with information, or about being contactable by public health organizations. This type of segmentation becomes particularly detrimental when crises take on greater proportions.
- *Shock at the realization that reference frameworks are absolutely not adapted*: When Ontario's airports adopted the quarantine measures called for, they rapidly saw that the reference texts they were using were based on problems faced in times when things moved slowly, few people were affected, and it was possible to work around uncooperative players.
- *Feeling of emptiness when we notice similar holes in decision-making systems*: The airport system realized that it had a real problem in terms of jurisdiction; provincial authorities were responsible for domestic flights and federal ones for international flights. Moreover, the manpower required in airports was not immediately available, and the staff dispatched had no idea of the strict and highly specific constraints that are so important to airport safety.
- *Insufficient ties between key players*: Some found the positions adopted by the WHO, the international expert in the matter, particularly unhelpful when the crisis was in full swing. Regardless of whether this is true, it should be recalled that in this type of emergency, major players may intervene at any time, and that if lines of communication are insufficient, there may be blockages, misinterpretations followed by withdrawal and unconstructive confrontations.

The Toronto experience was at the same time most positive in terms of experience. All those involved in the SARS crisis emphasized the necessity to mobilize human resources massively.

- *"Link your strategy with your environment"*: All staff must be considered as part of their social environments. Where SARS is concerned, it was necessary to consider, for instance, that airport employees may have had spouses quarantined in a hospital or children whose schools were closed, etc.

- *Giving serious help to those who come to work*: As the research conducted by the Disaster Research Center (E.L. Quarantelli, Delaware, USA) has clearly shown, in a very large majority of cases, people do not spontaneously abandon their operational responsibilities (except when the social environment has already deteriorated sharply). They tend to meet their responsibilities, but with tremendous weight on their minds. It is therefore appropriate to do all that is possible to lighten their load, both at the material and psychological levels. The experience gained in Toronto underpins this assumption. The objectives are to 1) ensure the safety of those who come to do their jobs; and 2) help take care of their personal needs, for instance where childcare is concerned (closure of schools and day-care centers), or when they are assisting sick family members or friends or are commuting when public transport systems are not fully operational, etc.

It is worth mentioning here the set of procedures that have been developed by the OPG staff. Quarantine directive, including self quarantine protocol, instructions given to the occupational health nurses and physicians, absenteeism management, daily reporting procedures, health education and communication, management of work refusals related to Sars were produced within short delays but in a very formalized and operational approach indicating a strong link between the health and the management sectors inside the Company.
These actions were taken as a consequence of an explicit strategy whose goals were :
1. To maintain and ensure the health and safety of their employees and to continue to work in a safe workplace setting.
2. To continue with business critical functions while providing the people of Ontario with the essential service of generating electricity.
3. To ensure that OPG complied with our legal and legislative requirements.
4. To educate and communicate effectively on Sars emerging issue.

- *Positive visions*: Along these same lines of mutual support and trust, it is infinitely more appropriate to help an employee by saying: "If you have a temperature, the most responsible and efficient thing to do, professionally speaking, is to stay home. That way you avoid spreading your germs to everyone at work and during transport, and you will get better faster. Moreover (where the human pandemic flu is concerned), once you do get better, you will be an invaluable resource since you will be immunized". Here again, we must not assume there will be massive absenteeism. And there is even a good chance that the challenge will be the exact opposite, i.e. that everyone will want to come to work in spite of feverishness that would justify their staying home.

- *Other as-yet unidentified players*: Where the pandemic flu is concerned, those that "recover" and are thus immunized deserve special consideration, as do victims of social exclusion, as we witnessed in New Orleans.

IV. A few operational recommendations

If we had to summarize the operational policy to be followed in as few words as possible, we could select three points of emphasis:

1. Before elaborating complex plans, we should bear in mind that in the event of a pandemic, the bulk of the measures required will undoubtedly be quite basic and simple, like hand-washing. The use of scientific data is necessary if we are to limit the panic potential, but it should not be presented in an all-inclusive or authoritarian manner.

2. Lines of action must also be drawn up to ensure business continuity. This is a prime motivator for companies when it comes to risk management.

3. Concrete strategies must be included within the broader plan. In any organization, when faced with danger, people will be in favor of action, and in some cases activism. These instincts should not be censured, but rather taken in hand. Moreover, we would reiterate that while action may be a good antidote to paralyzing anxiety, it must go

hand in hand with strategic planning, the only recipe for mastering events rather than being a slave to them.

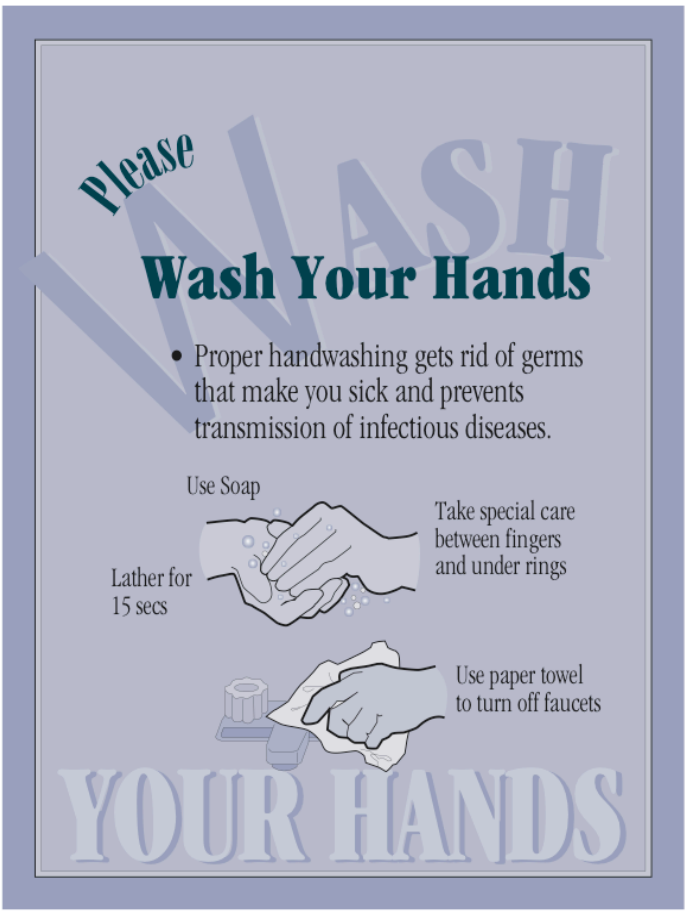
We elaborate more on these three lines of action in the pages that follow.

1. Basic measures

Power Ontario attached particular importance to posting information on quite basic hygiene.

Indeed, it would be a mistake to base preventive action on purely technical means: medicine, vaccines, masks, etc. The risk of infection arises from behaviors, and these ought to be analyzed just as closely as pharmaceuticals. In order to convince people to change their behavior in ways that are conducive to health, it is important to think in terms of: "dosing" information, the undesirable effects of "communication", how to spread message of prevention, the "metabolizing" of information cells, targets, etc. Hand hygiene is one of the most effective ways of preventing contagion, and yet one of the most complex to ensure. Simply reminding people to wash their hands just doesn't suffice. Veritable strategies are needed.

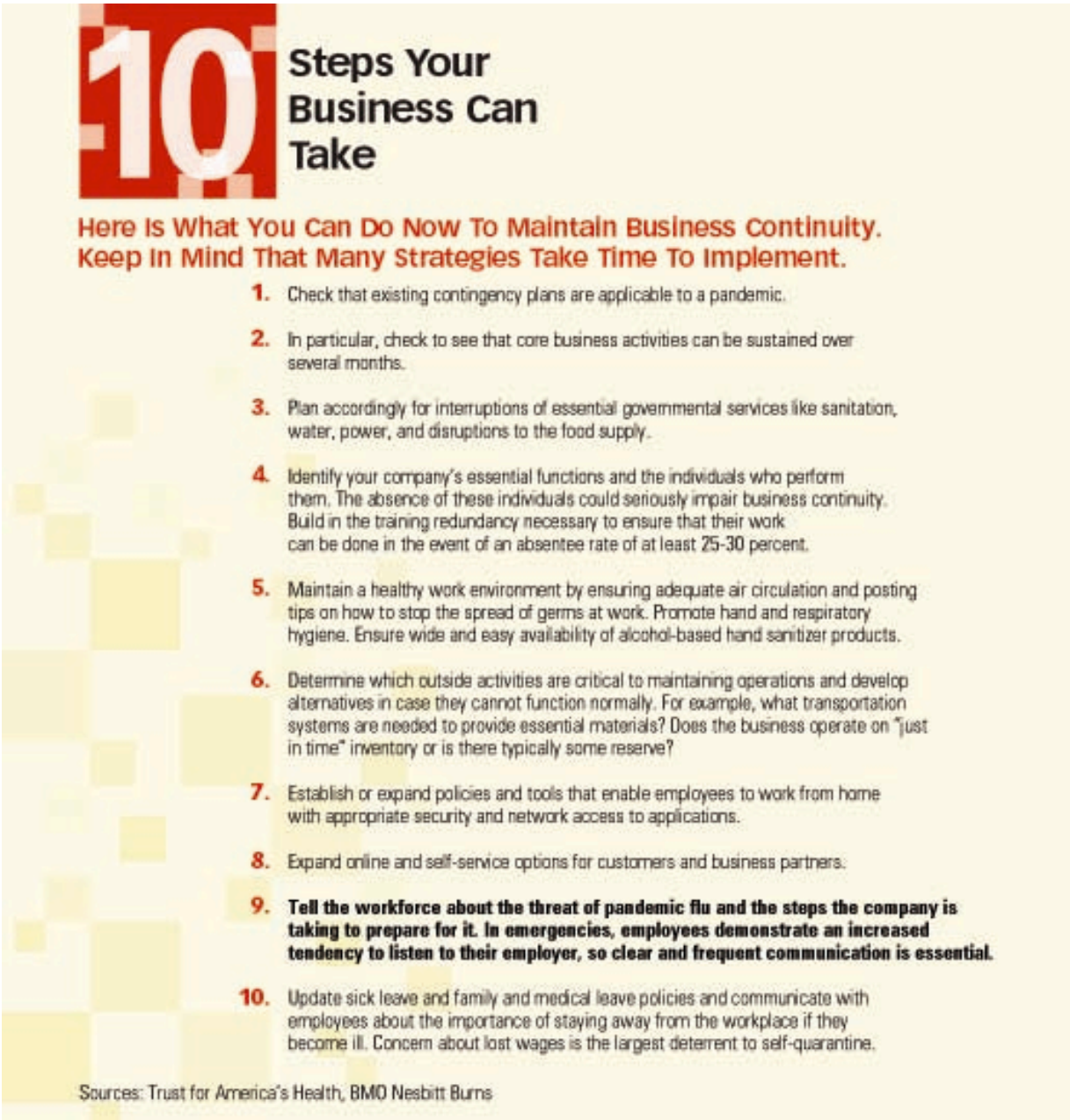
Moreover, our discussions revealed that quarantine would not be a viable option in the case of pandemic flu. Mainly because the flu is contagious before the first symptoms appear, which was not the case with SARS. The Ontario experience gives an indication of the kind of questions that arise when this type of measure is adopted: what to do with those who refuse to adhere to the rule of isolation? What about those who spontaneously, but needlessly, quarantine themselves? How to set up a center to manage the quarantined? How to ensure that the everyday needs of people thus isolated are satisfied? How to avoid the "prisoner" syndrome, etc.?



Poster produced by OPG
as part of the procedures to limit the potential of contagion of infectious diseases.

1. Business Continuity

In the second version of a document that made a strong impression when it came out early August 2005 – an alert sounded by a major financial player and banker – Sherry Cooper lists the basics that should be taken into consideration by any private company[4].



10 Steps Your Business Can Take

Here Is What You Can Do Now To Maintain Business Continuity. Keep In Mind That Many Strategies Take Time To Implement.

1. Check that existing contingency plans are applicable to a pandemic.
2. In particular, check to see that core business activities can be sustained over several months.
3. Plan accordingly for interruptions of essential governmental services like sanitation, water, power, and disruptions to the food supply.
4. Identify your company's essential functions and the individuals who perform them. The absence of these individuals could seriously impair business continuity. Build in the training redundancy necessary to ensure that their work can be done in the event of an absentee rate of at least 25-30 percent.
5. Maintain a healthy work environment by ensuring adequate air circulation and posting tips on how to stop the spread of germs at work. Promote hand and respiratory hygiene. Ensure wide and easy availability of alcohol-based hand sanitizer products.
6. Determine which outside activities are critical to maintaining operations and develop alternatives in case they cannot function normally. For example, what transportation systems are needed to provide essential materials? Does the business operate on "just in time" inventory or is there typically some reserve?
7. Establish or expand policies and tools that enable employees to work from home with appropriate security and network access to applications.
8. Expand online and self-service options for customers and business partners.
9. **Tell the workforce about the threat of pandemic flu and the steps the company is taking to prepare for it. In emergencies, employees demonstrate an increased tendency to listen to their employer, so clear and frequent communication is essential.**
10. Update sick leave and family and medical leave policies and communicate with employees about the importance of staying away from the workplace if they become ill. Concern about lost wages is the largest deterrent to self-quarantine.

Sources: Trust for America's Health, BMO Nesbitt Burns

[4] Dr Sherry Cooper: Don't fear fear, or Panic Panic – an economist's view of pandemic flu, BMO Nesbitt Burns, Tuesday October 11, 2005, 26 pages (p. 19).

2. A few highly concrete measures

The Emergency Preparedness Task Force put into place by Ontario's electricity operators was examining recommendations on the topic of "Infectious Agent Preparedness and Response" on the day of our meeting in Toronto on 12 October. The recommendations had been prepared by Hydro One and Ontario Power Generation.

They can be summed up as follows:

a. Maintain awareness and Communicate
- Company Doctors: monitor 3 times per week official web sites
- Initiate a meeting with your local Public Health Unit
- Identify critical functions and pre-screen critical staff to ensure their willingness to receive vaccine
- Involve human resources staff and establish mechanisms
- Communicate early, such as maintaining 1 meter between people,
- Provide staff and decision-makers with the most up-to-date information

b. Develop Plans
- Conditions for the recognition of an incident or threat and appropriate response levels
- Roles and responsibilities
- Local Public Health contacts
- Internal contacts for notification
- List of critical staff
- Plans to have a number of staff work from their home
- Should include support and assistance from Human Resources staff to employee's family
- Independent locations to preserve clean sites
- Consider the need to send home non-critical staff
- Consider the need and conditions for more extreme measures such as sequestering staff

c. Develop Policies
- Staff Travel Policy
- Meetings Policy
- Visitors Policy
- Personal protection techniques such as hand washing posters in all common areas
- Confidentiality Policy: involving your human resources staff covering permission to release names of staff that have been exposed, to allow effective tracking

d. Testing
- Periodically test and verify your preparedness plans and procedures via simulation exercises, tabletop exercises.

e. Equipment and Facilities
- Contract with a company that will clean computers, common areas
- Provide each station with a disinfecting agent in a spray bottle, gloves
- Purchase protective equipment
- Stock up water, food
- If appropriate, isolate the building
- Close non-critical common areas, such as exercise room, cafeteria

f. Response Actions
- Advise the employee to contact Public Health and the Company Doctor
- Screening to identify whether employees are a potential risk

Our exchanges pointed to two other important issues:
- This type of event has medium term consequences on health that must not be overlooked. Some evoked a "post-traumatic SARS disorder" to illustrate how a threat of this kind may provoke stress that will leave a lasting trace that must in turn be treated.
- The capacity for creating links between sectors is one key to success. Toronto was able to get SARS under control once there was a legitimate decision-making body able to make itself heard by all levels of players. Civil society is unaccustomed to functioning in a quasi military mode.

UPDATE

The North American Electric Reliability Council[5] has just released (January 2006) an updated version of these practical guidelines under the title

Electricity Sector,
Influenza Pandemic
Planning, Preparation, and Response Reference Guide.

http://www.nerc.com/~filez/cipfiles.html

Here are the main operational points[6]:

[5] North American Electric Reliability Council *Electricity Sector, Influenza Pandemic – Planning, Preparation, and Response Reference Guide*, Princeton Forrestal Village Boulevard, Princeton, New Jersey, 08540-5731 http://www.nerc.com/~filez/cipfiles.html

[6] We would like to thank Brindley Stuart for his rapid sharing of this important piece of documentation.

Key Planning Actions by Function

The following table is intended to be used by electricity sector entities to provide an overview of key actions, assigned responsibilities, and expected completion date.

	Key Actions	Phase	Responsibilities	Due Date
A.	**Maintain Awareness and Communicate**			
1	Medical resource should monitor for health threats via official bulletins or web sites.	All		
2.	Provide employees, labor organizations, staff, and decision makers with the most up-to-date information available by documenting specific characteristics of the contagion, such as the following:			
a.	Mechanism(s), speed, and ease of transmission by which the contagion is spread, and mode(s) of transmission, such as touch, airborne, etc.	All		
b.	Time the contagion remains active on surfaces, such as door handles.	All		
c.	Incubation period, time to exhibit symptoms, and maximum contagious period.	All		
d.	Expectations of employees, supervisors, and managers to help reduce the risk of spreading the disease.	All		
3.	Initiate a business continuity planning process to establish accountabilities, and identify the criticality of operations including mutual inter-dependencies, the loss of which would have a direct and serious detrimental impact on the public. The occurrence of a severe storm or other electric emergency during a pandemic should be considered.	All		
4.	Identify those functions critical to continued operations, and identify the people needed to fill those positions. Pre-screen critical staff to ensure their willingness to receive an antiviral vaccine given the side effects that may occur. Involve human resources staff as well as established mechanisms such as joint health and safety committees early.	Alert		
5.	Communicate early and regularly to staff, and include recommendations to minimize potential transfer of infectious agents within company facilities, so that these measures can be practiced and internalized.	Alert		
6.	Collaborate with local public health unit on the enumeration of antiviral shot recipients for staff performing critical functions in the event of an influenza pandemic outbreak.	Pre-Pandemic		

B.	Develop Plans			
1.	Develop appropriate five phase response plans and procedures including:			
a.	Initiating conditions for the recognition of the threat and appropriate response levels.	Alert		
b.	Identify critical functions of the organization that must be kept in operation, e.g., control rooms, power plant operations, system switching.	Alert		
c.	Identify functions of the organization that can be suspended, e.g., meter reading [consider resulting need to estimate bills], training, etc.	Alert		
d.	Define the roles and responsibilities of employees, labor organizations, staff, supervisors, managers, and staff medical personnel during a pandemic.	Alert		
e.	Develop an emergency communications plan that includes key contacts, back-ups, medical contacts, communication chains, and processes to track and communicate business and employee status.	Alert		
f.	List(s) of staff critical to basic functionality of the organization.	Alert		
g.	Put in place plans to have an increased number of employees work from their home. Ensure I.T. systems infrastructure can support this action.	Alert		
h.	Plan and procedures should include providing support and assistance from human resources staff to employee families.	Alert		
2.	Consider the need to separate the work force to establish independent locations, and/or preserve a "clean" site.	Alert		
3.	Consider expanding the use of teleconferencing and videoconferencing to limit the frequency of meetings and other types of face-to-face contact.	Alert		
4.	Consider security issues and the limitations law enforcement agencies will face during an influenza pandemic.	Alert		
5	Consider developing joint operational plans with service providers, suppliers and key customers.	Alert		
6	Evaluate potential financial and budget impacts of interrupted operations, reduced revenues as well as unusual supply, material or personnel costs.	Alert		
7	Evaluate potential insurance costs for increased medical costs.	Alert		
8.	Consider the need to send home non-critical staff.	Alert		

9.	Consider the need and conditions for more extreme measures such as sequestering on-site critical staff.	Outbreak		
C.	**Develop Policies**			
1.	Develop/update staff travel policy, including possible provisions for quarantine after returning from an area where an outbreak has occurred. This would apply to work and non-work related travel.	Alert		
2.	Develop/update meetings policy.	Alert		
3.	Develop a visitor's policy including a sign-in process that is to be implemented in the event of an employee health incident or threat.	Alert		
4.	Consult with health authorities to update confidentiality policies to manage staff that potentially has been exposed, to allow effective exposure tracking to be completed.	Alert		
5.	Develop/update telecommuting policy for office staff.	Alert		
6.	Develop/update policies for employee compensation and sick-leave absences unique to a pandemic.	Alert		
7.	Develop/update workforce deployment policies regarding teams and crews working together and the potential need to keep employees separated.	Pre-Pandemic		
D.	**Drills and Exercises**			
1.	Periodically test and verify preparedness plans and procedures via a simulation exercise, tabletop exercise, or process walk through.	Pre-Pandemic		
2.	Test the IT infrastructure to verify its capability to perform under pandemic conditions (more employees working from home, increased teleconferencing, and video conferencing).	Pre-Pandemic		
E.	**Equipment and Facilities**			
1.	Contract with a company that will clean/disinfect computer equipment, common areas, work stations, etc.	Pre-Pandemic		
2.	Provide each workstation with a disinfecting agent in a spray bottle, a package of paper towels, and a package of latex/vinyl gloves.	Pre-Pandemic		

3.	Determine what personal protective equipment will be effective and consider acquiring sufficient quantities (masks, gloves, and gowns). Availability of critical personal protective equipment may approach zero during the onset on an influenza pandemic. Some masks deliver better speech clarity than others. Some masks are designed to protect the person wearing the mask; other masks protect exposure of others from the person wearing the mask.	Pre-Pandemic		
4.	If on-site cafeteria, stock up on water, beverages, and food, especially items that require heating.	Pre-Pandemic		
5.	If appropriate, isolate the building, post signs stating temporary quarantine at all exits, and restrict electronic card access to critical staff.	Disruption		
F.	**Response Actions**			
1.	By Employees			
a.	When an employee has contracted or suspects that they have contracted a virus or have been exposed to a virus, the employee is to seek medical attention and advise his/her supervisor.	Outbreak		
2.	By the Employer when Outbreak Occurs			
a.	Advise the exposed or infected employees to contact their doctor and advise their supervisor.	Outbreak		
b.	Supervisor contacts the company medical or occupational health nurse to follow up on the employees.	Outbreak		
c.	Implement a process such that all employees/visitors to critical facilities are subject to an appropriate screening questionnaire to aid in identifying whether or not they are a potential risk (i.e., have you visited a high risk location in the past week?). Post screening questionnaire(s) at all entrances.	Outbreak		
d.	If appropriate, contract a cleaning service/agency and request the disinfection of the affected employees workstation and shared work areas as well as all shared equipment and facilities (including washrooms, kitchen areas, and meeting rooms). Assess the need for separation of staff.	Outbreak		
e.	Close non-critical common areas, such as exercise room, or even the cafeteria. If the pandemic has resulted in a "lock down" in critical operating functions (control rooms), determine how employees will be accommodated.	Outbreak		

f.	Assess the need to direct staff to maintain an appropriate distance from each other.	Outbreak		
g.	Assess the need for complete separation of staff including the activation of any backup facilities.	Outbreak		
h.	Assess the need to vacate non-critical staff from the site.	Outbreak		
i.	Provide each workstation with a disinfecting agent in a spray bottle, a package of paper towels, and a package of latex/vinyl gloves. Have each shift employee wipe down all equipment and surfaces before and after each shift. Provide each workstation with sanitizing lotion with instructions on use.	Outbreak		
j.	Provide regular communication to all staff of the latest medical advisories and recommend adherence to all actions suggested.	Outbreak		
k.	Provide on-site critical operations staff with personal protective equipment.	Outbreak		
l.	If appropriate, isolate the building, post signs stating temporary quarantine at all exits, and suspend electronic card access.	Outbreak		
m.	Notify all staff on site to leave their full name, employee ID, and after-hours contact number(s), including numbers where they may be potentially be located, such as parents, other family, etc. Instruct all employees when they will be allowed to return to work, i.e., the following business day, not until notified, etc.	Outbreak		
n.	Have visitors provide their home and site/company as well as an after-hours contact number(s) for follow-up.	Outbreak		
3.	By Medical Resource			
a.	Liaise with senior management.	All		
b.	Provide regular communication to all staff on the latest health advisories and recommend adherence to all suggested actions.	All		
c.	Provide regular communication to all staff on any additional pandemic specific requirements or information.	All		
d.	Advise that antibacterial waterless hand cleaner, antibacterial cleansers, and/or wipes will be placed at key communal areas (washrooms, kitchens, workstations).	Pre-Pandemic		
e.	Advise any exposed employee to contact their doctor and to adhere to the advice given.	Outbreak		

f..	Advise any exposed employee to contact their direct supervisor immediately.	Outbreak		
g.	Advise the exposed employee not to return to work until directed to do so by their supervisor and to follow policies in place.	Outbreak		
h.	Request exposed employees to keep supervisors informed of their condition.	Outbreak through recovery		

Additional Information

Http://pandemicflu.gov — U.S. Government Site
http://www.who.int/topics/influenza/en/ — World Health Organization Site
http://www.phac-aspc.gc.ca/influenza — Public Health Agency of Canada
http://www.cdc.gov/flu/avian/index.htm — Center for Disease Control Site
http://www.pandemicflu.gov/plan/businesschecklist.html — DHS site (U.S.)

3. The delicate issue of ethics

Source: Peter Singer, Ethics and SARS: Learning Lessons Front the Toronto Experience, A report by a working group of the University of Toronto Joint Centre for Bioethics, Toronto. Not dated. http://www.yorku.ca/igreene/sars.html

Executive summary
To respond to future health crises involving highly contagious diseases, an ethical framework is required. In this report, we develop such a framework based on five major ethical issues where SARS forced people, particularly those in the public health system, to make difficult ethical choices, and we identify 10 associated key ethical values.

Ten key ethical values

- Individual liberty
- Privacy
- Protection of the public from harm
- Protection of communities from undue stigmatization
- Proportionality
- Duty to provide care
- Reciprocity
- Equity
- Transparency
- Solidarity

The five major ethical issues are:

a. When public health trumps civil liberties: the ethics of quarantine

There are times when the interests of protecting public health override some individual rights, such as freedom of movement. At such times, society has a duty to inform people of the nature of the threat, be open in explaining the reasons for over-riding individual freedoms and do as much as possible to assist those whose rights are being infringed.

b. Naming names, naming communities: privacy of personal information and public need to know

While the individual has a right to privacy, the state may temporarily suspend this privacy right in case of serious public health risks, when revealing private medical information would help protect public health. As a general rule, the privacy and confidentiality of individuals should be protected unless a well-defined public health goal can be achieved by the release of this information.

c. Health care workers' duty to care and the duty of institutions to support them

Health care professionals have a duty to care for the sick. During infectious epidemics this must be done in a way that minimizes the possibility of their transmitting diseases to the uninfected. Institutions have a reciprocal duty to support and protect health care workers to help them cope with very stressful situations, and recognize their contributions.

d. Collateral damage: other victims of SARS

Severe restrictions on entry to SARS-affected hospitals meant that many people were denied

medical care, sometimes for severe illnesses. As a result, patients in hospital, with or without SARS, and their families suffered from lack of contact due to the elimination of visits for a period of time. It is essential to maintain an equitable balance among the interests of those patients with or at risk of SARS, and those who are sick with other diseases, and need urgent treatment.

e. SARS in a globalized world

SARS is a wakeup call about global interdependence, and the increasing risk of the emergence and rapid spread of infectious diseases. There is a need to strengthen the global health system to cope with infectious diseases in the interests of all, including those in the richer and poorer nations. This will require global solidarity and cooperation in the interest of everyone's health.

	1. Civil liberties and quarantine	2. Naming names and the right to privacy	3. Duty to care	4. Collateral damage	5. Global concerns
Individual Liberty	Individual rights can be overridden for common good. Must be ethical, even-handed so no one is unfairly harmed.				
Public Protection	Authorities have duty to restrict certain rights to safeguard public health. Citizens must comply for common good.	Protection of public health may limit individual right to privacy and confidentiality of health information.			
Proportionality	Restrictions of liberty must be legitimate and necessary, exercised by people with authority using least restrictive methods available.	Health officials releasing confidential information must be able to argue that protection of the public health could not be achieved by less intrusive measures.			
Reciproity	Those quarantined receive adequate care, should not be kept in quarantine for excessively long periods, abandoned or psychologically isolated. Economic barriers, such as loss of income, may have to be eliminated.		Society and institutions have a reciprocal duty to assist health care professionals, providing information so staff can understand risks, and having policies that support safety practices.		

Transparency	All stakeholders to be properly informed about issues, including risks and benefits of various options, and have input on issues that affect them.	Honest reporting about an emerging epidemic and the numbers of people affected should not violate an individual's right to privacy of medical information.			
Privacy		Individuals have a right to privacy but this is not absolute. Harms of releasing information must be balanced against benefits of reducing health risk.			
Protection Against Stigmatization		Caution should be taken not to unduly stigmatize communities through the release of information.			
Duty to Provide Care			Health professionals have a duty to care based on several ethical considerations, such as "virtue ethics" which means being of good character.		

Equity				In an emergency, authorities face hard choices about which services to maintain and which to place on hold. People want these decisions to be made in a fair manner, including appropriate access to limited resources. There needs to be equity between SARS and non-SARS patients.	
Solidarity					A new global health ethic based on solidarity could help make a more stable world. Solidarity means feeling one has common cause with others who are less powerful, wealthy, or healthy.