Managing the Business Risk of a Pandemic: Lessons from the past and a checklist for the future

June 2006

Discussion Paper 2:

A risk management paper that discusses lessons from previous disasters in order for businesses to fully consider, assess and review tools and strategies for preparing, managing and recovering from the impact of a pandemic.

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Table of Contents

Figures

Tables

Executive Summary

Those who cannot remember the past are condemned to repeat it.

George Santayana (1863 - 1952), The Life of Reason, Volume 1, 1905

Disasters happen. Some result in a significant loss of life – on 9/11[1], 2749 people died in 102 minutes. Others initially cause fewer deaths, but become significant over time, as with Chernobyl, where approximately 4000 people died over 20 years.[2]

Jim Dwyer and Kevin Flynn, in their recent book on 9/11, note that '*at least 1500 people in the trade centre…survived the initial crashes but died because they were unable to escape from their floors or elevators while the buildings stood. These people were not killed by the planes alone any more than passengers on the Titanic were killed by the iceberg*.'[3]

Future generations will not judge us on the fact that a virus mutates, but on our success (or failure) at planning and managing the effects of a mutated virus. Surviving is all about preparation, knowing what to do and being determined to survive.

This paper reviews some lessons from history that may be useful. A careful study of 9/11, Chernobyl and other disasters reveal effective management strategies for the eventuality of a pandemic.

Although we may not be able to prevent a disaster occurring, we may be able to manage the magnitude of the outcome. Unlike natural or technical disasters, where any disruption to business service provision is likely to be hardware-related, disruption to business operation in the event of a pandemic is anticipated to be mainly human-resource oriented in the first instance. The New Zealand Ministry of Health advises that:

Businesses should plan for up to 50% staff absences for periods of about two weeks at the height of a severe pandemic wave, and lower levels of staff absence for a few weeks either side of the peak. Overall a pandemic wave may last about 8 weeks. Note that the pandemic may come in waves of varying severity over time.[4]

Although organisations should plan for 50% staff absences, that is only one scenario. The objective of this paper is to address how organisations can strive to deliver critical products and services to the community they operate within, while protecting staff, families and owners from the secondary effects of a pandemic. For some organisations, this may mean pre-planned staff absences of 20-100%. The Ministry of Economic

[1] *102 Minutes, The untold story of the fight to survive inside the Twin Towers*, Jim Dwyer and Kevin Flynn, Arrow Books, 2005
[2] *Voices from Chernobyl: The Oral history of a Nuclear Disaster*, Picador, 2005, i and xiii
[3] *102 Minutes, The untold story of the fight to survive inside the Twin Towers*, Jim Dwyer and Kevin Flynn, Arrow Books, 2005, page xxiii.
[4] www.moh.govt.nz/pandemicinfluenza#1 *Influenza Pandemic Planning, Business Continuity Planning Guide*, October 2005 – Pages 7-8

Development Business Continuity Planning Guide (October 2005)[5] is an excellent guide and this paper attempts to build on its findings and guidance.

The *first part* of this paper discusses some of the underlying lessons to be learnt when risk management fails. Most successful boards and management teams are aware of the weaknesses in their systems and endeavour to prioritise cost-effective solutions, but some organisations and/or governments (local and/or central) choose to deny a problem exists with serious consequences.

Organisations need to face these weaknesses head on and find solutions so that they are prepared for a pandemic. Organisations need to be aware of how interconnected and reliant they are on external parties, like contractors, suppliers, infrastructure providers, couriers and imports. Hence the *second part* of this paper looks at risk management from a New Zealand perspective. Have we made use of effective risk-management strategies in the past?

The *third* part of the paper considers the dynamics of a pandemic marketplace and under this scenario, identifies New Zealand's underlying strengths and weaknesses.

Lastly, the *fourth* part poses a set of questions for organisations to answer so that they can assess and manage the financial effects of a pandemic. The check list is generic, rather than specific to any industry. Space has been provided for users to add further questions.

This discussion paper was based on a paper initially prepared for the Conferenz *Bird Flu Pandemic - Business Continuity and Planning Update Conference* in Auckland and Wellington on 24 and 31 May, titled '*Predicting and Planning for the Financial Impact on your Business'.* The following paper has been expanded and updated to reflect the additional knowledge gained from discussions with presenters and participants at the conference. Special acknowledgement must be made to the conference organiser Kevin Smit and the Chair; David Lumley, Chief Advisor, Strategic Management, Ministry of Economic Development.

[5] http://www.med.govt.nz/templates/MultipageDocumentTOC____14455.aspx

Part One: International Lessons

This section considers five previous disasters in order to examine what can be learned from the past. Importantly, the magnitude of a disaster is often pre-determined many months or even years before the actual trigger occurs. Unfortunately, it is quite common for management to be aware of potential weaknesses in a system or in an asset but for reasons of uncertainty, cost, inconvenience or being seen to be paranoid, the risk although identified, is not managed. Risk management is a tool for identifying and proactively managing risks in advance in order to reduce the likelihood and magnitude of disasters; however the best starting point is to learn from the past.

A lesson from Chernobyl 1986

In a recent book on Chernobyl[6], Svetlana Alexievich notes;

The literature on the subject is pretty unanimous in its opinion that the Soviet system had taken a poorly designed reactor and then staffed it with a group of incompetents. It then proceeded…to lie about the disaster in the most criminal way. In the crucial first ten days, when the reactor core was burning and releasing a steady stream of highly radioactive material into the surrounding area, the authorities repeatedly claimed that the situation was under control.
[*The widow of a man who was part of the clean-up crew states:] "If I'd had known he'd get sick I'd have closed the doors …I'd have stood in the doorway. I'd have locked the doors with all the locks we had." But no one knew.*[7]]

Lesson: Organisations and individuals are reliant on a robust central and local government working in partnership.

Lessons from the Twin Towers 2001

The World Trade Center was opened in 1973. It was first attacked by terrorists on 26 February 1993. Many organisations in the two towers in 2001 had been in the building in 1993, and some, like Fuji Bank, proceeded to clip to the back of every chair an emergency kit filled with tools to help in evacuation – a glow stick, a breathing hood, and a flash light.

Unfortunately, the fundamental communication, co-ordination and command failures identified in 1993 were not rectified. In addition, evacuation policies assumed the towers were sturdy and fire-resistant whereas in reality debates about fire safety began before the towers were built and although some actions were taken once the towers were built, the adequacy of the new fireproofing for the trusses was not tested (Federal Investigation 2003[8]).

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[6] *Voices from Chernobyl: The Oral history of a Nuclear Disaster*, Picador, 2005
[7] *Voices from Chernobyl: The Oral history of a Nuclear Disaster*, Picador, 2005, xi
[8] *102 Minutes, The untold story of the fight to survive inside the Twin Towers,* Jim Dwyer and Kevin Flynn, Arrow Books, 2005, page 69.

In reality, anyone able to walk down stairs could have evacuated the South Tower (they had 57 minutes from initial impact) and anyone below the floors of impact in the North Tower could have evacuated (they had 29 minutes once the South Tower had collapsed). In practice, communication, co-ordination and command practices were at fault. Refer Figures 1 and 2.

In a recent book on 9/11[9], Dwyer and Flynn note;

Perhaps more important than the drills, or the mechanics of stairwells, or the emergency kits, was the corporate culture of the [Fuji Bank 80th Floor South Tower] bank, which also operated in Tokyo, Hong Kong, and London. In 1996,… the Provisional Irish Republic Army set off a colossal bomb at the Canary Wharf development in the City of London. After that, one of the bank's leaders sent out a memo to make its policy clear. The bank's assets, the memo said, were its people – more valuable than any reports that were being written, more important than tickets for trades that were outstanding, more vital than any project that would be disrupted. In an emergency, they were to drop their work and go.

Not less than a minute [8.47] after some vague but plainly serious problem had struck the North Tower, bank managers were ordering people out of its South Tower offices….hardly anyone from the bank remembered to bring along the kit.

Lesson: Develop a clear policy on priorities in an emergency.

Having a clear policy did get employees to the bottom of the tower very quickly, but once there….

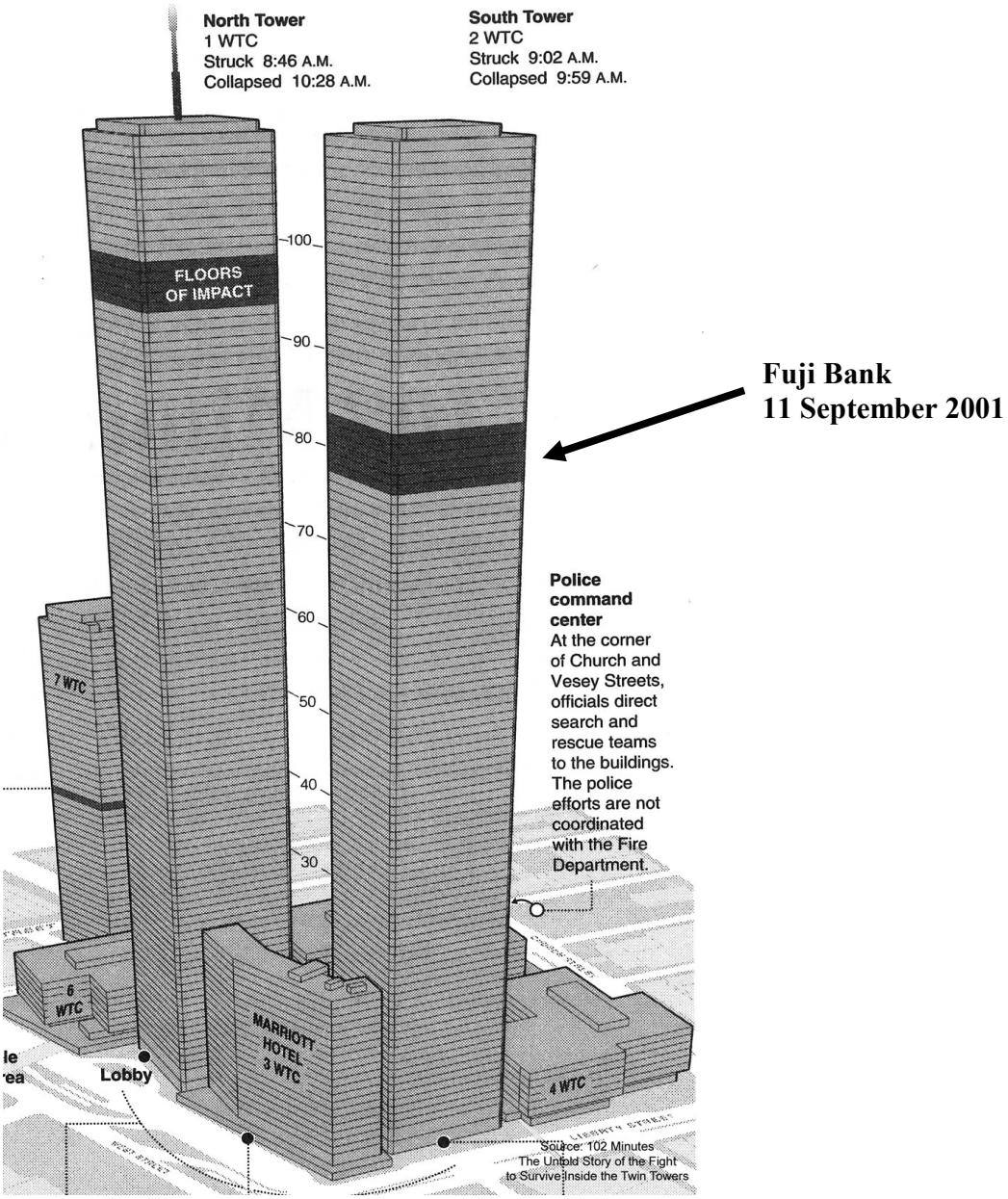
Thanks to all those drills, a group from Fuji/Mizuhu offices on the 80th and 81st floors had made it to the lobby of the South Tower nearly as fast as anyone in that building…As they approached the security turnstiles in the South Tower, a guard waylaid them.
'Where're you guys going' the guard asked.
'We saw fireballs coming down.' Stanley Praimnath said.
'No, No' the guard said. 'All is well here. You can go back to your office. This building is secure.'

For most of the group from the Japanese bank, the authoritative voice of the guard reversed the momentum of the drills that had brought them down so quickly to the lobby. The same dutiful, responsive approach to emergencies was simply being flipped around. The group turned to go upstairs as fast as they had come down.[10]'

Lesson: Continually reassess the safest option.

[9] *102 Minutes, The untold story of the fight to survive inside the Twin Towers,* Jim Dwyer and Kevin Flynn, Arrow Books, 2005, page 29.
[10] *102 Minutes, The untold story of the fight to survive inside the Twin Towers*, Jim Dwyer and Kevin Flynn, Arrow Books, 2005, page 64

Figure 1: The Twin Towers[11]



At 9:02:59 the United Airline Flight 175 plunged through the South Tower, through floors 77-85[12]. Unlike most others, *Stanley Praimnath* found the stairwell[13] and survived.

Lesson: Persevere with seeking a safe option. Do not give up.

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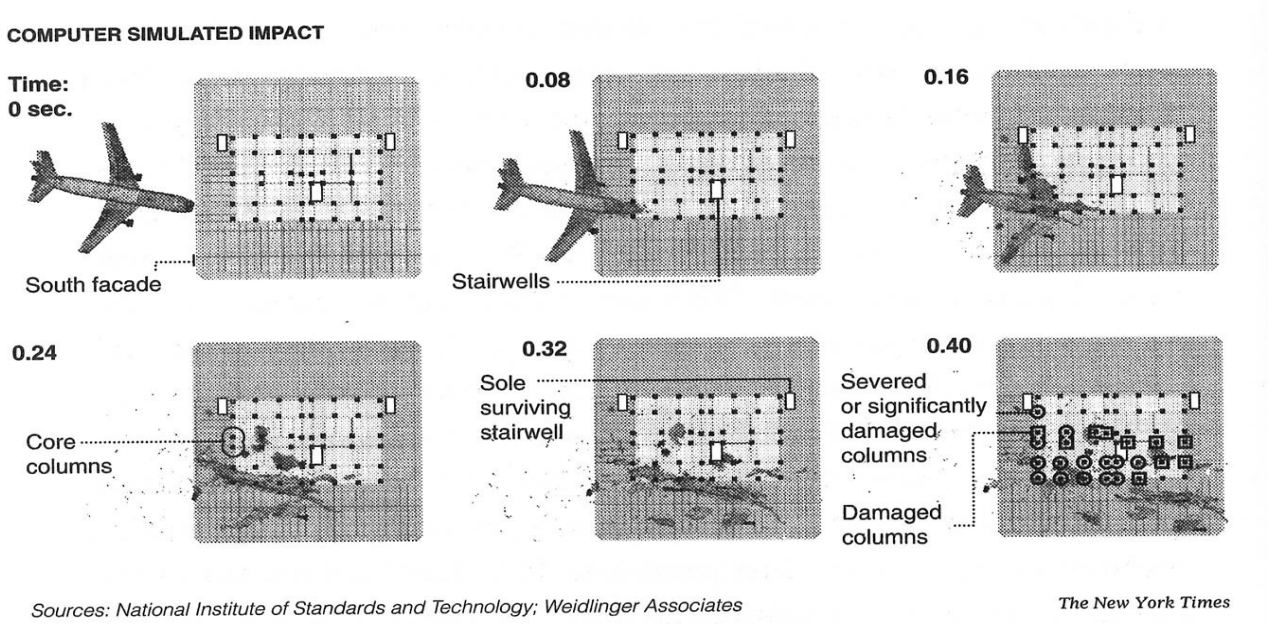
[11] *102 Minutes, The untold story of the fight to survive inside the Twin Towers*, Jim Dwyer and Kevin Flynn, Arrow Books, 2005, Page 1.
[12] *102 Minutes, The untold story of the fight to survive inside the Twin Towers*, Jim Dwyer and Kevin Flynn, Arrow Books, 2005, page 93
[13] *102 Minutes, The untold story of the fight to survive inside the Twin Towers*, Jim Dwyer and Kevin Flynn, Arrow Books, 2005, page 202

*Those who took the open stairway did not realise it was the only way out. Collecting this information did not seem to be anyone's job. And even if the intelligence had been gathered, the building's public address system apparently had been knocked out by the impact of the plane. The people on the upper floors…dialled the city's 911 operators…[*who*] did not know about the open stairway and advised people to stay put. The city's 911 operation had been in turmoil since the early 1990's, when the city began plans to overhaul it....So poor was the co-ordination with other emergency agencies that fire dispatchers actually had to dial back into 911 themselves in order to reach police dispatchers. And so the people inside the South Tower remained unaware of the open staircase.*[14]

Lesson: Investment in a reliable communication system that ensures quality communication between employees, contractors and management is essential.

Figure 2: The Sole Surviving Stairwell in the South Tower[15]



Few of the people inside the North Tower, even those that had heard the evacuation orders, knew that the other building had collapsed. Virtually none of them – apart from some police officers and those they encountered – realised that helicopter pilots were predicting the imminent failure of the one they were in. For no good reason, fire-fighters were cut off from critical information. This was as much a matter of long and bad habit as it was of extreme circumstance.[16]

Lesson: Ensure key personnel can and will communicate.

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[14] 102 *Minutes, The untold story of the fight to survive inside the Twin Towers*, Jim Dwyer and Kevin Flynn, Arrow Books, 2005, page 202

[15] *102 Minutes, The untold story of the fight to survive inside the Twin Towers*, Jim Dwyer and Kevin Flynn, Arrow Books, 2005, page 94

[16] *102 Minutes, The untold story of the fight to survive inside the Twin Towers*, Jim Dwyer and Kevin Flynn, Arrow Books, 2005, page 250

Sandler O'Neill's office, 104th floor, South Tower;

The company had no special plan for an emergency, other than trying to use common sense. So the employees turned to Sandler – a man prized for his counsel, who made a fortune by listening and then offering advice that seemed to make solid-gold sense. He told an investment banker that he thought the safest place to be was right in the office...The bond traders and most of the people working on the equity desk remained[17] [and did not survive].

Lesson: Organisation leaders continue to be seen as 'leaders' even when the situation has significantly changed.

And after the disaster, a Press Release from the *Federal Reserve Bank,* dated September 17, 2001, stated;

The Federal Open Market Committee decided today to lower its target for the federal funds rate by 50 basis points to 3 percent. In a related action, the Board of Governors approved a 50 basis point reduction in the discount rate to 2-1/2 percent. The Federal Reserve will continue to supply unusually large volumes of liquidity to the financial markets, as needed, until more normal market functioning is restored. As a consequence, the FOMC recognizes that the actual federal funds rate may be below its target on occasion in these unusual circumstances.[18]

Lesson: Banks have a critical role in managing the economic recovery once a disaster occurs.

Lessons from SARS 2003

Air New Zealand had an unexpected downturn in revenue of 11%[19] while cities with SARS were transformed by the SARS outbreak. Sherry Cooper[20] from Toronto explains:

During its four-month run in Toronto, ending in June, SARS killed fewer than 50 people. Even China and Hong Kong, the two places hardest hit by the virus, suffered 'only' 648 deaths in total. On April 23, the WHO sent out a warning against all unnecessary travel to Toronto, Beijing, and China's Shanxi province. Travel to and from Toronto plummeted overnight. Overall SARS cost the city's hotel industry more than Can$125 million; more generally, the tourism industry in the province of Ontario lost more than Can$2 billion in income and jobs.

Lesson: Impacts can be immediate and expensive.

[17] *102 Minutes, The untold story of the fight to survive inside the Twin Towers*, Jim Dwyer and Kevin Flynn, Arrow Books, 2005, page 30
[18] www.federalreserve.gov/boarddocs/press/general/2001/20010917/default.htm
[19] Conferenz Bird Flu Pandemic-Business Continuity and Planning Update Conference in Wellington on the 31 May titled: Air New Zealand preparing for the perfect storm.
[20] Harvard Business Review On-Line May 2006 Test Case: A Preview of Disruption.

A 2003 WHO report[21] states:

Around the world, the SARS experience has shown – once again – the power of a poorly understood new infectious disease to incite widespread public anxiety. As many observers have noted, this fear of SARS has spread faster than the virus, causing great social unease, economic losses, and some political changes. Unwarranted discrimination has been another unfortunate problem. In such cases, clear, factual, and reassuring messages need to be issued by trusted authorities. Panic is fuelled when information is concealed or only partially disclosed. On the whole, however, and particularly as the outbreaks have matured, the transparency of national reporting has been exemplary – even when the economic consequences of doing so were known to be significant.

Lesson: Panic is fuelled when information is concealed

Robert Kent's (Manager Corporate Contingency Planning, Cathay Pacific Airways, Hong Kong) paper for the 24 May Conference[22] noted nine lessons learnt. Below are three generic observations.

Lesson: Departments with Business Continuity Plans responded better than departments without formal plans.

Lesson: Mass (public) media was much faster than information distribution within the organisation.

Lesson: Splitting groups into two working groups [to prevent contamination] was universally disliked by managers …[it] was time consuming, unproductive and difficult to manage.

Lessons from the London Bombings 2005

The June 2006 'Report of the 7 July Review Committee' into the management of the London Bombings, again tested the risk management skills of a city. The report is wide ranging and articulate. It contains 54 recommendations; many of the lessons are generic in nature and can be applied to preparing, managing and recovering from a pandemic.

[21] WHO: Severe acute respiratory syndrome (SARS): Status of the outbreak and lessons for the immediate future *Unmasking a new disease Geneva, 20 May 2003,* Page 8

[22] Conferenz Bird Flu Pandemic Business Continuity and Planning Update Conference in Auckland on the 24th May titled International Case Study: Outwit, Outplay, Outlast: Survivors of the 21st Century pandemic threat.

The Chair's Foreword stated:

If the one achievement of the Assembly's 7 July Review is to add an outward focus to emergency planning - to underscore the fact that responders are dealing with individuals not an 'incident', and that all services must work together for the public good - then we will have contributed to the protection of London, its residents and visitors.[23]

Lesson: Keep an outward focus by taking a strategic view of the big picture.
Lesson: Focus on working together for the public good.

The Findings of the Report include:

There is an overarching, fundamental lesson to be learnt from the response to the 7 July attacks, which underpins most of our findings and recommendations. The response on 7 July demonstrated that there is a lack of consideration of the individuals caught up in major or catastrophic incidents. Procedures tend to focus too much on incidents, rather than on individuals, and on processes rather than people. Emergency plans tend to cater for the needs of the emergency and other responding services, rather than explicitly addressing the needs and priorities of the people involved. We argue in this report that London's emergency plans should be re-cast from the point of view of people involved in a major or catastrophic incident, rather than focusing primarily on the point of view of each emergency service. A change of mindset is needed to bring about the necessary shift in focus, from incidents to individuals, and from processes to people.[24]

Lesson: Focus on individuals not incidents, people not processes.

It is inevitable that, in the event of a major incident, the use of mobile phones will massively increase by people trying to track down their friends and family. This surge can be managed to some extent by the telephone operating companies using technical fixes, …but… *Demand could be managed by asking the public to restrict their use of mobile phones*[25]*.*

Lesson: Manage surge in demand for mobile, land phones and web site access.

Clearly, there is a balance to be struck when engaging with the media, and it is important to clarify the basis for any engagement in emergency planning. But there is a clear public interest to be served by involving the media as fully as possible in emergency planning processes and exercises. We recommend that future resilience exercises include senior representatives from the media as participants rather than simply as observers.[26]

Lesson: Work with the Media

A Senior Metropolitan Police Service officer should take the primary responsibility of providing accurate, timely advice and information to the public throughout the day. In a major emergency, a tension inevitably arises between the desire of the media to obtain information as quickly as possible and the need for the emergency services to establish

[23] Report of the 7 July Review Committee, www.london.gov.uk/assembly/reports/general.jsp
[24] Report of the 7 July Review Committee, Page 124, www.london.gov.uk/assembly/reports/general.jsp
[25] Report of the 7 July Review Committee, Page 136, www.london.gov.uk/assembly/reports/general.jsp
[26] Report of the 7 July Review Committee, Page 134, www.london.gov.uk/assembly/reports/general.jsp

all the facts before making public announcements. When this balance does not work it results in a loss of credibility on the part of the emergency services, who begin to be seen as unnecessarily secretive. On 7 July, in the first two hours following the explosions on the Tube, there was a clear gap between what was known by the media and what the Police were prepared to confirm publicly.[27]

The Metropolitan Police Service is the lead agency for communicating with the media. As a result, its messages tend to focus on police-related issues. Given their lead role in communicating with the media and the public, and the prominence which tends to be given to their messages, the police are well placed to communicate authoritative messages to the public about non-policing issues, such as advice on the use of mobile telephones and advice about schools.[28]

Lesson: The lead agency responsible for communicating with the media must;

- be clearly identified to all stakeholders,
- communicate all urgent and important messages,
- communicate on the full breadth of issues on the disaster (not just issues under its immediate responsibility),
- regularly report (e.g. hourly or daily) even if there is nothing new to report,
- develop in advance a communications package to facilitate effective communications between the lead agency and all key stakeholders,
- ensure in advance an effective, efficient, robust communication package exists between local authorities and businesses, and
- ensure a variety of communications tools exist to cover a diverse number of eventualities e.g. texting, mobile phone calls, faxes, websites, land lines, emails, pager alerting systems, conference call facilities, buddy schemes, sirens, radio phones etc.

Lessons from Hurricane Katrina 2005

Findings from *A Failure of Initiative, The Final Report of the Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina*, US House of Representatives (15 February 2006) emphasizes again the importance of an effective relationship between central and local government.

With Katrina, the reasons reliable information did not reach more people more quickly are many, and these reasons provide the foundation for our findings. In essence, we found that while a national emergency management system that relies on state and local governments to identify needs and request resources is adequate for most disasters, a catastrophic disaster like Katrina can and did overwhelm most aspects of the system for an initial period of time. No one anticipated the degree and scope of the destruction the storm would cause, even though many could and should have.

The failure of local, state, and federal governments to respond more effectively to Katrina — which had been predicted in theory for many years, and forecast with startling

[27] Report of the 7 July Review Committee, Page 134, www.london.gov.uk/assembly/reports/general.jsp
[28] Report of the 7 July Review Committee, Page 136, www.london.gov.uk/assembly/reports/general.jsp

accuracy for five days — demonstrates that whatever improvements have been made to our capacity to respond to natural or man-made disasters, four and half years after 9/11, we are still not fully prepared. Local first responders were largely overwhelmed and unable to perform their duties, and the National Response Plan did not adequately provide a way for federal assets to quickly supplement or, if necessary, supplant first responders.

The failure of initiative was also a failure of agility.

Response plans at all levels of government lacked flexibility and adaptability. Inflexible procedures often delayed the response. Officials at all levels seemed to be waiting for the disaster that fit their plans, rather than planning and building scalable capacities to meet whatever Mother Nature threw at them. We again encountered the risk-averse culture that pervades big government, and again recognized the need for organizations as agile and responsive as the 21st century world in which we live.

Key findings include:

- *Massive communications damage and a failure to adequately plan for alternatives impaired response efforts, command and control, and situational awareness*
- *Command and control was impaired at all levels, delaying relief*
- *The collapse of local law enforcement and lack of effective public communications led to civil unrest and further delayed relief*
- *Medical care and evacuations suffered from a lack of advance preparations, inadequate communications, and difficulties coordinating efforts*

Lesson: Respond to the disaster, not the plan.
Lesson: Civil unrest can be prevented by effective law enforcement and communication.

Part Two: New Zealand Lessons

In the past, New Zealand has dealt with a number of risks, many of them successfully. Besides the Spanish flu of 1918, which is frequently discussed as a precursor to assessing the risks of a potential bird flu pandemic, we have experienced power failures, polio epidemics, water supply failures, floods, earthquakes, eruptions and tsunamis. Below, three recent examples are discussed.

Lessons from the Auckland Power Failure 1998

In the *Auckland Power Supply Failure 1998*: *The Report of the Ministerial Inquiry into the Auckland Power Supply Failure*[29] the governance and accountability role of public companies in regard to risk management was discussed:

In public companies directors owe their duty to the company as a whole and not to any individual shareholders, or groups of shareholders. They must take into account the longer-term interests of the company, including the interest of future shareholders, as well as the immediate situation; this requires that directors strive to enhance shareholder wealth in perpetuity rather than maximise short-term benefits to satisfy the particular demands of individual shareholders or classes of shareholders.

However, since the ongoing prosperity of a company depends to a large extent on its stakeholders being content with its performance and having regard to its future, directors and management must have continuing regard to the interests of stakeholders such as creditors, employees and the community in which it operates. In particular, companies depend on their customers for their revenue and it is essential that they strive to maintain and increase customer satisfaction as far as it is consistent with their other responsibilities.

Because companies vary greatly in size, complexity and ownership structure, and the quality and experience of the people involved also vary, it is difficult to set out a simple formula for good governance. Certain basic requirements must always be met, however, and there are principles and practices that have been found to be valuable in all or most circumstances.

One of the most basic requirements is that a company manages its risks. The board is responsible for the stewardship of the company's assets, for its reputation and for arranging its affairs so that its ability to generate profits and to grow is not undermined. The board must satisfy itself that the risks facing the business have been identified and evaluated and that those that are likely to occur, and/or carry the most serious consequences if they do occur, have been adequately dealt with.

The Australian/New Zealand Standard on Risk Management (AS/NZS 4360:1995) sets out a generic framework for risk assessment. There is no suggestion that a board needs to carry out the detailed process itself, but it has a clear responsibility to decide what process the company should adopt and to ensure that it is implemented properly.

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[29] *Auckland Power Supply Failure 1998*: *The Report of the Ministerial Inquiry into the Auckland Power Supply Failure,* Section 7, Why the Power Supply Failed, Page 109-110, 21 July 1998

Lesson: The Board must satisfy itself that the risks facing the business have been identified and evaluated and that those which are likely to occur, and/or carry the most serious consequences if they do occur, have been adequately dealt with.
Lesson: The value of the Australian/New Zealand Standard on Risk Management AS/NZS 4360:2005 as a generic and comprehensive standard.

Lessons from the Tsunami Warning 2006

The tsunami warning on 5th May 2006 showed New Zealanders that we were simply not prepared. Importantly, our communication systems failed to operate in an effective, timely, co-ordinated or comprehensive manner. As a result, Government has ordered a review of emergency communications.

Civil Defence is now the target of severe criticism for failing to tell a panicked public that a tsunami alert – triggered by a Tongan earthquake – posed no danger in New Zealand. The alert was cancelled within half an hour. The communication breakdown has been savaged by regional mayors. Residents in coastal areas, including Gisborne, headed for the hills in their hundreds fearing the worst. Some had been woken by frantic friends and family abroad, others by neighbors, after international media reported an earthquake measuring 7.8 on the Richter scale had struck near Tonga at 3.26am (NZ time). The Government has admitted the official response was not up to scratch and has ordered a review of emergency communications.[30]

Lesson: Communications are global.
Lesson: Responsibility for informing New Zealanders may be national, but many key information providers are global.

Lessons from the Auckland Power Failure 2006

The very recent power cut in Auckland (12 June 2006) indicates again New Zealand's vulnerability to power cuts. Approximately 700,000 people were affected, schools were closed, 300 traffic lights failed, mobiles and internet services failed, elective surgery in hospitals were cancelled and businesses lost between $50-$100 million.

Auckland City Council's emergency operations centre was activated about 9.30am yesterday [12 June 2006], an hour after the lights went out throughout the city and in parts of Manukau City. But Manukau City councillor Neil Morrison, who chairs the regional civil defence and emergency management group, said the group had a telephone discussion and decided not to activate the regional operations centre. But other agencies did intervene.[31]

Lesson: New Zealand is vulnerable to power failures.
Lesson: Councils have a lead role and must coordinate and communicate with all key stakeholders (including other agencies) and communicate key messages to the public.

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[30] *Tsunami alert exposes response weakness* 5 May 2006 - Lane Nichols www.stuff.co.nz/stuff/0,2106,3657751a10,00.html
[31] The New Zealand Herald, 13 June 2006, *Gloomy Monday as city's lights go out* A3

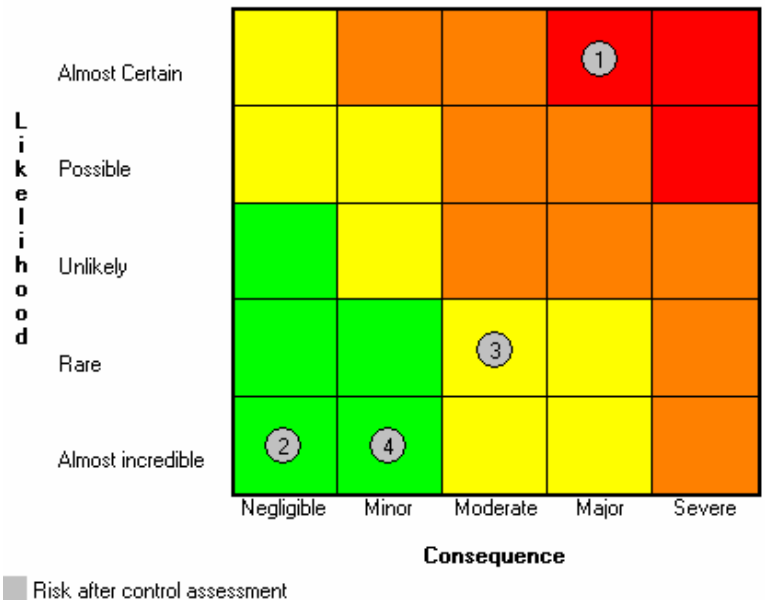
Part Three: Understanding the Dynamics of a Pandemic Marketplace

In order to plan, organisations must consider and plan for the dynamics of a pandemic marketplace. The use of a risk matrix helps managers and policy makers assess and compare risks, prioritise risks, and develop plans, policies and practices in order to reduce the impact of risks to acceptable levels (as denoted by the bottom left green section of the matrix).

Comparing Risks

The scale of risk due to an influenza pandemic is significant, as shown in Figure 3, where the risk levels (after taking into account current controls) of four events are mapped and compared: the influenza pandemic (risk 1), a nuclear-powered ship suffering a radiation leak in Wellington harbour (risk 2), a major earthquake in Wellington (risk 3) and a Boeing 737 crash (risk 4). As can be seen, the current level of control for an influenza pandemic still leaves the country exposed to a high level of risk, whereas the other risks are at much more acceptable levels. For example, plans to close the border reduce the likelihood while stocks of Tamiflu will hopefully reduce the consequences.

Figure 3: Controlled Risk Matrix[32]



	Risk	Control Consequence	Control Likelihood	Control Risk
1	Avian influenza - national impacts	Major	Almost Certain	Extreme
2	Radiation from nuclear powered ship	Negligible	Almost incredible	Low
3	Earthquake on the Wellington fault	Moderate	Rare	Medium
4	B 737 crash - domestic flight	Minor	Almost incredible	Low

[32] Chris Peace, Risk Management Ltd, November 2005. Published in the *Chartered Accountants Journal* December 2005 – *Managing the risk of a 'bird flu' pandemic – a Chartered Accountant's Perspective. W. McGuinness*

Why diseases fit into this red 'extreme' category is examined in Table 1, which lists the more significant disasters over time. What is clear from the table is that while terrorists and man-made accidents can cause deaths in the thousands and natural physical disasters can be in the hundred thousands, deaths from lethal diseases can be in the millions.

Table 1: Deadly Disasters

Disaster	Estimated Deaths
Terrorist: 2001 USA[33]	2749
Nuclear: 1986-today Chernobyl[34]	4000
Eruption: 1883 Indonesia[35]	36,000
Earthquake: 1556 Shensi P, China[36]	830,000
Tsunami: 2004 Indian Ocean[37]	225,000
Hurricane: 1970 Bangladesh[38]	500,000
Flood: 1887 China[39]	900,000-6,000,000
Avalanche: 1970 Peru[40]	66,700
Spanish Flu: 1918-1919[41]	40,000,000
Plague World Wide: 1347-51[42]	75,000,000
HIV World Wide: 1981 - 2005[43]	25,000,000

Note: Although references are provided, estimated deaths vary significantly between sources.

Comparing SARS with Avian influenza

The World Health Organisation states:

Non-medical interventions successfully contained SARS within four months following the start of international spread. For several reasons, however, pandemic influenza is considered far more difficult to control than SARS. Influenza A viruses are much more contagious than the SARS coronavirus. The incubation period is shorter and the virus can be spread prior to the onset of symptoms. Fever checks and border screenings will not be able to detect people in the incubation period who have no symptoms but are nonetheless capable of spreading infection. While SARS remained largely confined to

[33] *102 Minutes, The untold story of the fight to survive inside the Twin Towers*, Jim Dwyer and Kevin Flynn, Arrow Books, 2005, page xxiv
[34] *Voices from Chernobyl: The Oral history of a Nuclear Disaster*, Picador, 2005 Page xiii
[35] www.geology.sdsu.edu/how_volcanoes_work/Krakatau.html
[36] www.gesource.ac.uk/hazards/Earthquakes-timeline.html
[37] www.infoplease.com/spot/tsunami.html
[38] en.wikipedia.org/wiki/1970_Bhola_cyclone
[39] en.wikipedia.org/wiki/1887_Yellow_River_flood
[40] www.ngdc.noaa.gov/nndc/struts/results?eq_1=6&t=101634&s=0&d=3&d=33
[41] www.who.int/mediacentre/factsheets/fs211/en/
[42] www.guinnessworldrecords.com/content_pages/record.asp?recordid=48524
[43] www.avert.org/worldstats.htm

hospital settings, pandemic influenza will rapidly and widely spread within the community.[44]

Many of the public health interventions that successfully contained SARS will not be effective against a disease that is far more contagious, has a very short incubation period, and can be transmitted prior to the onset of symptoms.[45]

The China Daily (November 2005) noted:

Scientific research indicates that typical influenza has a reproductive number of two infections per infection, compared with three in the SARS epidemic, but the flu has a faster generation time of three days, as opposed to 10 days for SARS. It means that after 30 days, one flu case will likely have multiplied into 1,024 while one SARS into 27.[46]

Comparing mortality rates is extremely difficult as we are only able to compare 'WHO laboratory-confirmed cases of H5N1' with 'probable cases' of SARS and other diseases. Refer Table 2. Therefore before even looking at the percentages, we would expect a much higher percentage for H5N1 mortality because people who recover from H5N1 without being tested are not included in the statistics. The results are therefore skewed, but the mathematics is as follows:

- Avian Influenza (H5N1)[47] mortality: 57 %
  (127 deaths / 224 laboratory-confirmed cases).

- SARS[48] mortality: 8 %
  (623 deaths / 7761 probable cases)

- Spanish flu[49] mortality: 2.5 %
  (40,000,000[50] deaths)

- Plague 1347-51[51] mortality: 25%
  (75,000,000[52] deaths)

[44] WHO Avian influenza: assessing the pandemic threat JANUARY 2005 – WHO/CDS/2005.29 Page 53
[45] WHO Avian influenza: assessing the pandemic threat JANUARY 2005 – WHO/CDS/2005.29 Page 19
[46] China Daily Hong Kong Edition 'Take H5N1 seriously, but no need for panic' 11/14/2005 page 5
[47] WHO statistics from Table 2, page 17
[48] WHO: Severe acute respiratory syndrome (SARS): Status of the outbreak and lessons for the immediate future *Unmasking a new disease Geneva, 20 May 2003,* Page 10, 17 May 2003: The first global consultation on SARS epidemiology concludes its work. The consultation confirms that control measures recommended by WHO are supported by available evidence. The experts further confirm the consistent effectiveness of these measures, which include early identification and isolation of patients, vigorous contact tracing, management of close contacts, and public information and education to encourage prompt reporting of symptoms. A cumulative total of 7761 probable cases, with 623 deaths, is reported from 28 countries. Of this total, 5209 cases and 282 deaths are reported from mainland China.
[49] www.who.int/csr/disease/avian_influenza/avian_faqs/en/index.html
[50] www.who.int/mediacentre/factsheets/fs211/en/
[51] www.guinnessworldrecords.com/content_pages/record.asp?recordid=48524
[52] www.guinnessworldrecords.com/content_pages/record.asp?recordid=48524

Table 2: Cumulative Number of Confirmed Human Cases of Avian Influenza A / (H5N1) Reported to WHO 29 May 2006[53]

Country	2003		2004		2005		2006		Total	
	cases	deaths	cases	deaths	cases	deaths	cases	deaths	cases	deaths
Azerbaijan	0	0	0	0	0	0	8	5	8	5
Cambodia	0	0	0	0	4	4	2	2	6	6
China	0	0	0	0	8	5	10	7	18	12
Djibouti	0	0	0	0	0	0	1	0	1	0
Egypt	0	0	0	0	0	0	14	6	14	6
Indonesia	0	0	0	0	17	11	31	25	48	36
Iraq	0	0	0	0	0	0	2	2	2	2
Thailand	0	0	17	12	5	2	0	0	22	14
Turkey	0	0	0	0	0	0	12	4	12	4
Viet Nam	3	3	29	20	61	19	0	0	93	42
Total	3	3	46	32	95	41	80	51	224	127

Note: Total number of cases includes number of deaths.
WHO reports only laboratory-confirmed cases.

The World Health Organisation's Reaction

The World Health Organisation warning has provided a significant opportunity to manage the threat. Currently, the level is 3, as indicated in Table 3 below.

Table 3: WHO Phase of Pandemic Alert[54]

Inter-pandemic phase	Low risk of human cases	1
New virus in animals, no human cases	Higher risk of human cases	2
Pandemic alert	No or very limited human-to-human transmission	3
New virus causes human cases	Evidence of increased human-to-human transmission	4
	Evidence of significant human-to-human transmission	5
Pandemic	Efficient and sustained human-to-human transmission	6

[53] www.who.int/csr/disease/avian_influenza/country/cases_table_2006_05_29/en/index.html
[54] http://www.who.int/csr/disease/avian_influenza/phase/en/index.html

The World Health Organisation reports*;*

Since January 2004, events affecting both human and animal health have brought the world closer to an influenza pandemic than at any time since 1968. Whereas past pandemics have consistently announced themselves with an explosion of cases, events during 2004, supported by epidemiological and virological surveillance, have given the world an unprecedented warning that a pandemic may be imminent. They have also opened an unprecedented opportunity to enhance preparedness.[55]

However, the extent of the threat is largely unknown.

The severity of disease and the number of deaths caused by a pandemic virus vary greatly, and cannot be known prior to the emergence of the virus. During past pandemics, attack rates reached 25-35% of the total population. Under the best circumstances, assuming that the new virus causes mild disease, the world could still experience an estimated 2 million to 7.4 million deaths (projected from data obtained during the 1957 pandemic). Projections for a more virulent virus are much higher. The 1918 pandemic, which was exceptional, killed at least 40 million people. In the USA, the mortality rate during that pandemic was around 2.5%.[56]

In August 2005, WHO sent all countries a document outlining '*recommended strategic actions*[57]' for responding to the avian influenza pandemic threat. Recommended actions aim to strengthen national preparedness, reduce opportunities for a pandemic virus to emerge, improve the early warning system, delay initial international spread, and accelerate vaccine development.[58]

New Zealand's Response

New Zealand's response to date is frequently referred to in the international arena as being a good example for all governments to follow[59].

The Intersectoral Pandemic Group (IPG) coordinates thirteen workgroups addressing critical areas of the national pandemic response, each led by a key agency. Refer Table 4.

[55] WHO, 58th World Health Assembly, A58/13 Provisional Agenda Item 13.9, 7 April 2005, Para 2
[56] www.who.int/csr/disease/avian_influenza/avian_faqs/en/index.html
[57] Responding to the avian influenza pandemic threat - Recommended strategic actions WHO/CDS/CSR/GIP/2005.8
[58] www.who.int/csr/disease/avian_influenza/avian_faqs/en/index.html
[59]http://harvardbusinessonline.hbsp.harvard.edu/hbrsa/en/issue/0605/hbrsaLandingPage.jhtml;jsessionid=NGPCR2FKPHGJKAKRGWCB5VQBKE0YOISW Policy: What to expect from Government by Larry Brilliant.

Table 4: List of Intersectoral Workgroups and Lead Agencies[60]

WORKGROUP	LEAD AGENCY
Health	Ministry of Health (MoH)
Border	NZ Customs Service
Economy	Treasury
Workplaces	Department of Labour
Education	Ministry of Education
Community & Logistics	Ministry of Civil Defence & Emergency Management
Law, Order & Emergency Services	NZ Police
External	Ministry of Foreign Affairs and Trade
Infrastructure	Ministry of Economic Development
Welfare	Ministry of Social Development
Coordination	Department of Prime Minister & Cabinet (DPMC)
Communications	Ministry of Health (MOH) / DPMC
Legislation	DPMC / Crown Law

The New Zealand Influenza Pandemic Action Plan was first released as version 14 on the Ministry of Health website. Version 15 is scheduled for release shortly. The latest version is expected to contain background and supporting information, as well as an update on the action plan and planning scenarios. Lifeline utilities[61] have a prominent role in the plan.

The New Zealand Influenza Pandemic Action Plan is based on five strategic aims, as outlined in Table 5 below. The Ministry of Health has prepared three standard scenarios, being 2, 3 and 4 of Table 5, in order to provide common planning assumptions and trigger points, for 'emergency management agencies' to use.

[60] www.moh.govt.nz/pandemic *New Zealand Influenza Pandemic Action Plan Version 14* Page 10, Table 1

[61] Lifeline Utilities are organisations that manage infrastructure and provide essential services. The CDEM Act requires that they are able to operate during and after an emergency. The Act also requires lifeline utilities to participate in the development of the National CDEM Strategy, the National CDEM Plan and regional CDEM Group Plans. www.civildefence.govt.nz/memwebsite.nsf

Table 5 : New Zealand Ministry of Health Strategy for Pandemic Management[62]

STAGE	NEW ZEALAND STRATEGY	MoH / DHB[1] ALERT CODE
1	**Plan for it** (Planning)	WHITE (Information / advisory)
		YELLOW (Standby)
2	**Keep it out** (Border Management)	RED (Activation)
3	**Stamp it out** (Cluster Control)	
4	**Manage it** (Pandemic Management)	
5	**Recover from it** (Recovery)	GREEN (Stand down)

[1] District Health Boards (DHB)

Table 5: Stage 2-Border Management
This scenario would start with the recognition of a pandemic overseas, or very high suspicion of human-human transmission overseas. This phase could involve a range of border management measures, and could start with selective closure and quarantine of people from selected countries or regions. It is possible that the scenario could progress rapidly to eight days quarantine for everyone entering New Zealand, and that it could last up to six months until a vaccine is available.

Table 5: Stage 3-Cluster Control
This scenario would start at the recognition of pandemic cases outside airports within the New Zealand border. It is possible that this phase could continue for several weeks.

Table 5: Stage 4-Pandemic Management
This scenario would start if clusters became too large, or too many and widespread to control. There would be no firm trigger point to moving to the pandemic management phase scenario, as there would be many variables, which determine the decision - such as the size of the cluster or clusters, the location of the clusters, and the timing of a vaccination programme.

A number of additional reports, articles, videos, legislation or other publications have been prepared in New Zealand to compliment the strategy. Refer Table 6.

[62] http://www.med.govt.nz/templates/MultipageDocumentTOC____14455.aspx Page 1

Table 6 : New Zealand Reports, Articles, Videos, Legislation or other Publications[63]

Date	Reports, Articles, Videos, Legislation or other Publications
May 2006	Law Reform (Epidemic Preparedness) Bill
May 2006	Ministry of Economic Development (MED) 'Questions and Answers Log of Issues Raised by Infrastructure Providers'
May 2006	Telecommunications Carriers Forum - PPWG and MED Report[64]
Mar 2006	Bird Flu - How Bad Can It Be? Safeguard Peace, C.
Mar 2006	New Zealand Local Authority and CDEM Group Pandemic Planning Guide
Mar 2006	Treasury Policy Perspectives Paper 06/03: Impacts of a Potential Influenza Pandemic on New Zealand's Macroeconomy by James Douglas, Kam Szeto and Bob Buckle
Jan 2006	Ministry of Labour - 'Minimizing the risk and impact of an influenza pandemic on your business - A practical guide for employers'
Nov 2005	National Civil Defence Emergency Management Plan 2005[65].
Nov 2005	Airplane Studios DVD on Influenza Pandemic (70 mins)
Nov 2005	Treasury Report T2005/2024: Avian Influenza Pandemic – Issues
Nov 2005	Ministry of Health NZ Influenza Pandemic Action Plan Version 14
Nov 2005	Reserve Bank of New Zealand BCP Pandemic Plan Overview
Dec 2005	Chartered Accountants Journal 'Managing the risk of a 'bird flu' pandemic - a Chartered Accountant's perspective'
Oct 2005	Ministry of Economic Development 'Business Continuity Planning Guide'
Oct 2005	Ministry of Economic Development 'Planning Guide'
Oct 2005	Ministry of Economic Development 'Example of a NZ Workplace Influenza Pandemic Health Plan'
Oct 2005	Reserve Bank Letter sent to the NZ Banks on Pandemic Planning
Jul 2004	The National Health Emergency Plan: Infectious Diseases
Oct 2002	Civil Defence Emergency Management Act

New Zealand's Strategic Strengths and Weaknesses

New Zealand has a number of strengths, namely its isolation and its food production, but there are significant challenges.

New Zealand is in the fortunate position of being a net-exporter of food (e.g. meat, vegetables and milk). The only exception is flour, where all North Island flour is imported.[66] Consequently New Zealand's ability to cope with a pandemic is a logistical challenge rather than a food production problem.

[63] www.sustainablefuture.info/SITE_Default/Risk_Management/Pandemic.asp

[64] The Telecommunications Carriers Forum encourages the efficient provision of regulated services, not inconsistent with the Telecommunications Act 2001; and, non-regulated telecommunications services, in order to promote competition in telecommunications markets for the long-term benefit of end-users of telecommunications services in New Zealand. The Forum can facilitate dialogue on industry issues of common interest, but it takes a representational role in public or policy debates only with its board's approval.

[65] Start date 1 July 2006.

[66] Mark Bell, Progressive Enterprises Limited, Auckland, Conferenz Conference titled *Bird Flu Pandemic - Business Continuity and Planning Update*.

Therefore the challenges for New Zealand are likely to be generated from breakdowns in:

- Communication and leadership,
- Power generation and supply, and / or
- Oil security and transportation.

Communication and Leadership

Quality communication and leadership are both critical and clearly linked, as indicated in Parts 1 and 2 of this paper. Potential problems that may occur, and these are purely observations, are as follows:

- Government planning to date has largely been centralised or individualised, where in practice, local planning and leadership will be critical. Local planning will need to be focussed at Councils, businesses, NGO's, churches and schools.

- Significant communication problems have existed in the past and systems need to be significantly improved in order for stakeholders to receive accurate and relevant information in a timely and appropriate manner (as in the optimal communication channel).

- Media must not only report on the news, but also be involved at the early planning stages to provide accurate, relevant and timely information to New Zealanders in order to maximise the opportunity to prepare, minimise panic and promote recovery in the event of a pandemic.

- Businesses, excluding lifeline utilities, have generally failed to engage on the risk of a pandemic. This may be due to Y2K and SARS being seen to be non-events or a pandemic being seen as a central government problem, but whatever the reason, without their engagement, New Zealanders will be significantly worse off in the event of a pandemic.

Power Generation and Supply

Possibly the most critical resource that New Zealand will need in a pandemic is power. New Zealand is reliant on power for warmth, hygiene, communication and food production. New Zealand is therefore very dependent on the generators, the GRID, the line businesses and the electricity retailers. The GRID is now over 20 years old and unlike other countries which operate circular lines (e.g. like Europe), we have only one line. Consequently, one fault can prevent access to power for a significant number of New Zealanders, possibly over a long timeframe. Power generation and supply, requires considerable attention. This appears to be the role of the Electricity Commission[67].

[67] The Commission regulates the operation of the electricity industry and markets, to ensure electricity is produced and delivered to all consumers in an efficient, fair, reliable and environmentally sustainable manner.

Oil Security and Transportation

New Zealand, as a member of the International Energy Agency, is required to hold 90 days of oil reserves (measured as net oil imports). In 2004, New Zealand was in breach of this obligation.[68] The Oil Security: Meeting IEA Obligations - Cabinet Paper, 1 July 2005 has agreed to achieve the three month stockpile and states:

Note *that MED proposes to run a Request For Proposals (RFP) in late 2005, and final tenders in March-April 2006, with acquisition of stocks commencing from July 2006[69];*

There are three further questions, specific to a pandemic that need to be considered:

(i) Will three months stock be enough to meet a window of up to six months?
(ii) What practices will be applied to the distribution of oil stocks?
(iii) Will stocks be located strategically throughout the county to ensure trucks transporting food are able return to depots?

To Conclude

Underlying the threat is a number of misconceptions that are slowing progress towards organisations and individuals preparing for the risk of a pandemic. Namely;

- It will not happen
- Communication will be optimal
- Leadership will be optimal
- People will not panic
- 50% of the work force will come to work
- Public transport will work
- Infrastructure services will not be affected

However the reality is that if the worst case happens, being sustainable human to human transmission with a high mortality rate, New Zealand may have up to a 6 months window that may include border closure or an epidemic in New Zealand.

[68] www.med.govt.nz/templates/StandardSummary____12619.aspx
[69] www.med.govt.nz/templates/MultipageDocumentTOC____13022.aspx

Part Four: A Checklist for Business

If a marketplace is a situation where buyers and sellers exchange goods and services, what would a pandemic marketplace look like? This paper attempts to consider how we, as business people, may be able to prevent damage to ourselves, our staff and our business. Our solutions and action plans may differ, but the underlying questions are likely to be the same. Asking and answering key questions and preparing a plan of action now must have significant advantages if a serious pandemic occurs (i.e. one that results in a significant number of staff and contractors being unavailable over a period of three weeks or more).

This paper provides a set of generic questions that businesses should ask, examine and where appropriate, resolve. Questions are divided into groups, being strategic, operational, cash flow and risk management related. Space is left at the end of each group for readers to add additional questions to the list.

Strategic Questions

1. Do you know your ethical and social responsibilities? ☐

There are two aspects to this question. We need to answer this question clearly and concisely, both as individuals, and as organisations in order to target critical functions and skills. Refer Figure 4.

Individual
For example, individuals will have different answers depending on their circumstances, skills and experiences:

- A parent may answer; 'to look after our dependants, and ourselves'.
- A nurse may say; 'to care for the sick'.
- A person with the bird-flu may say; 'to protect the community and not knowingly pass the flu on to anyone else'.

Organisation
Similarly, different organisations will have different answers depending on their circumstances, skills and experiences; however we can expect all organisations will endeavour to protect their staff and families from a pandemic. There remains the issue of ethical responsibilities to the wider community, and to the owners and staff, to ensure the business can rebound after the risk has dissipated. Consequently, some form of balance is required.

(i) Staff
This raises the issues of when staff should or should not come to work, providing back-up, succession planning and managing staff that become sick at work (Refer page 33 of the government's *Business Continuity Planning Guide* October 2005.)

In the event of a pandemic, the Ministry of Health expects staff may be absent for many reasons;

- *illness / incapacity (suspected / actual / post-infectious);*
- *some employees may need to stay at home to care for the ill;*
- *people may feel safer at home (e.g. to keep out of crowded places such as public transport);*
- *some people may be fulfilling other voluntary roles in the community; and*
- *others may need to stay at home to look after school-aged children (as schools are likely to be closed).*[70]

(ii) Wider Community

Some organisations and individuals may be in a position to have a significant impact on the health and safety of many (e.g. engineers running Wellington Hospital's diesel generation plant, a chemist, a nurse, or a contractor servicing the GRID) while others may be able to provide very little direct assistance (e.g. a marketing company, real estate agents, a mechanic or a shearer). Some organisations already have in place different actions plans for different pandemic scenarios, but most action plans are likely to have been based on firstly, protecting staff and their families, and secondly, attempting to deliver critical products and services to the wider community.

The delivery of critical goods and services has two additional aspects, identifying what is critical and what is not, and determining safe delivery practices.

Identifying what is critical and what is not is about drawing distinctions between what is urgent and what is important. Naturally, a type of continuum is involved and some businesses find it easier to break functions up into categories, such as what is critical to do every day, every week, every two-four weeks, every one-six months, or every year.

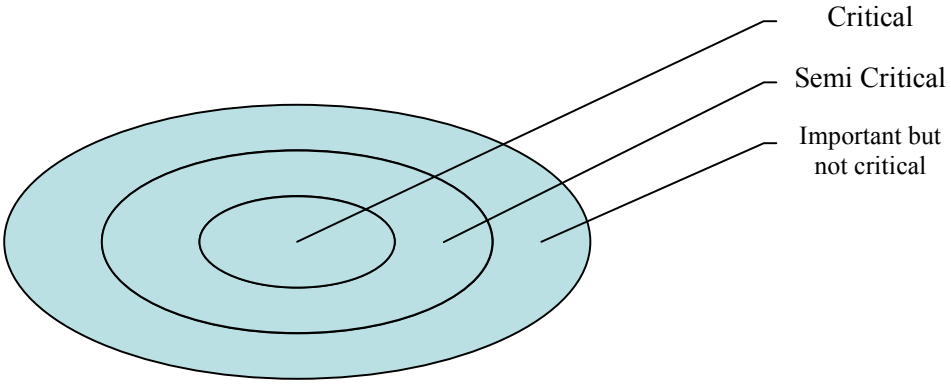
For example, the delivery of water is critical but the completion of a human resources paper at NIWA, although important, is unlikely to be urgent. Although this seems obvious today, when we are under pressure, we frequently make poor decisions. Identifying the critical functions an organisation must perform should be done in advance.

(iii) Owners

This is about the importance of business continuity and the ability to consider how to return to 'business as usual'.

[70] www.moh.govt.nz/pandemicinfluenza#1 *Influenza Pandemic Planning, Business Continuity Planning Guide*, October 2005 – Pages 7-8

Figure 4: Targeting Critical Functions and Skills



2. Do you know your priorities? ☐

Once we identify our responsibilities, we need to prioritise critical functions from most to least important. We need to consider how we are going to manufacture and deliver critical goods and services in a safe and effective manner for our staff, contractors and the recipients of those goods and services.

For example, one chemist is purchasing a special air conditioning system that pushes potentially contaminated air outside, rather than into the shop. They are also considering a temporary barrier that they can put in place to prevent contamination if a pandemic occurs.

If employees are working or travelling overseas, what strategies have you got in place to empower them to manage if the border was closed?

3. Do you know which of your goods and services will be in demand during a pandemic and what will not be in demand? ☐

It is important to appreciate how a pandemic marketplace with be different from the marketplace before and after a pandemic.

- Potential increased demand in the early stages of the pandemic for travel, medicine, food (especially lamb, beef and fish), water, soap, nursing, and telecommunications such as videoconferencing and teleconferencing, cash, internet shopping etc.

- Potential decreased demand for products (e.g. chickens and eggs) and services that require social interaction (e.g. marketing, spas, gyms, non-urgent surgery, concerts, vacations, public transport and sports).

For example; if your core business is dependent on chicken or eggs and the bird flu virus can be passed on through chickens and eggs, how can you put in practice survival strategies now?

Operational Questions

4. Who and what are you dependent upon to deliver these critical goods and services?

This is an important question that may result in unexpected answers. For example, for a hospital to work effectively it not only needs staff and drugs, it also requires power and water, in particular hot water for washing bedding, floors, cleaning dishes, cooking food, heating, and water for flushing toilets etc. In contrast, a farmer to work effectively may be dependent upon power and water for milking cows and cleaning milking sheds while a manufacture of tinned food may be dependent upon labour, raw materials (stocks of tin, sugar, salt), power and water.

Besides staffing issues, businesses need to consider issues like;

- *supplies of materials needed for ongoing activity*
- *availability of services from sub-contractors (this may affect maintenance of key equipment, and is an area that merits close planning attention); and*
- *demand for services – demand for some services may increase (internet access is a likely example); while demand for others may fall (e.g. certain types of travel activity may reduce).* [71]

Naturally, delivery is not just dependent on the goods and services being available, but on your organisation being able to communicate with your supplier to order and pay for goods and services and to arrange movement from A to B (the logistics). In regard to these two latter points, power is likely to be critical to charge phones and operate computers; and open roads and access to fuel will be necessary to transport goods.

[71] www.moh.govt.nz/pandemicinfluenza#1 *Influenza Pandemic Planning, Business Continuity Planning Guide*, October 2005 – Pages 7-8

Although New Zealand does produce crude oil, business will be dependent upon petrol and diesel to run cars and trucks. Organisations in the business of transporting critical products and services will need to know how they can obtain fuel supplies.

Consequently, a realistic solution may be to stock critical supplies of raw material and repairs and maintenance items in order to reduce a reliance on delivery during a pandemic. Hence the 'just in time' inventory management system may need to be tweaked to include not just an objective of balancing minimum investment with maximum productivity but between minimum investment with maximum productivity and effective recovery in the case of a pandemic or other national disaster.

5. Have you assessed the extent that your organisation is dependent on infrastructure assets? ☐

Many of our infrastructure assets, like the GRID, the telecommunications network and water supply will be critical to ensuring supply of goods and services. The need for routine maintenance or repairs of infrastructure networks is not immune to national disasters. Whole communities may be dependent on a small group of contractors who will need to be healthy, have transportation and access to spare equipment.

Telecommunications providers recommend installing remote working facilities, ensuring a diverse range of communication systems are operational and installing alternative call answering facilities that can be activated in the event of a pandemic now as hardware and labour may not be available to install equipment once a pandemic occurs.

The Ministry of Economic Development (MED) is taking a lead in fostering pandemic planning in New Zealand's infrastructure sectors (i.e. energy, communications, transport, and water and waste sectors). MED is being assisted by a number of other agencies, including the Ministry of Transport (MOT) on transport issues and Ministry of Health (MoH) on overall planning, and on water and waste issues. In addition, MED, working with the Ministries of Health and Transport, has developed an Information Kit to aid continuity planning by infrastructure providers.

The Information Kit for Infrastructure Providers comprises a '*Planning Guide*', '*Example of a New Zealand Workplace Influenza Pandemic Health Plan*' and '*Questions and Answers Log of Issues Raised by Infrastructure Providers*'.[72] Although this may be useful to understand the framework, if you are 'highly dependent' you can now put in place practices to reduce your potential vulnerability. For example, water tanks, diesel generators, batteries, gas BBQ's at the office.

[72] www.med.govt.nz/templates/StandardSummary____14457.aspx

6. Do you know what strategies you will adopt to ensure 'delivery' is 'safe'? ☐

As prevention is the number one priority, we can expect the Ministry of Health will continue to provide the general public with information on how to prevent viruses from spreading between humans, but the factual information on the virus will not be available in detail until the virus mutates.

Currently, the channels of communication that will be considered for use by government during a pandemic include:

- *fact sheets and FAQs that include general information on influenza vaccines, home nursing, medication and treatment guidelines – these can be produced physically or displayed electronically on the Ministry of Health website (www.moh.govt.nz)*
- *video presentations for broadcast via electronic media*
- *establishment of a pandemic national free phone line to provide information to the public – the Ministry of Health has a phone line available for emergencies that can be put into action within a few hours*
- *national advertisements to increase awareness of the national response to the pandemic*
- *regular media briefings to ensure accurate and up-to-date reports on the status of the pandemic.*[73]

Once the epidemiology of the pandemic strain virus is known, MoH will customise policies and programmes in its strategy to address the particular virus. Refer Table 5, page 19 for the MoH's five-stage strategy.

It is important to understand the triggers and goals of each stage. These may change over time so it is important to keep reviewing the Ministry of Health and Ministry of Labour web sites. Importantly, for those not aware of all the stakeholders, committees etc, a superb list the Acronyms and Abbreviations, is available in the *New Zealand Influenza Pandemic Action Plan Version 14*.[74] Apart from alerting government agencies to action, the alert codes provide a valuable trigger for business to activate their own pandemic plans.

Currently the triggers and goals can be found in a table[75] in the *New Zealand Influenza Pandemic Action Plan Version 14*, a copy of which appears in table 7 below:

[73] www.moh.govt.nz/pandemic *New Zealand Influenza Pandemic Action Plan Version 14* Page 12
[74] www.moh.govt.nz/pandemic *New Zealand Influenza Pandemic Action Plan Version 14* Page 6
[75] *New Zealand Influenza Pandemic Action Plan Version 14*, page 11

Table 7 : Triggers and Goals of the *NZ Influenza Pandemic Action Plan Version 14* [76]

STRATEGY	POTENTIAL TRIGGER	GOAL
Planning *"Plan for it"*	*Interpandemic period*	*To plan to reduce the health, social and economic impact of a pandemic on New Zealand.*
Border Management *"Keep it out"*	*Human-to-human transmission overseas, OR very high suspicion of human-to-human transmission overseas, OR Australia and/or Singapore close borders.*	*To keep pandemic influenza out of New Zealand.*
Cluster Control *"Stamp it out"*	*Human pandemic strain case(s) found in New Zealand.*	*To control and/or eliminate any clusters that may be found in New Zealand.*
Pandemic Management *"Manage it"*	*Multiple (>10) clusters at separate locations, or clusters spreading out of control.*	*To reduce the impact of pandemic influenza on New Zealand's population.*
Recovery *"Recover from it"*	*Population protected by vaccination, or pandemic abated in New Zealand.*	*To expedite the recovery of population health where impacted by the pandemic, pandemic management measures, or disruption to normal services.*

NB: Movement into Border Management, Cluster Control or Pandemic Management is a decision for Domestic and External Security (DES).[77] The Domestic & External Security Group, often known as DESG, co-ordinates central government activities aimed at protecting New Zealand's domestic and external security including intelligence, counterterrorism preparedness, emergency/crisis management and defence operations.

Organisations are tending to develop a plan of action for each of the five stages. A few have gone even further, by developing a plan which aligns to the scenarios that make up each stage, as indicated in a table[78] of the *New Zealand Influenza Pandemic Action Plan Version 14*. This table suggests specific actions for businesses and is well worth a read.

What we do know is that flu is contracted by breathing in airborne virus particles, or by touching contaminated surfaces and transferring the virus particles to the nose, eyes or mouth. The key strategies for prevention are therefore isolation and good hygiene.[79]

Organisations can encourage practices to improve hygiene and isolation in the event of a pandemic scenario.

[76] www.moh.govt.nz/pandemic *New Zealand Influenza Pandemic Action Plan Version 14*, page 11
[77] www.moh.govt.nz/pandemic *New Zealand Influenza Pandemic Action Plan Version 14* Page 11
[78] www.moh.govt.nz/pandemic *New Zealand Influenza Pandemic Action Plan Version 14* Page 15, Table 7
[79] *Survive Bird Flu and Other Disasters*, Bronwen King, Hazard Press 2006

Hygiene

There are two aspects. Sick people can adopt practices to protect well people and well people can adopt practices to prevent sickness.

The first aspect is not common practice in New Zealand. For example, unlike in Japan, we do not wear a mask if we are unwell, nor do we stay home if we have a bearable bug – we tend to soldier on (and spread the virus). Most of us turn away and put a hand to our mouth if we cough, but few of us wash our hands well before we next shake hands. Notably, in Japan you seldom shake hands. The University of Auckland's Dr Tom Miller[80] (January 2006) notes:

Much of the present evidence on the spread of respiratory infections suggests that touch contact with a virus contaminated object or surface and the subsequent transfer of the virus to receptive tissues is the more common way [than coughing and sneezing] *for the virus to spread* (e.g. sharing a pen, a phone, a door, a key board or shaking hands).

The second aspect is affected by the cultural tendency to focus on a cure rather than prevention, hence the emphasis placed on the flu injection as a cure, as opposed to education on adequate hand washing practises and greeting without shaking hands. The Ministry of Health have very useful handouts and posters to remind staff about hygiene and provide up-to-date information on masks and gloves and foot-operated lined rubbish bins. Refer Table 8 for a list of protection measures.

Table 8: Summary of Protection Measures of the *NZ Influenza Pandemic Action Plan Version 14*[81]

Protection measure	Where applicable
Hand hygiene, cough etiquette, ventilation	*Everyone, all the time*
Organisational policies	*Every organisation, all the time*
Social distancing	*Everyone, whenever practical*
Protective barriers	*In situations where regular work practice requires unavoidable, relatively close contact with the public*
Disposable surgical mask	*Workers in any community or health care setting who are caring for the sick (this includes first responders)* *Also as a possible adjunct to protective barriers*
Disposable particulate respirator mask, eye protection, gloves, gown/apron	*Health care workers participating directly in close contact patient care when there is a high risk of contact with respiratory secretions, particularly via aerosols (mostly inpatient settings).*

[80] Dr Tom Miller, Department of Medicine, University of Auckland, *New Zealand Herald*, 25 January 2006, Page A4

[81] www.moh.govt.nz/pandemic *New Zealand Influenza Pandemic Action Plan Version 14*, Page 40

Isolation
One solution is to out-source work from home. Provided communication networks and the GRID are able to supply power, many organisations can operate in isolation.

Also, it is possible to isolate the work force into small independent teams to prevent the risk of contamination. For example:

- small teams that normally clock on and off at the same time may leave a small gap between shifts to enable cleaning and ventilation.
- work from different areas in the same office building (ideally at least a metre apart)
- work varied shift patterns or extended hours (say 3 days at 12 hours each) so that staff is less exposed over time and to limit the number of people in the work place at one time
- install screens, dividers and night service windows now or at least have them designed ready for making and installing in the 'stand-by' code yellow phase. Finding a builder or plumber when the pandemic is announced may be challenging
- do not share unwashed bedding, clothing and utensils and;
- car-pool teams rather than relying on public transport.

One of the bigger challenges is getting staff to stay home when they are sick. This is a cultural change and needs to be led from the top. For example, if the Managing Director stays home because of a cold, others will take this lead as an acceptable (by the organisation) and responsible way of protecting others. Also refer to the *New Zealand Influenza Pandemic Action Plan Version 14*, Page 9, for discussion on human resource issues.

Cash Flow Questions

7. Have you prepared cash flow forecasts for a range of pandemic scenarios? ☐

Although not directly relevant, it may be useful to look at the New Zealand Treasury Policy Perspective Paper, March 2006, titled: *Impacts Of An Influenza Pandemic On NZ's Macroeconomy*[82].

[82] www.treasury.govt.nz/workingpapers/2006/pp06-03.asp

8. Have you considered and resolved the salary issue? ☐

Are your staff going to survive without a salary and how are businesses going to survive if they do pay salaries?

Wages are a critical safety and security issue. Staff who are at home with sufficient food, water and medicine and have certainty over salaries and mortgage repayments will endure a pandemic better than those that do not. Consequently, the person who pays salaries performs a critical function.

Organisations should ensure that at least two people (to provide back-up if a person is absent) know how to complete the wages (ideally online), that procedural manuals are up-to-date and that systems are backed up. In some cases, it may be appropriate to consider out-sourcing this task to someone's home.

9. Have you talked to your bank about extending overdrafts facilities and additional interest costs? ☐

This will be a key question for individuals and organisations. Long term economic recovery will depend a great deal on how banks deal with this disaster, in particular how they deal with organisations and individuals when caveats are breached.

A pandemic may have many of the characteristics of a drought, where farmers through no fault of their own, are severely affected, which in turn affects their ability to pay interest. Even a short-term pandemic is likely to have effects on cash-flow, so banks will need strategies to deal with potential effects over the long term.

Banking is not part of the critical infrastructure assets that are being managed by government, but the Reserve Bank has met with all the CEO's and the New Zealand Bankers' Association in order to work out a policy for managing a pandemic. Copies of the *Reserve Bank's letter (*27 October 2005*)* and *BCP Pandemic Plan Overview* (November 2005) is available on their web site. To date the Reserve Bank has not provided any guidance for business, therefore it would be advisable to talk to your bank about your concerns.

The big problem is not knowing the scale of the disaster, but likely effects could include a run on cash from eftpos machines, an increase in internet banking, and an increase in online tax payments. In which case, businesses may benefit from adopting online practices now.

10. What are the tax implications? ☐

The *Law Reform (Epidemic Preparedness) Bill* contains several across-government provisions, including tax provisions. For example; *Clause 54 amends section 183ABA of the Tax Administration Act 1994, which empowers the Commissioner of Inland Revenue to remit a penalty or interest charged to a taxpayer significantly affected by a qualifying event (as defined in section OB 1 of the Income Tax Act 2004).*

In regard to preparing the tax return, whether it's your accountant or your staff, it is always good practice to have a detailed and timely procedural manual and good staff back-up.

In regard to paying the tax, internet banking is an ideal solution but an increase in volumes may be a constraint.

11. Have you discussed insurance with your insurance provider? ☐

MED is leading work to consider the potential impact on the insurance sector[83], however answering this question is specific to each organisation and requires significant professional advice. Key questions include:

- Do you have or need 'key personnel' insurance?
- Do you have cover for perishable goods?
- If you sell chickens or eggs, and these cause illness, can you insure against this event?
- How do you destroy potentially contaminated chickens? Who pays the costs and loss of income?
- Do you depend on chickens or eggs to produce goods and services?

Risk Management Questions

12. Do you have a pandemic action plan? ☐

13. Do you test and review your plans every six months? ☐

14. Do you review the relevant sites for timely information about the bird flu? ☐

[83] www.treasury.govt.nz/pandemic/ Treasury Report T2005/2024 page 5

15. **Have you read the *Risk Management Standard AS/NZS 4360:2004 and the Business Continuity Management Good Practice Guidelines 2005*?** ☐

16. **Have you read the *Law Reform (Epidemic Preparedness) Bill*[84]**, in particular with regard to quarantine of individuals, possession of public or private land, buildings and vehicles and controlling the border? ☐

17. **Have you appointed a risk manager and are they closely linked to top management?** ☐

18. **Are there any issues with your IT systems?** How often are back-ups completed and are they accessible from different locations? ☐

19. **Do you have the full contact details**, including phone numbers, email addresses, mobile numbers and physical addresses of your ☐

- staff in your office
- staff at other locations
- key contractors and
- key suppliers?

Do you require a communication tree?

Are these details kept by a number of people in top management and are they frequently updated?

Does the list identify people with keys and codes to all buildings, including warehouses?

Do those with access to buildings understand how to find stock in those warehouses under emergency conditions?

20. **Do you have food, water, medicine, gloves, masks, toilet paper, tissues, cleaning agents to sterilize offices, and medical equipment in your offices should a staff member become unwell at work?** ☐

A very good section on workplace cleaning products is on Page 29 of the *Business Continuity Planning Guide* October 2005**.** Please note the *Business Continuity Planning Guide* October 2005 (page 23), advises unwell staff not to leave their work area and to call their influenza manager for help.

[84] www.taxpolicy.ird.govt.nz/

21. Does your staff have access to Tamiflu and the annual influenza vaccination? ☐

Some organisations are ensuring their staff have adequate funds to purchase Tamiflu. Importantly, there are regional disparities in Tamiflu preparedness. For example; *The Dominion Post's* research as at 13 March 2006 found**;**

*Of the 17 [*health*] boards that replied to the Dominion post [*request*], four had ordered and received Tamiflu stocks, four had put in orders, but had not yet to receive the supplies, five were still considering whether or not to get in extra stocks; and four had no plans to buy the drug, opting instead to rely on the ministry's national stockpile.' [*Three did not reply*]*

22. When a bird flu vaccine is produced, will you provide access and/or fund the vaccine for staff? ☐

As at February 2006, ImmNuZ, the Official Newsletter of the Immunization Advisory Centre[85], stated:

New Zealand has a contract with CSL in Melbourne to provide pandemic vaccine and possibly prototype vaccine [a best-guess vaccine that may offer some protection and/or 'prime' the immune system for the actual pandemic vaccine]. *Prototype vaccine is being considered for 300,000 people working in key areas as hospitals and primary care. This vaccine is in late phase clinical trials and licensure will be applied for later this year.*

Once a pandemic has been declared and we know which strain we are dealing with, full-scale production of vaccine will begin. New Zealand has ordered vaccine for the whole population (2 doses). This vaccine will take approximately 50 days to produce once a pandemic is declared depending on production, which relies on egg supply among other things. Capacity is currently 600,000 – 1,000,000 doses per day. Delivery to New Zealand will be between 15-21 weeks post pandemic declaration providing seed stock is available and 6 weeks later if there is no seed stock. (Approximately 6 months)

23. Do your employees know what you are providing and not providing in a pandemic? ☐

Have you provided an opportunity to discuss a potential pandemic with staff and have you answered their questions?
Do you know your legal obligations as an employer and as an employee?

Some of these questions are answered in a Ministry of Labour paper, *Minimizing the risk and impact of an influenza pandemic on your business – A practical guide for employers*[86]; however it may be appropriate to obtain specific legal advice. What is clear is that if the objective is to bounce back quickly, those organisations which develop policies and practices that focus on maintaining a

[85] *ImmNuZ*, the Official Newsletter of the Immunization Advisory Centre , February 2006, Issue No 43
[86] http://www.dol.govt.nz/initiatives/workplace/pandemic/general-info.asp

healthy, well-informed and loyal workforce over the duration of a pandemic are likely to recover from a pandemic more effectively than those which do not.

Please keep in mind these questions are generic in nature and are provided as a general framework. Spaces have been provided for additional questions.

In order to manage risk effectively, it is critical for management to 'be inquiring' before a disaster. Therefore, ask questions of councils, suppliers, infrastructure providers, banks, employees, insurance brokers, contractors, health boards, couriers, and customers now in order to provide certainty for all your stakeholders**.**

Further information:
For information on the New Zealand Government's Response:
www.moh.govt.nz/pandemicinfluenza
For information on the Global Response:
www.who.int/csr/disease/avian_influenza/en/
For background material and links:
www.sustainablefuture.info