

Risk Communications: In Search of a Pandemic

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Abstract

This paper explores the difficulties in managing risk communications in the face of uncertainty of an avian flu pandemic over a protracted period. The communications effort has also been made more difficult by the confusion and cacophony in the media and claims by experts and politicians worldwide. While Singapore secured much praise for its handling of the severe acute respiratory syndrome (SARS) just 4 years earlier which threatened its very existence as a nation-state, it also had to “unlearn” and “unfix” assumptions and mindsets that grew out of that experience. A protracted crisis of uncertainty has also raised difficult questions of sustaining public awareness and alertness. Compounding these problems is the seemingly high reliance of Singaporeans on Government to manage the crisis at all stages. Risk communications has become a crucial necessity in an increasingly troubled world and evokes contradictions for many in medicine and public health – calling on Governments to raise the alarm whilst also calming fears at the same time. It is hoped that Singapore’s experience throws up some useful lessons for other countries. The basic principles of risk communications employed are in line with the best practices adopted by many other countries. The experience may also contribute to the ongoing and somewhat contentious debate on whether the manner in which Singapore manages the information flow can be replicated or applied by other states and cultures.

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The first decade of the new millennium has seen a string of disasters worldwide – earthquakes, *tsunamis*, floods, typhoons and acts of terrorism – bringing in its wake, scenes of utter devastation and death. Predictably, these disasters have been accompanied by public outrage, directed more often than not at governments, over the lack of resources and preparations to pre-empt and manage these crises.

Thus, when the newly appointed United Nations (UN) coordinator for avian influenza, Dr David Nabarro, warned, on the first day of his job in September 2005, that up to 150 million people would soon be afflicted with this little understood virus, many countries, especially those affected in Asia, scrambled to come up with emergency plans for dealing with a pandemic.¹

The threat of a pandemic sparked off responses ranging over a wide spectrum of views and found expression in lengthy academic articles and weighty tomes, media reports, opinion columns, speeches and press releases. It also prompted a flood of scientific meetings on pandemics, prompting Dr Jeremy Farrar of The Hospital for Tropical

Diseases in Ho Chi Minh City to observe that, “The ratio of meetings to patients is probably 10 to 1: Hawaii tomorrow. Geneva and Singapore next week”.²

At one end of the spectrum stood a group that was quick to scoff at the hysteria surrounding the possible mutation of the H5N1 avian flu into a form that would put humans at risk. Among them were those who compared the hysteria to the fuss over the millennium bug – the glitch in computer software that was supposed to bring the world to a halt in 2000.³ Some religious groups viewed Y2K as the end of the world: a biblical prophecy fulfilled.⁴ Others likened it to the swine flu fiasco of 1976 to illustrate how the fear of a mutated virus can theoretically harm us. In that particular crisis, more than 1000 cases of paralysis occurred from a rushed vaccine given to more than 40 million people in response to a pandemic that never quite materialised.⁵

This group asserts vigorously that there is no proof that a strain of H5N1 can or will spread between humans. “Billions of chickens in Asia have been infected, and still, millions of people lived with them” commented Dr Jeremy Farrar.⁶ Yet another observer, Dr Michael Moore of Central

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Sydney Division of General Practitioners noted that “You hear about the 100 or more people that have caught bird flu but you don’t hear about the 20 million people that have been living surrounded by contaminated duck secretions that haven’t”.⁷ Columnists of this school characterised it as “so much hype”, given the small numbers of deaths and infection cases worldwide and that efforts used to combat the problem seemed excessive.

At the other extreme were those who have chosen to make direct comparisons with the Spanish flu of 1918, a scourge that killed between 25 and 50 million worldwide. Some experts on CNN proclaimed a 100% certainty of a pandemic which would claim an unknown number of deaths.⁸ The normally sober World Health Organization (WHO) warned that mankind may never have faced a greater risk of a deadly epidemic whilst the Director of the US Centers for Disease Control and Prevention (CDC) warned that “Avian flu poses the single biggest health threat to the world right now”.⁹ In April 2007, the Director of CDC said “We know that a pandemic will eventually occur. We always say it’s not a question of if; it’s a question of when.”¹⁰ Concern for a pandemic was prompted by the spread of H5N1 inexorably over much of Southeast Asia and its journey across to Eastern Europe, European Union, Romania, Middle East and Africa. The World Bank claimed that a human pandemic triggered by bird flu would cost the global economy up to US\$2 trillion.¹¹ A book by San Diego-based writer Mike Davis carries the sensationalist title “The Monster at our Door: The Global Threat of Avian Flu” with luridly titled chapters like: “The Triangle of Doom” and “Edge of the Abyss” and “Plague and Profit”.¹²

Governments have added to the confusion and cacophony. Both the US and UK governments prompted spirited rebuttals and criticisms from their own scientists and media when detailed reports on their strategies to confront a pandemic were released. The Royal Society in the United Kingdom called on its government to diversify their antiviral stockpile.¹³ In the UK, the Department of Health ordered 14.6 million courses of Tamiflu in September 2006, enough for 25% of the population, but critics complain that British stockpiles are miserably low – less than half those of France and comparable only to Slovenia and Algeria.¹⁴ Experts in the US expressed dismay that the “...hoopla over Bush’s plan turned the focus to defence measures in America like closing airports, rationing the drug Tamiflu and ventilators and having the army enforce quarantines...” instead of the smarter measure of fighting the virus “upstream” while it is still in chickens and ducks.¹⁵ The US authorities are believed to have purchased 26 million antiviral treatment courses and are expected to have 81 million available by the end of 2008 – enough to treat 25% of the US population.¹⁶ Singapore also has a national stockpile of 1.05 million

doses of Tamiflu and 50,000 doses of Relenza, that together provide adequate prophylaxis and treatment for 25% of the population in a pandemic.¹⁷

Two other parallel developments warrant mention: first, a major beneficiary of this fear of the pandemic has been the Swiss-based pharmaceutical company Roche Holding AG – which owns the patent of Tamiflu (oseltamivir), an antiviral drug with somewhat questionable efficacy against the pandemic strain. Indeed, Roche made a handsome profit estimated at US\$7.7 billion in 2005, with much of the credit going to Tamiflu.¹⁸ The US and UK are reported to have invested over US\$1.25 billion in antiviral drugs alone.¹⁹

Second, a further complication in this mosaic has been the almost regular reports issued through the media and medical journals on the discovery of new strains of the virus, repeated on-and-off warnings about new “family clusters” in countries in the Southeast Asian region and elsewhere – signalling the first case of secondary spread, new vaccines and other drugs and sometimes confusing information on a daily basis, refuting known information on the spread of avian flu. In a study by the Centers for Disease Control, published in July 2006 in the journal, *Proceedings of the National Academy of Sciences*, scientists concluded that it might be more difficult for the current deadly avian flu virus to spark a pandemic than originally feared as the receptors for avian flu are located in the lower part of the lungs, unlike the common seasonal flu whose receptors are found in the upper respiratory tract.²⁰

Also, in July 2006, the *New England Journal of Medicine* carried a letter on its June 22 edition which drew attention to the fact that the avian flu virus had been circulating in China for 2 years before China actually reported its first outbreak of H5N1 to WHO in late 2005.²¹ In November 2006, the US Food & Drug Administration issued warning labels for the antiviral Tamiflu in America after 103 reports of adverse reactions.²² The US label for the drug carries reference to negative Japanese experience with teenagers who exhibited bizarre behaviour, citing “self-injury and delirium” among users of Tamiflu.²³

In the same month, it was reported that a new flu drug that can kill deadly strains of bird flu promises to transform global preparations for a pandemic. Peramivir, an antiviral agent, could provide the world with a critical new line of defense against flu viruses, according to studies in the US. As a third option over Tamiflu (taken orally) and Relenza (inhaled), Peramivir is injected and studies have shown that it reaches the bloodstream in higher concentrations and remains active longer.²⁴ And as recently as October 2007, researchers from the University of Wisconsin-Madison claimed to have identified a specific change that could make bird flu viruses grow in the upper respiratory tract of

humans. They also observed that the viruses circulating in Africa and Europe are the ones closest to becoming a human virus.²⁵

Risk Communications

Against this dynamic, sometimes confused and cluttered backdrop, the issues confronting health risk communicators, concerning the possibility of a pandemic of the H5N1 strain of avian flu, are complex to say the least, encompassing epidemiology, virology, medicine, and even politics and ethics. It would do well to recall that risk communications itself is a relatively young discipline, believed to be no more than 3 decades old and it intersects with many other disciplines. It originated in the West in the late 1980s in response to environmental crises.

If and when it is managed properly, risk communications build mutual respect between a government or an organisation and the target groups with which it is communicating. It helps to provide the necessary tools needed for people to make well informed lifestyle decisions. Risk communications is not only about formulating and promoting guidelines or educating the public about risks. Risk communications also responds to public risk perceptions and seeks to shape human behaviour. Risk communications operates at 3 broad levels which represent different aspect of the process – psychological, cultural and political. Risk communications deals with what might happen and should be differentiated from crisis communicators who deal with what just happened, or is happening.²⁶ It involves a set of skills which Sandman and Lanard have noted, can help health officials find the middle ground between loud warnings provoking needless fear, panic and economic damage and that of building mutual trust, involving the public early in the crisis, arousing appropriate levels of fear and helping people to cope with it.²⁷

But risk communications is not a hard science. The critical factor is deciding the right time and approach to be taken to ensure the public is alerted and warned about developments. In most models of public health behaviour, the perception of being at risk is a prerequisite for behaviour change, a supposition backed by empirical studies. These models posit the view that a high perceived risk of harm encourages persons to take action to reduce their risk. However, the empirical literature that links risk perception and health behaviour is a subject of much contention on the methodology employed.²⁸

A noted risk analysis expert has cautioned, that

“There is, for instance, a contemporary cultural proclivity to speculate wildly as to the likelihood of adverse events and to demand high-profile responses and capabilities based

on worst-case scenarios. In the end this only serves to distract attention and divert social resources in a way that may not be warranted by a more pragmatic assessment and prioritization of all the risks involved”.²⁹

Professor Peter Curson, a medical geographer and director of the health studies programme at Macquarie University noted that our responses to health risks, whether rational or not, reflects differences in human nature that are unrelated to the likelihood of contracting a disease. He claims that there is little doubt that fear of infection and disease is shaped not by empirical evidence of risk, but by how we view the world around us.³⁰

Honesty and transparency in public risk communications strategy is widely touted as a given. However, the knee-jerk reaction of most governments is to conceal information about a disease outbreak from the public. We have seen this during the severe acute respiratory syndrome (SARS) crisis. To begin with, there is always the earnest hope that the disease will fizzle out sooner than later, and concerns about causing panic and prompting trade and travel restrictions have to be weighed against any benefit in calling for international assistance. It is further complicated because the average layperson cannot unravel the mathematics of early epidemic predictive models. The simple fact is that people inevitably look to governments to provide clear answers.

In Singapore, health risk communications assumed priority after the encounter with SARS in 2003. The broad communications objectives for an avian flu crisis were agreed on at an early stage of the campaign in early 2006 and were not very different from the objectives spelt out earlier for SARS, i.e.

- a) Address public concerns and fears about safety through public education;
- b) Maintain public morale and confidence and support for Government initiatives;
- c) Reassure the public of Government’s commitment to their health, safety and welfare and its ability to cope with a crisis and future outbreaks;
- d) Seek community support to be personally and socially responsible (e.g., seeing a doctor when unwell and staying at home, avoiding public places etc);
- e) Encourage and facilitate optimal levels of functioning in the community (i.e., business continuity) while reinforcing the need for vigilance;
- f) Promote changes in lifestyle – e.g., dietary habits and preferences (use of fresh egg alternatives like liquid/powdered eggs) to cope with the epidemic;
- g) Maintain international trust and confidence in Singapore’s crisis management of a pandemic.

The Defining Moment: SARS

It may be useful to recall some of the key lessons from Singapore's painful encounter with SARS in early 2003. The experience helped to prepare the Government and people to better manage the new disease of avian flu and the pitfalls and problems encountered thereof in the process. Singapore is a particularly useful case study because of its extreme vulnerabilities – its location on the key air and shipping routes through the region and its geographical proximity to countries identified as hotspots for human deaths resulting from avian flu.

SARS brought home the lesson that sudden outbreaks of infectious diseases not only endangered human life but also threatened the very existence and survival of nation-states. Geographical proximity to countries identified as hotspots for avian influenza human deaths meant that Singapore had to have an effective defence strategy against an influenza pandemic. At the height of the SARS crisis, as fear took root amongst the populace, restaurants, hotels, shopping malls, airplanes, cruise ships and major streets, all emptied thereafter. Not knowing how to avoid infection and what precautions to take, people avoided all forms of human contact. The tourist, travel and hospitality industries in Singapore and the region were the first to suffer. Industrial production came close to being disrupted and brought the economy to its knees.

But, in the arena of health risk communications at least, Singapore (and Vietnam) received the highest accolades for its management of SARS in 2003. A disease expert from the US Centers for Disease Control and Prevention, based in Singapore at that time – Dr Ali Shan Khan – was effusive in his praise, observing that:

“I can't think of anything that Singapore could have done better. Based on the knowledge they had at any given time, they made the right set of decisions...Singapore keeps pushing the envelope”.³¹

More recently, a 307 page book by the WHO released in May 2006 titled *SARS: How a Global Epidemic Was Stopped* noted that, in many ways, Singapore served as a model for cracking down on SARS and that “early cooperation from Singapore provided essential information that helped in the global control of the SARS outbreak”.³² Another observer, Associate Professor Stewart Auyash was prompted to observe that:

“Singapore government's repeated communication of intelligible health measures about SARS were a key to overcoming the negative effects of the epidemic – socially, economically, politically and medically.”³³

The SARS experience highlighted a number of crucial

factors, especially important in public health risk communications – which helped Singapore to meet the challenge.³⁴ These may be briefly summarised:

- Decisive leadership with the highest levels engaged at the earliest possible moment;
- Transparency and honest communication in a time of great uncertainty to reach out to the greatest numbers. The Government did not deny the facts but conveyed both good and bad news to the people to empower them to make their own decisions;
- Earning the trust and confidence of all Singaporeans with symbolic and substantive measures to reassure the populace;
- Employing a multi-disciplinary approach with no artificial boundaries between medicine and engineering and other disciplines. This was evident in the deployment of the Infrared Fever Screening System, hailed by Time magazine as one of the coolest inventions of year 2003.

The SARS experience was an invaluable “rehearsal” for confronting a pandemic. Many new policies and changes were implemented soon after SARS. Basic hygiene became a key means of defense against a dreaded enemy. At the operational level, hospitals added in more high-tech isolation rooms, redesigned traffic flow through the buildings, curbing the numbers of exit and entry points to have better control of visitor movements. The Infrared Fever Screening System became an essential part of border security measures and amendments to the Infectious Diseases legislation enacted during SARS were critical to arrangements undertaken for avian flu. SARS showed the importance of adding capacity to the healthcare response system with pooling of personnel staff from a range of agencies the Singapore Armed Forces (SAF), Singapore Civil Defense Force and others roped in for contact tracing and other duties. Cooperation between agencies across disciplines and planning for a collective response to a pandemic became, as it were, a standard operating procedure.

In May 2006, Singapore was elected to the executive board of WHO as one of the 34 executive board members. Singapore's Health Minister observed that whilst Singapore had been an active participant of WHO, it had “not being too active” in the WHO headquarters in Geneva. But he noted that “SARS taught us that international cooperation is of increasing importance if we want to protect our own health better”.³⁵

Confronting Avian Flu

The Ministry of Health (MOH) began working on its plans for a pandemic earlier, even before the WHO called on countries in early 2005 to shore up their defenses against an imminent flu pandemic.³⁶ In any case, intermittent reports on the isolation of the highly pathogenic avian

influenza H5NI virus had been reported in Guangdong Province in 1996 with subsequent outbreaks in Hong Kong in 1997, followed by a wave of bird flu in poultry in South Korea, Cambodia, Indonesia, Japan, Laos, Thailand and Vietnam in 2003 and 2004. Bird flu caused deaths of more than 6000 wild birds from different species at Qinghai Lake in central China in 2005 and was carried thereafter along the winter migratory routes towards Europe.

MOH's Pandemic Response Plan was premised on the objective of i) maintaining essential services in order to limit social and economic disruptions; ii) reducing morbidity and mortality through treatment of all influenza-like cases; and iii) slowing down the spread of influenza to reduce the surge impact on healthcare and other vital systems.³⁷ MOH's planning parameters were premised on a study of available literature and findings from the 6 pandemics in the past 2 centuries of varying severity. Pandemic influenza mortality data from Singapore's own experience in 1918, 1957 and 1968 were taken into account and scenarios were drawn up. The US CDC's Flu Aid model served as a guide, itself based on data from the 1957, 1968 pandemics and suggested that epidemics triggered by imported human cases with one or more waves, each lasting 6 weeks would be the most likely scenario. Assuming an attack rate of 25%, the MOH estimated that an influenza pandemic would result in 550,000 cases requiring outpatient treatment, 11,240 cases requiring hospitalisation and approximately 1900 deaths in Singapore in the first wave. This would be expected to last between 6 to 8 weeks. The next wave of pandemic influenza could occur 3 to 6 months later.³⁸

At its first major press conference in June 2005, the Ministry issued its detailed plans which included a commitment of S\$100 million with about S\$30 million allocated to build up a stockpile of Tamiflu to manage a 25% attack rate on the population. Another S\$25 million was spent on building an additional Communicable Disease Centre at Tan Tock Seng Hospital.³⁹ The centre now has 166 isolation rooms, whilst before SARS there was only 22. Another \$50 million would be spent to build up similar capabilities in other public hospitals. In its national strategy, the Ministry outlined its alert levels and the necessary surveillance and other measures required at each stage and various scenarios and modes of action, and contracted a vaccine manufacturer to make up to 10 million doses of vaccine upon successful testing.

MOH's colour-coded, Disease Outbreak Response System (DORS) would be the framework to respond to any outbreak, crafted along the lines of WHO's framework, but with some modifications. The lowest level of threat is GREEN, the alert code before and after an outbreak. During an outbreak, threat levels move between YELLOW, ORANGE, RED and BLACK, in ascending order of

severity. At alert RED, the pandemic is underway and has spread to Singapore, the healthcare system will be stretched and is likely to be overwhelmed. Alert BLACK occurs when morbidity and mortality are high, and emergency measures will be needed to bring the situation under control.

The MOH also made it clear that it would work closely with agencies like the Agri-Food Veterinary Authority (AVA) to keep vigil on outbreaks in poultry and manage imports from infected countries, a potential source of avian flu. Officials also closely monitored outbreaks in humans in neighbouring countries. Whilst SARS had caught Singapore and most countries by surprise, Singapore was better prepared for a bird flu pandemic – with sophisticated disease surveillance systems, anti-viral stockpiles and state-of-the-art isolation rooms in hospitals. New measures included the setting up of flu clinics at polyclinics to detect and treat cases early. MOH's detailed plans were made widely available to the public online at www.moh.gov.sg and reported in the press.

Thereafter, "whole-of-government" procedures, enhanced after the SARS crisis, kicked in and a multi-pronged approach was undertaken to meet the challenge posed by the pandemic.⁴⁰ The guiding principle at the onset was that an influenza pandemic would constitute a national, and not just a public health, crisis. The HomeFront Crisis Executive Group (HCEG) – comprising senior civil servants from core Ministries like Health, Defence, Home, Foreign Affairs, Information, Transport, Trade & Industry, Environment, Education and Police, Civil Defence and chaired by the permanent secretary of Home Affairs discussed the threat at its meeting in mid 2005. The HCEG provides the executive command during a civil crisis or emergency. Cutting across the top levels of the civil service, it has the authority to marshal resources across the entire public sector, and the teeth to ensure compliance. Other Ministries and agencies are roped in when they are needed. The recommendations of the HCEG are overseen by a ministerial committee chaired by the Deputy Prime Minister in charge of Home Affairs and including Ministers from key Ministries. The Ministerial Committee had met even earlier in 2004 to endorse the baseline scenario to guide planning by agencies.

Communications Strategy

The key agencies under the umbrella of the HCEG, took on a three-pronged strategy to alert, educate and prepare the public for the threat of a pandemic. Mass public health education clearly took on a higher priority. It was crucial to empower the population with the factual information needed to prevent the spread of the disease and to take measures to save themselves and their families. Communication is also

critical to rally the people to fight the disease together and finally, the strategy sought to reassure the people that the state had the resources and determination to face the threat and that people should live their lives as normal as possible.

The public education effort through 2005 and 2006 was conducted on many fronts using every possible media platform. The AVA and MOH issued many press releases and conducted press conferences on the poultry supplies in Singapore, bio-segregation measures and actions to be undertaken in the event of avian flu penetration, availability of flu vaccine, public advisories on influenza, avian flu plans, travel tips, requirements for business continuity and medical directives to registered medical practitioners. MOH and its agencies also organised briefings to healthcare workers, government agencies, business community, grassroots leaders and foreign community.

At the same time, a host of informational literature was made available to the public and this included a Singapore Government Flu Pandemic Portal (www.flu.gov.sg). Collaterals like brochures on Influenza titled “*Flu...Bird Flu...and now Flu Pandemic*” were also produced for mass circulation to the grassroots, unions and community leaders. A Flu Pandemic handbook written in 4 languages was circulated to more than 1 million households in Singapore in May 2006. Posters on “Be Flu Free” and “The Flu, Are you Prepared?” and “Fight the Flu” pamphlets were also distributed to grassroots organisations, schools, hospitals, polyclinics and workplaces. Other media platforms included the use of TV commercials and interstitials, a Print Ad campaign in the local media to communicate the 3 key areas of flu prevention – good personal hygiene practices, healthy habits to boost immunity and travel tips; online polls, advertorials and a 3-part TV documentary was aired on domestic TV channels in April 2006. Much effort was also devoted to briefings by MOH, Ministry of Trade and Industry and its agencies to various business associations, embassies, international organisations, industry players on the pandemic threat and the importance of ensuring business continuity.

The second prong of the effort focused on generating maximum awareness through media publicity to assure the populace that the government was also doing its share in coordinating emergency preparations to confront and manage the outbreak. This was achieved through regular Exercises conducted by the key agencies. Whilst in-house table-top Exercises were not open to media coverage, others like *Ex Gallus IV* in October 2006 by AVA was well reported. It was the 4th Avian Flu Exercise in culling and involved employing foreign workers who would play a key role in culling up to 2 million chickens in the event of a sudden outbreak. AVA followed up with *Ex Gallus V* on 10 January 2008 to emphasise the need for Singapore to

maintain its high level of vigilance. Likewise, a campaign by the Ministry of Trade and Industry to get people to stock up a 2 weeks’ supply of canned food and other non-perishable food items for every household’s need in the event of an emergency was also well reported. The biggest effort – *Exercise SparrowHawk* – in July 2006 involved more than 18,000 personnel across Government ministries, hospitals, polyclinics, immigration and airport authorities, schools and grassroots organisations with each organisation enacting different scenarios and information-gathering procedures. Singapore’s flu pandemic defence system was given a thorough 2 days workout and saw mock flu victims arriving at schools, border checkpoints and hospitals. In the Exercise, a simulated RED alert was issued, indicating that a full blown pandemic had broken out on the island. The key objective was to test the reactive capabilities in the event of an influenza pandemic and to fine-tune the MOH’s Influenza Pandemic Readiness and Response Plan. Regional observers also joined government ministers and officials to watch the proceedings.⁴¹ One observer noted that by adopting an integrated defence strategy against an influenza pandemic, the Exercise represented a step towards positioning health security at the forefront of Singapore’s national security agenda.⁴²

The final prong of the communications strategy called on agencies to conduct in-depth, substantive studies on public communications issues in the lead up to RED and BLACK scenarios primarily through a series of meetings and table top Exercises. The issues covered areas like border controls, business continuity and social distancing measures. A potentially difficult issue in health communications was the manner in which the limited antiviral Tamiflu stocks would be deployed. In July 2006, the MOH made clear its position that in the event of a flu pandemic, the Government would set up a central database to keep track of patients who have received the drug. This is to prevent them from doctor-hopping and getting more of the drug than needed. Tamiflu would be given to patients with respiratory infections and frontline medical staff. It would not be given to healthy people who wanted to use it to prevent themselves from getting infected. The MOH made it clear these measures would be taken to ensure that there will be enough supplies to treat every patient.⁴³

Similar concerns could also emerge when vaccines are made available at some points in a pandemic. Logically, those at highest risk are normally vaccinated first – doctors, nurses and medical staff, funeral workers etc. This issue has come under scrutiny elsewhere. A bioethicist at the University of Vermont argued in the journal *Science* whether adolescents and the middle-aged group should leapfrog the elderly and babies given the big difference between saving the most lives and the most life years.⁴⁴ More recently in

May 2008, an influential group of physicians in the US have proposed guidelines on patients who should not be treated by hospitals in a pandemic or other widespread healthcare disasters in view of scarce resources. The recommendations probably violate federal laws and may not be allowed.⁴⁵ Nonetheless, the point is clear – making socially optimal decisions require governments to factor in responsibility for the consequences of their inactions. For example, not reserving the last doses of Tamiflu for the least sick in a protracted flu pandemic when stocks run out could cause the number of deaths to increase.

The need for health education to create an awareness of “social distancing” measures as a second line of defense in a pandemic was also important. New analyses of how American cities responded to the killer Spanish Flu of 1918 suggests that closing schools, banning large gatherings, staggering work hours and quarantining households of the ill may have saved tens of thousands of lives.⁴⁶ This was an issue that gripped the time and effort of many agencies. Much attention was devoted to planning for the availability of alternative resources like increased broadband capabilities for telecommuting and educational programming for schoolchildren on local TV channels during a pandemic.

Dilemmas in Communications

At the point of writing, there have been some 241 deaths since 2003, with 383 cases of avian flu infection reported to the WHO as at 28 May 2008. Indonesia has had the largest number (108) of fatalities from the disease followed by Vietnam (52). The total number of deaths (59) in 2007 represented a decrease from 79 deaths in 2006.⁴⁷ For Singapore, the most alarming signs were cases detected in neighbouring Malaysia in June 2007.

The health communications effort over the past 2 years to educate Singaporeans to a pandemic has generated 3 concerns:

SARS Mindset

Whilst managing SARS may well have been a defining moment for Singapore, earning us much praise from foreign observers, its limitations were all too evident. From the start, it was clear that repeated references to the SARS experience would not do. It would generate complacency and a false sense of security in the populace that a repeat of similar measures would suffice to see Singapore through a pandemic. There was already too much confidence that similar border health screening measures used during SARS like the much vaunted Infrared Fever Scanning Systems would prevent the importation of the avian flu virus into Singapore. However, medical specialists at a WHO event in 2004 concluded that screening incoming

travellers for flu symptoms “lacks proven benefits” and they were skeptical about public fever screening and fever hotlines in slowing the spread of a pandemic”.⁴⁸ In marked contrast to SARS where it took as long as 10 days for a person to become infected, in the case of the avian flu pandemic, the individual becomes infected in 1 to 4 days. Also in contrast to SARS, a person infected with the flu virus is already infectious before symptoms appear.

Pandemic Avian flu, unlike SARS, infects massively. The panic that is likely to be prompted by a flu pandemic would be of a far greater magnitude and as large numbers would be dying and disposal of the dead would be too slow to cope, the public would be immediately made aware of its seriousness early. The public would readily understand that the virus is highly contagious and picked up not only from crowds but also from contaminated environmental surfaces on buses, trains and restaurant seats. Recognising the scope of the problem, an amendment to the Infectious Diseases Act debated in Parliament in April 2008 gave the Health Minister sweeping powers that included the authority to shut down shopping centres, commandeer the use of private hospitals and arrest suspects without a warrant.

For health risk communications officials, it became apparent that many of the novel confidence building campaigns undertaken during SARS would not have much effect in a pandemic. This included the Ministry of Environment’s *Singapore Okay* campaign to reassure Singaporeans that hawkers, retail and service staff at hotels and restaurants monitored their temperatures daily and wore special stickers to indicate they were fever free and that standards of cleanliness in public toilets were maintained. Another campaign organised by the Singapore Tourism Board, *Cool Singapore* helped to assure visitors that hotel staff and facilities were closely monitored and free of SARS. More efficient methods had to be thought through. Similarly, many operational plans relating to quarantine employed during SARS as the primary isolation instrument could not be necessarily effective in a pandemic.

Complacency and Fatigue

The pandemic threat has gone through an erratic cycle. In mid 2006, it was noted that the flocks of migratory birds that winged their way south to Africa and back to Europe did not carry or spread the H5N1 virus as predicted. International health officials had feared that the disease was likely to spread to Africa during winter and return to Europe with a vengeance during the reverse migration in spring 2006.

By end 2006, just a year after the UN coordinator David Nabarro had warned that up to 150 million people could be affected with the avian flu pandemic virus, fewer than 300 cases had been confirmed and only 158 died – a fact that Dr

Nabarro claimed was testimony to the unusually strong coordination between and commitment by governments, donors, corporations, scientific community and health organisations. At best, he could only say “there will be an influenza pandemic one day”.⁴⁹ By early 2007, sporadic cases continued to sprout yet again in East and Southeast Asia. In December 2007, China’s Vice-Agriculture Minister warned of a “very high” possibility of bird flu outbreaks over the winter and spring months as the country hunts for the causal link between a son and father struck by the virus.⁵⁰ In December also, WHO warned that new human infections had been reported in Pakistan and Myanmar. In June 2008, an H5N1 outbreak in outbreak in Hong Kong’s poultry market revived concerns that the disease could still be a problem with poultry flocks in Southern China.

For risk communications officials, however, this erratic pattern spells trouble – a new enemy lurking in the fight against a pandemic is complacency, indifference and just plain fatigue. It is apparent in the waning media coverage in much of the region. In Indonesia, a reporter observed that “With quakes and *tsunamis*, no one’s got time for bird flu”.⁵¹ In Singapore, the local newspaper, *The Straits Times*, observed in March 2006 that despite constant messaging by authorities on how to handle dead birds for example, it had not registered “more than a tweet in the public consciousness.”⁵² A local business paper, *The Business Times* article in March 2006 titled *Who’s afraid of avian flu?* reported that a Singapore Business Federation survey showed that of 251 manufacturers interviewed in Singapore, only 55% had some form of Business Continuity Management plans in place.⁵³

But “flu planning fatigue” is not solely confined to Southeast Asia. Throughout 2005, President Bush and US officials held numerous conferences and meetings on pandemic preparedness, but in 2006, discussions of the issue had all but disappeared. There was no mention of it in the mid-term election debates or position papers and no hearings reported in the US Congress. One observer noted that a search of general news articles on H5N1 in 50 major newspapers in the US yielded over 850 articles in October 2005 but only fewer than 75 articles in November 2006.⁵⁴ A similar trend may be discerned in published medical journals.

Dependency on Government

Compounding the general sense of complacency has been an over reliance by Singaporeans on the ability of the Government to confront a pandemic. Soon after the SARS crisis in 2003, one local columnist commented on the weak performance by civil society groups in Singapore.⁵⁵ He noted that the strength of civil society is a measure of how much individuals trust one another to come together for a

common cause but observed that it was very late in the game and only with much prompting by government that civil society groups in Singapore came forward. He asked where were the clan associations who could have helped to reach out to the dialect groups for whom messages were not getting through? Hawker organisations and business associations did not come forward with ideas or suggestions. Only later in the day did the Singapore Medical Association and Singapore Nurses Association come up with the Courage Fund. The columnist pointed to the inevitable conclusion that Singaporeans had such faith in government that they believed they could just leave it solely to them to deliver.

One study of the SARS outbreak in Singapore in early 2003 revealed that the overall knowledge about SARS and control measures being undertaken was low. Despite the low knowledge score, the overall mean satisfaction score of the government’s response to SARS was 4.47 (out of possible high score of 5.00), with >93% of adult Singaporeans indicating they were satisfied or very satisfied with government’s response to SARS. Generally, Singaporeans had a high level of public trust (satisfaction with government, confidence in institutions, deeming government measures appropriate), scoring 11.4 out of a possible maximum of 14. In short, the study concluded that Singaporeans may not require high knowledge sufficiency to be confident of measures undertaken by the government to control an infectious outbreak.⁵⁶

Moving Ahead

Indeed, anecdotal accounts and public opinion surveys taken during SARS in a number of countries provide some glimpses of trends in public perceptions. Over the longer term, we need to better understand how disease biology, epidemiology and behavioural choice are interwoven. This could help us to better understand how people gather information, how it is conveyed to them, how they formulate their own perceptions of risks and make decisions to help themselves and their families in infected situations.

Meanwhile, the immediate challenge facing public health communications officials is how to sustain public interest and awareness over a protracted period. At best, officials can continue to stress high standards of hygiene and call on the populace at every available opportunity to be alert to health threats and act as advised by the authorities. The constant message put out through press releases, posters and even mobile health exhibitions, is that despite all the precautions taken, there is every possibility that bird flu could reach Singapore sooner or later. Singaporeans have been called to observe simple precautions, to take advantage of the flu handbook circulated to all households and information widely available in brochures and on the net, to prevent exposure and infection by the virus and continue

with their everyday lives.

David Nabarro, the UN coordinator observed aptly that “*You don’t stop airport security screening because there have been no hijacks for two years. The danger of a pandemic is as profound now as it was a few years ago.*”⁵⁷ In real terms, the pandemic at the end of the First World War with mortality rates in the tens of millions remains the iconic worst case scenario at the core of our fears. Maintaining public trust is particularly crucial given evidence from measures taken during the 1918 Spanish Flu. The officials at that point sought to downplay the pandemic to rally morale for the War effort and the result was a breakdown of social order as people distrusted the government when the rhetoric clearly failed to match reality. In striking contrast, San Francisco did not suffer the same fate because officials were upfront about the disease.⁵⁸

Health risk communication is an important area of expertise. It is a growing necessity in an increasingly troubled and uncertain public health eco-system. Risk communications calls for difficult decisions from professionals engaged in public health and medicine. And, given that our historical record of predicting evolving infections is not great, careful planning and preparations appear to be the only sensible option.

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