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# Preparing for the Pandemic Flu from a Risk Management Perspective

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## Introduction

Since the avian flu outbreaks among bird populations in Southeast Asia, Europe, and, most recently, Africa, and the infection of humans who have had direct contact with sick birds, the international health community has been extremely concerned about a possible pandemic or worldwide epidemic.

It is believed the avian flu originated in China, which had its first human case in 1997 (McNeil Jr., 2006), although the first human-to-human transmission is suspected to have occurred in Vietnam in a household in 2004. The possibility that the infection was directly from poultry, however, was never ruled out (Centers for Disease Control, 2004). Thailand, Vietnam, Indonesia, and China have all been hit with half of the human cases occurring in Vietnam. The UN believes that aggressive measures involving the killing of infected birds and the inoculation of healthy ones have stemmed the tide of new outbreaks in Thailand and Vietnam in the past year (McNeil Jr., 2006).

This article examines the pandemic flu phenomenon, its ramifications, and guidelines for preparedness and containment. It argues that organizations, whether for profit or non-profit, must approach a possible pandemic from a risk management perspective if they are to survive and remain financially viable.

## What Is Pandemic Influenza?

The common or seasonal flu is a respiratory condition that is transmitted from person to person. Most people have some degree of immunity to it, and there is a vaccine for it. There were human flu epidemics in 1918–1919, 1957–1958, and 1968–1969. Avian flu, on the other hand, is one that is caused by flu viruses that occur among wild birds, and for which there is neither human immunity nor a vaccine. It has several strains, such as the H7N7, which is not as highly pathogenic as the H5N1 strain, also known as influenza A. The latter strain is deadly to both domesticated birds and humans (Centers for Disease Control, 2004).

The fear is that the H5N1 strain could mutate and spread among humans through aerosolization, thus causing a global health problem or pandemic, which is defined as the emergence of a new virus in the human population that has the capacity to spread from person to person on a global scale (Centers for Disease Control, 2004).

A recent fictional ABC TV movie titled "Fatal Contact: Bird Flu in America," has raised both concerns and awareness. In the movie, an outbreak of H5N1 in Hong

Kong leads to a mutation of the strain and human-to-human transmission of global proportions (United States Department of Health and Human Services, 2006).

## Ramifications of a Pandemic

The ramifications of a pandemic transcend many issues. These include health, economic, and socio-political issues, as well as potential issues for law and order.

### Health Issues

In the United States alone, it is estimated that 200,000 to 2 million people could die from the pandemic flu (The White House, 2006). Depending on the severity of a pandemic, it is projected that infections could range from 75 million to 90 million people. The Congressional Budget Office projects that 30 percent of non-farm workers (about 90 million people) will be infected and miss an average of three weeks of work, while 10 percent of farm workers will be infected and miss a week of work. It is projected that 10 percent of those infected might need to be hospitalized (Knapp, 2006). Governmental organizations such as the Centers for Disease Control (CDC) are very concerned about protecting health care workers caring for people infected with H5N1. With each human infection, the virus may become more adaptable to humans, and, therefore, more easily transmissible. It is hoped that seasonal flu vaccinations of health care workers will reduce the risk that avian and human flu viruses will infect a person simultaneously, which could potentially result in genetic changes in the viruses and the emergence of a pandemic strain. Guidance on measures such as having respirators and masks in public and workplace settings is being given by the Department of Health and Human Services (HHS) and the Department of Labor (DOL).

Using historical data from past pandemics, HHS is stockpiling enough seasonal flu vaccine to treat 25 percent of the U.S. population in the event of a pandemic. Experts estimate that it could take up to six months to isolate the new strain and develop a pandemic vaccine to treat it. It is hoped that the impact of the strain during this vaccine development phase can be reduced by an experimental pre-pandemic H5N1 vaccine that is currently being developed and stockpiled to treat 20 percent of the population. The government is also pushing for improvements in vaccine production technology and capacity in order for the public to have more ready access to vaccines (United States Department of Health and Human Services, 2006). Congress appropriated $3.3 billion to HHS for fiscal year 2006 for the development of technologies to promote production of a cell-based vaccine, as opposed to an egg-based vaccine (United States Department of Health and Human Services, 2006).

### General Economic and Societal Impact

A severe pandemic could lead to extensive illness, loss of life, lost productivity, disruption of social and public services such as transportation and educational services, disruptions in the conduct of governmental functions, and business interruption losses in the form of college and business closures. It is thought that up to 40 percent of any organization's employees may be unable to report to work for a couple of weeks at the crest of an avian flu wave because of personal or family sickness (The White House, 2006). In 2005, the United States' GDP was estimated at $12.4 trillion. A significant percentage of that could be lost in the event of a pandemic. The U.S. Chamber of Commerce estimates that the cost to our economy would range from $160 billion to $675 billion. There is also the potential for civil disorder resulting from challenges law enforcement agencies would face due to shortages of goods and services during a pandemic.

**Abstract**

*This article argues that organizations should approach the threat of a pandemic not only from a health perspective, but from a risk management perspective, if they are to survive such an event and continue to remain financially viable. It discusses the avian flu phenomenon, its potential ramifications, governmental guidelines for pandemic planning, and how organizations, including businesses and higher education institutions, must approach the threat of a pandemic from an enterprise risk management perspective. It shares examples of pandemic plans from higher education, the financial services industry, and manufacturing, and emphasizes that each organization will need to examine its unique circumstances, the nature of its business, the flow of its operations and revenue streams, its suppliers, customers or clientele, and other relevant factors, in order to tailor an appropriate risk management response to the pandemic flu with the aim of ensuring its continued financial viability.*

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## General Preparation for a Pandemic

Planning by individuals, families, communities, organizations, and governmental authorities is going to be critical. Planning guides for different entities, including schools and businesses, have been developed by the government, and are available on its pandemic flu web site www.pandemicflu.gov (Centers for Disease Control, 2006).

In November 2005, the White House issued a national flu pandemic strategy and implementation plan containing strategies for protecting human and animal health, protecting personnel, and ensuring continuity of operations. State and local governments are also designing plans to respond to an epidemic (The White House, 2006). The Commonwealth of Pennsylvania's Department of Health is considering stockpiling Tamiflu to supplement the estimated 1.8 million courses it would be allocated out of the federal government's stockpile. The federal government hopes to stockpile 80 million courses by 2008 to serve 25 percent of the U.S. population. There are 12 million people in the Commonwealth, which estimates that it will need another 1.2 million courses in addition to its federal allocation in order to adequately protect a quarter of its population (Levy, 2006).

The federal government's plans call for cooperation and coordination among local, regional, state, national, and international efforts (The White House, 2006). The Department of HHS and the CDC have developed checklists as a framework to assist various organizations, including businesses, colleges, and universities, in developing plans for a pandemic. The guidelines also hope to improve responses that are currently being developed (Centers for Disease Control, 2006).

## Approaching a Possible Pandemic from a Risk Management Perspective

Widespread illness and deaths resulting from a pandemic can have significant and potentially devastating financial consequences for businesses, educational institutions, and other organizations, as a result of the toll on human resources and resultant disruptions in operations. Lost productivity will result from the estimated 40 percent of an organization's workforce that could be absent for two weeks at the height of a pandemic wave, and the smaller percentages that are expected to be absent for some weeks before and after the pandemic peaks (The White House, 2006). Absenteeism on the part of employees may not necessarily be the result of actual sickness, but because of people taking time off to care for sick family or children dismissed from school, or simply out of a concern for their own health and safety (The White House, 2006). It is, therefore, imperative that organizations plan for the potential impact of a pandemic on their continued financial viability.

In a worldwide survey of 553 companies, the Conference Board, the New York-based international business and research organization, is reported to have found that 75 percent of the companies surveyed already had or were in the process of developing avian flu response plans (Hoffman, 2006). Larger companies were more likely to either have or be in the process of developing a plan than smaller companies. About 35 percent of companies with sales of less than $100 million had no pandemic preparedness plans, while only 3.3 percent of those with sales of $5 billion to $10 billion, and 7.1 percent of those with sales above $10 billion, did not have such plans (Hoffman, 2006). The Conference Board of Canada, however, found in a recent survey that only 4 percent of Canadian organizations have concrete pandemic response plans. About 71 percent are working on such plans, while 25 percent have no such plan and have none in the works (Gonzalez, 2006).

Risk management is a process for systematically managing risk or the uncertainty of loss. When used in the business context, the term has been defined as a managerial process involving the executive functions of planning, organizing, leading, and controlling activities in a firm dealing with specified risks (Trieschman and Gustavson, 1998). During the risk management process, an organization systematically identifies and evaluates risks it faces, selects and implements strategies for managing the identified risks, and continually monitors results and effects necessary modifications to its risk management program. The goal behind managing any particular risk is to reduce its cost to the organization in order to maximize the value of the organization (Trieschman and Gustavson, 1998). Managing the risk of a pandemic would require making strategic arrangements before the onset of a pandemic for the resources the organization will need in order to remain operational and financially viable in spite of a pandemic. These measures would be aimed at minimizing the adverse effects of a pandemic and maximizing the value of the organization. In that regard, pandemic planning should only be one aspect of a holistic risk management approach, referred to in risk management terms as enterprise risk management.

Measures to protect the health of personnel will be a critical part of an organization's strategy. This would, as the federal government has recommended, include vaccination, early detection and treatment, preventing the spread of infection in the workplace, and the use of liberal leave policies (The White House, 2006). Strategies to use alternate decision-making processes, such as teleconferences and web-based communication modes, need to be considered and put in place. Organizations also need to examine their revenue streams to determine how they can protect against loss of revenues.

For higher education institutions, the capacity to deliver instruction using the web or online delivery modes, public access cable television, radio, or even correspondence, all of which are part of the Centers for Disease Control's planning checklist for colleges and universities (Centers for Disease Control, 2006), could ensure that classes can continue to be taught, thus preventing a loss of tuition income in the event of a need to physically close the campus for a period of time. The University of California at Berkeley is already offering podcasts of courses through iTunes. It records audio and video of the lectures and makes them available through Apple Computer's iTunes stores. One can download the lectures to an MP3 device using iTunes (Read, 2006). A major challenge for higher education institutions with residence halls will be to devise strategies to keep the campus and the residence halls safe enough to prevent closure and a consequent loss of revenues from room, board, and tuition charges. Finding ways to protect revenue streams from continuing education unit operations through online instructional capabilities will also be an important component of risk management in the higher education context. In the struggle to survive in the post-Katrina era, one university in New Orleans was planning to expand its online offerings from a few courses to several degree programs, and was hoping that one-quarter of its students come fall 2006 would be pursuing degrees online (Mangan, 2006).

Many higher education institutions are in the planning stages for a pandemic. At Penn State University, for example, guidelines prescribed by the CDC and the World Health Organization (WHO) are being used to plan for a pandemic. Penn State University has established an Infectious Hazards Planning Group to coordinate pre-pandemic planning. It is developing an internal and external communications strategy and strategies for coordination with local and state health departments and appropriate federal and international organizations such as WHO. Plans for disease prevention, quarantine, respiratory isolation, social distancing, travel management, and vaccine distribution are being developed. An Emergency Management Group has been established to implement these plans during an actual pandemic. At the Mont

Alto campus of Penn State University, pandemic planning is only part of a holistic approach to enterprise risk management by the campus' risk management committee. The committee is working with personnel at the University Park campus to put plans in place that are consistent with the CDC and WHO guidelines, and to coordinate efforts with appropriate local, state, and federal agencies.

Various other organizations have already developed plans for dealing with a pandemic. In the airline industry, for example, some airlines have already put measures in place to prevent the spread of infection on their planes, which will, in turn, promote passenger confidence in the safety of their operations during a pandemic, thus safeguarding against potentially crippling financial losses. One such airline is Thai Airways International, which has retrofitted its entire fleet of 80 planes with High-Efficiency Particulate Air Recirculation (HEPA) filters. It is believed that HEPA filters can sift out airborne contaminants such as bacteria and, thereby, prevent infected passengers from infecting others (Wright, 2006). The airline has worked with the Ministry of Public Health in Thailand to develop a Biological Outbreak Operations Manual, which it will put into effect in the event of a pandemic. Some of the measures it would use include containing infection by deploying the same planes in pandemic-stricken regions and completely disinfecting planes after each flight. All disposable products would be discarded after every flight to an infected region, and all reusable products such as pillows and blankets would be sterilized before repackaging (Wright, 2006).

Depending on severity, the impact of a pandemic on the life and health insurance and reinsurance industry could be staggering. Based on a Congressional Budget Office scenario using 2005 levels, one commentator projects that employer-sponsored health plans could experience a 10 to 15 percent cost increase, which would amount to $50 billion. Loss reserving may become more problematic because labor shortages in the health care industry may affect the timely submission of claims (Knapp, 2006). Some health insurers are reportedly seeking out reinsurance coverage specifically for the avian flu in the London market, which reportedly has a pandemic reinsurance capacity of $100 million. Rates for the coverage, however, are said to be very high (about 10 percent of coverage). Nonetheless, interest in the coverage is said to be peaking, and reinsurers are working on solutions (Kertesz, 2006).

A study by the Insurance Information Institute estimates that a severe pandemic could result in total life insurance claims of $133 billion ($54 billion for group life insurance and $79 billion for individual life insurance policies). The study estimates that a moderate pandemic could result in $31 billion in life insurance claims ($11 billion for group life and $20 billion for individual life policies). The study notes that although reinsurance might help mitigate these losses, the concentration of claims expected from a pandemic might affect the ability of some reinsurers to pay claims, thus resulting in a need on the part of some insurers to borrow from the capital markets in order to pay claims (Kertesz, 2006). Coupled with this claims scenario will be the industry's own labor shortages and reduced investment returns from a general economic downturn (Knapp, 2006).

Although most insurers have not made their pandemic plans public, the American International Group (AIG) Insurance Company has indicated that it has reinsurance programs to partially offset the effect of a pandemic on its operating results (Kertesz, 2006). Swiss Re reports that it would monitor the impact of a pandemic on both financial markets and mortality. It states that it has modeled for a pandemic and set capital aside. Swiss Re's chief risk officer for life and health business in London states that a lot of mortality cover in the United States is reinsured, although rising prices are leading to increased retentions for new business. Swiss Re has also purchased protection from the capital markets against an unexpected severe rise in mortality by way of a

mortality bond to the tune of $760 million. The bond would be triggered if mortality exceeds expectations by 30 percent (Kertesz, 2006). Life insurers appear to be buying reinsurance for the usual reason of smoothing mortality rates, not to cover catastrophic mortality. There does not appear to be a specific life reinsurance product tailored specifically toward an avian flu pandemic. ING Reinsurance Company, however, has indicated that a handful of its clients, referring to the avian flu as one of the reasons, are interested in "abnormal mortality stop-loss coverage" (Kertesz, 2006). The policy would be triggered if mortality rates exceeded expected levels by 110 to 120 percent, with coverage ranging from a few million dollars to $40 million (Kertesz, 2006).

Other than dealing with its own labor shortages, disruptions in the insurance intermediary distribution system, and the impact of a general economic downturn, it is not anticipated that a pandemic will directly impact property and casualty insurance claims. This is because coverage for business interruption losses to manufacturers, retailers, commercial real estate, and other businesses are triggered by covered physical loss to property. However, Mint Canadian Specialty Underwriters, a Canadian subsidiary of Markel International, has introduced an outbreak contingency cover policy targeted toward small- to medium-sized Canadian businesses in the food service and health care industry. The policy will cover business interruption losses caused by a communicable disease such as the avian flu. However, coverage would only be triggered if the insured's facility is ordered to be shut down by a public health official. The maximum coverage is $1.5 million for a maximum of 30 days (Gonzalez, 2006).

As part of their business continuity plans in preparing for a pandemic, manufacturers and other businesses must manage their supply and distribution chains in order to protect themselves from costly disruptions. Managing this risk will be more problematic for businesses with global supply and distribution chains since governmental, health care, and general business responses to a pandemic will differ from country to country, with less-developed economies being likely to be impacted more severely. The Canadian Manufacturers and Exporters Association, which represents more than 2,000 employers, is urging its member companies to audit their operations to identify problems within their supply chains, such as decreased consumer demand for their products and services, and to engage their key suppliers in discussions about plans for regular shipments in the event of shortages or disruptions in transportation systems (Gonzalez, 2006).

While most Canadian companies have not implemented pandemic response plans, a few have done so. One such company, Microbix Biosystems, Inc., a virology company based in Toronto, discovered in its attempts to manage its supply chain in preparation for a possible pandemic that its suppliers had no concrete pandemic response plans. It therefore publicly shared its plan with its suppliers as part of its supply chain management strategy (Gonzalez, 2006) and put it on its web site. The company calls the pre-activation stage for its four-level plan to protect employees and business continuity the "business as usual" stage because there is no evidence of human-to-human infections anywhere. Level one, where the company has been operating since May 25, 2006, recognizes the existence of human-to-human clusters of infections in related individuals who live in close proximity. This level calls for company employees traveling to areas where there are infections but minimal human-to-human spread to carry personal protection equipment, including masks, gloves, protective eye wear, and sanitizers in case the company raises its pandemic response to level two. The plan requires that employees remain in home quarantine for 48 hours after returning from an infected region, and that they undergo monitoring for flu-like symptoms (Gonzalez, 2006). An internal communications plan has been activated, and visitors to its plant who have been to infected areas within the previous seven days and show flu-like symptoms will be denied access (Microbix Biosystems, Inc., 2006).

A level-two response is where there is a human-to-human cluster of infections anywhere in unrelated individuals such as co-workers or users of public transportation. At this stage, the company will not manufacture products unless it has all needed materials on site. All travel outside the country will be prohibited, and those already out of the country must use personal protection equipment and return immediately. Upon their return, the employees must remain in home quarantine for seven days, and monitor themselves for flu-like symptoms. Employees must also monitor family members for flu symptoms daily. If there are flu-like symptoms, home quarantine must be imposed for five days until the household is symptom free. Visitor access to the company's plant will be restricted (Microbix Biosystems, Inc., 2006). Level three will be activated where there is a regional outbreak of influenza in North America. Measures to be taken will include a partial shut down of work in progress and implementation of home security measures, including restricting visitor access to the employees' homes, discontinuing discretionary trips to public places, using personal protection equipment in public, monitoring family members for flu symptoms, and imposing home quarantine for five days until the household is symptom free (Microbix Biosystems, Inc., 2006). The company will activate level four if local outbreaks of pandemic flu are reported. Here, there would be a graduated shutdown and self-imposed quarantines for employees and family members. Employees who recover and are symptom free would be allowed to return to work (Microbix Biosystems, Inc., 2006).

Another Canadian manufacturer, Alcan Inc., which produces aluminum and packaging materials, has a pandemic response plan that addresses screening employees, telecommuting, travel to foreign countries, stockpiling of medical supplies, and a communications plan that includes posting information on its intranet site and sending e-mail communications to employees and receiving feedback (Gonzalez, 2006).

The Commonwealth of Pennsylvania has held a statewide summit on the pandemic flu, and has completed six regional summits to disseminate information on the state's planning process and to gather input from businesses, as well as local government, educational, and other organizations. The state plans to develop strategies for disease detection and containment in the poultry industry, isolation and quarantine in the human population, stockpiling and distribution of vaccines, and public communications (Taylor, 2006).

In arguing that the potential threat of a pandemic needs to be approached from a risk management perspective, the point must be made that one cannot prescribe blanket risk management strategies to fit every organization. Although different organizations will have some common elements in their risk management programs, each organization will need to examine its unique circumstances, the nature of its business, the flow of its operations and revenue streams, its suppliers, customers or clientele, and other relevant factors, in order to tailor an appropriate risk management response to the pandemic flu with the aim of ensuring its continued financial viability.

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