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Avian Flu: A Test of Collective Integrity

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Breakthrough Thoughts

Avian Flu: A Test of Collective Integrity

The threat of a pandemic can teach governments, corporations, and nonprofits to prepare for the unthinkable.

by Susan Penfield and John Larkin

Atlanta, November 24, 2008 *— The U.S. Centers for Disease Control and Prevention today attributed two deaths in northern New Jersey and one in Philadelphia to a human-to-human transmissible strain of the avian influenza virus. Although reports of the disease among humans have been accelerating in Asia and Europe, these are the first deaths to occur in the United States. Health officials are calling for the closure of schools in the tri-state region and for citizens to limit all unnecessary travel until further notice.…*

There is every reason to believe this scenario is plausible. With each report of the avian influenza A (H5N1) virus showing up in birds and moving from one continent to another, concern grows that the world is at risk of a human flu pandemic, an outbreak of disease occurring over a wide geographic area and affecting an exceptionally high number of people.

At the moment, media coverage, conjecture, and curiosity are spreading far faster than the flu itself. The word *pandemic* ranks seventh on the list of words looked up most in 2005 in the online Merriam-Webster dictionary. (The top six words were *tsunami, insipid, filibuster, contempt, refugee,* and, at No. 1, *integrity*.) And there is plenty of debate among scientists and health experts as to whether the conditions for sustained human-to-human transmission of the H5N1 strain will ever materialize. But health experts aren't debating that a flu pandemic could happen. Several such outbreaks occurred in the 20th century and, sooner or later in the 21st, another outbreak is expected.

A crisis in itself — whether it is a pandemic, a hurricane, a tsunami, or a terrorist attack — is not the greatest cause for worry. Rather, the concern is whether we are prepared for such crises. Or, as followers of the Merriam-Webster list might put it: Do the public and private institutions of our society, with their traditional structures and organizational behaviors, have the requisite "integrity" to manage the crisis as needed?

The answer seems to be: not yet. Individually, organizations are developing their capabilities, especially after such catastrophes as the Indian Ocean tsunami and Hurri-

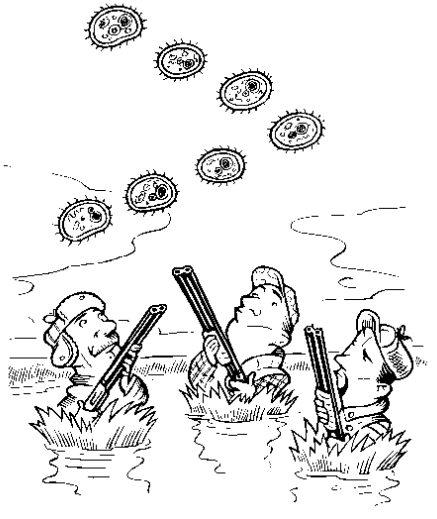

Illustration by Lars Leetaru

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cane Katrina. But the threat of a pandemic will require organizations to work together in ways that have not yet been tested. One of the biggest challenges is rooted in the historical division of roles and responsibilities between the public and private sectors. This division puts all the weight of serving a broad population's welfare on government agencies and nongovernmental organizations, while the private sector acts independently to serve its own priorities. Corporate leaders increasingly talk of extended enterprises and interdependence. But in practice, many companies' risk management and planning approaches focus only on protecting their people and assets to keep their businesses going. They are thus not prepared for the role that they may have to play in keeping the broader societal infrastructures running.

"Engagement by business cannot be a luxury," said Dr. David Nabarro, senior United Nations system coordinator for avian and human influenza, at the 2006 World Economic Forum in Davos, Switzerland. "It is perhaps the most important factor in the global preparation and response to the threat of pandemic influenza."

The improvements that have occurred in science and medicine in recent years are important in responding to a pandemic. But science alone can't save us from the worst. We will need a different level of preparedness and far greater multi-institutional communication and collaboration than we have ever had before.

Past and Future Pandemics

Public concern about pandemics is inevitably colored by the tragic experiences of the past century. Since 1918, there have been three influenza pandemics. The 1957 Asian flu and 1968 Hong Kong flu pandemics killed 2 million and 1 million people worldwide, respectively. The most severe pandemic was the 1918 Spanish flu, which killed 500,000 people in the United States and 50 to 100 million worldwide, nearly half of whom were between 20 and 40 years old.

A pandemic can occur when a new subtype of influenza virus, not previously circulated among humans, mutates or reassorts (that is, shuffles genetic material between human and avian strains) to allow human-to-human transmission. So far, the avian flu is not contagious among humans. But a more dangerous form of the virus could conceivably evolve that would be spread like a typical seasonal flu, through the coughing and sneezing of infected individuals. The specific incubation period for such a form of avian flu would not be known until after it appeared; if it acted like other forms of the flu virus, then the incubation period would last two days. Victims might be contagious for a day before and up to five days after first experiencing symptoms.

An avian influenza virus originally resides in wild aquatic birds, but may make its way into domestic birds, including ducks and chickens. According to the United States Centers for Disease Control and Prevention (CDC), the H5N1 strain of avian influenza has caused the largest and most severe outbreaks of flu in poultry ever recorded. International health organizations have been monitoring the strain for the past eight years. The World Health Organization has confirmed 173 cases of the avian flu in humans; the majority of those

infected had had some contact with diseased birds. As of March 24, 2006, more than half of these cases (97 in all) had resulted in death. Most of the deaths were in Asia.

The CDC has determined that viruses containing avian influenza genes caused both the 1957 and the 1968 pandemics. The 1918 virus also appears to have been of avian origin. Yet it is unusual for an avian virus alone to be transmitted to humans. This year, two separate groups of researchers, one in Japan, the other in Holland, reported that they had discovered why the avian flu is rarely transmitted from one person to another. They found that the avian virus tends to find its way deep into a person's respiratory tract, keeping it from spreading through coughing and sneezing as with a "normal" flu.

This natural barrier to transmissibility is fortunate since global connectivity greatly accelerates the spread of more contagious strains. Computer models suggest that a pandemic virus that infected people with the same transmissibility as a typical flu virus could travel around the globe in as little as two weeks.

Further risk resides in the current drug pipeline. A vaccine for a human flu caused by the H5N1 virus does not yet exist because a vaccine cannot be developed for a new human-to-human flu strain until that strain is available to researchers. Vaccine development would take at least three to six months. Production facilities are not capable of making enough vaccine for the world's population. Antiviral medications are already on the market, and preliminary tests have shown them to be generally effective against avian flu, especially at higher dosages. But there are no guarantees that existing medications will work against a new strain, that the supply will be sufficient, or that the medications will remain effective as the virus continues to mutate.

Pandemics are unique among large-scale disasters; they leave the supporting physical infrastructure of roads and buildings largely intact. Only the people who operate these lifeline infrastructures are affected. The U.S. Department of Health and Human Services estimates that a pandemic comparable to the 1918 outbreak could cause 1.9 million deaths in the United States. In that projection, there would be 90 million people ill, 1.5 million hospitalized in intensive care, and 742,000 people needing mechanical ventilators to breathe. This situation would put a huge strain on public and private health systems; for example, there are now only 105,000 mechanical ventilators in the United States. In the U.S. alone, economic losses would range between $71 and $167 billion.

Although they may be the most obvious dangers, mortality and illness would not be the only impacts of a serious pandemic. There could be immense economic effects. Already, in countries such as Egypt, Nigeria, and Cameroon, the avian pandemic is forcing the killing of poultry, harming the livelihoods of farmers and diminishing a local source of protein. One study published in February 2006 by Australia's Lowy Institute for International Policy predicts that a pandemic similar to the 1968 Hong Kong flu would result in worldwide economic losses of $330 billion, or 0.8 percent of global GDP. A more severe outbreak might lead to 142 million dead worldwide and GDP losses of $4.4 trillion. Some developing-country economies would shrink by 50 percent. Underlying the monetary losses are reduced productivity due to illness, onerous increases in health and safety costs, and shifts in investment flows away from the industries and countries where the disease has been most virulent.

Simulating Sociomedical Risk

The impact could be exacerbated by "sociomedical risk," in which the cohesion and capability of social institutions and communities are affected. People might start to feel that any person they touch or any breath they take could lead to their death; such feelings would create a level of fear and mistrust that fundamentally undermines the kind of behavior that is needed for effective social interaction and commerce. It would also make it much harder for health-care professionals and institutions to respond to the disease. All of these effects are interconnected and would exacerbate one another in ways that would lead to unexpected and unpredictable results. Organizational planners cannot prepare for a pandemic the same way they would prepare for other crises — identifying the most likely scenarios and anticipating ways to deal with them — but only in a more flexible way: building the capacity for continuous sensing and responding, and striving for the resilience that will be needed when disruptions or disasters occur.

In recent months, Booz Allen Hamilton has partnered with global thought leaders in a number of strategic simulations designed to identify ways to improve cooperation among disparate institutions in the event of a pandemic outbreak.

One of these occurred at the 2006 World Economic Forum, where Booz Allen convened 30 leaders and senior executives from private-, public-, and civil-sector (non-governmental) organizations to explore the global, regional, and local implications of an influenza pandemic, and the roles and appropriate responses of their institutions.

The participants were grouped into four teams — government, health care, business, and international organizations — to represent the stakeholder groups that would deal with the impacts of an influenza pandemic on the European continent. This simulation was carefully designed to make leaders experience what a real pandemic would feel like, and to reflect on the actions they would need to take.

Imagine that you are participating in such a simulation. You are in Germany on Day 28 of an influenza pandemic that first appeared in Eastern Europe. Already, much of the European continent has seen an almost complete halt in everyday routines. Hospitals are inundated with the sick, the very sick, and the worried well. Although the government has not issued any formal recommendations, individual companies are asking their employees to stay home and telecommute. School systems have been shut for almost three weeks. Supply chains have been interrupted as truck drivers have fallen ill. Some drivers have refused to deliver their goods because they're afraid of putting themselves at risk. Many small businesses across the region, particularly groceries and local markets, are closing because they can't restock shelves. Hospitals are running out of basic medical supplies. Most of Germany's 16 states are competing to get antiviral medicines from medical suppliers because current inventories are adequate for only a small percentage of the population. Medicines, even when available, are not working for everyone.

Participants in the simulation take on different roles; they must work together not just to try to halt the pandemic, but to respond appropriately and prevent society from breaking down. The collective task is more challenging than anyone expects.

resulting positive effect on the social fabric of the affected area.

• **Business.** At no time is the maxim "if you don't take care of yourself, you can't take care of others" more true than in the midst of a pandemic. Thus, corporations need well-thought-out contingency plans to ensure access to health care, food, and supplies for employees and their families. Investments of time and money are needed in advance to stockpile supplies and develop processes that will provide employee

In a pandemic, a sudden jump in telecommuters could quickly overwhelm the Internet.

Indeed, after our experience with this simulation and others we have conducted with leaders from government, business, and non-governmental organizations, it has become clear to us that pandemic conditions would be far worse than most institutions are prepared for. Work-force shortages, supply chain disruptions, and panic could overwhelm both the private and public sectors, even with comprehensive contingency plans.

To make any headway, a variety of organizations and individuals all need to act in diverse but coordinated ways:

• **Government.** The first responsibility of government is to maintain the public trust through honest and direct communication, and by taking definitive action. Governments can establish ways to limit panic, maintain transportation and logistics as much as possible, and promote coordination with large and small businesses so that they continue to operate — with a health care during the pandemic. Not everyone can be protected, so companies need to specify the essential worker population who will get treatment and medications first.

But because a pandemic is a broadly shared risk, businesses must also consider now how they would respond when asked to deploy their assets, such as stockpiles and facilities, to support a wider community response.

Currently, most companies' pandemic contingency plans call for mass telecommuting, but they need to rethink this strategy. With thousands, perhaps millions, of people suddenly telecommuting at once, the telecommunications and Internet infrastructures will be severely strained and likely overwhelmed early in the pandemic. Some experts say that the extra traffic could render the Internet unusable within two to four days of an outbreak. It may be wise to anticipate this by preparing secure telephone or transportation links that would allow the

most critical individuals to get to a common workplace even in a full telecommunications shutdown.

• **Government and Business.** In addition to their separate efforts, government and business must together identify the industries and services that would be essential in the event of an outbreak — especially those that would be needed for combating a pandemic. The industries likely to end up on the list are defense, public safety, media, food, transportation and logistics, communications, and all enterprises in the medical and pharmaceutical supply chain.

Because of unavoidable shortages of all resources, especially health-care services and medical supplies, cross-sector teams could be set up in advance to establish who would get care during a pandemic. It is equally important to define the resources available for medical support. For example, which people are authorized and prepared to deliver care in emergencies, and how well equipped are they across a variety of dimensions (the state of drug production, the forms of treatment available, and the methods of distribution)?

• **Nongovernmental Organizations (NGOs).** As trusted sources of information, NGOs can "export" information from affected regions to the rest of the global community. They are also the best equipped to provide support to resource-constrained developing countries.

• **Media and Communications Organizations.** The media has a powerful role to play in helping government and businesses communicate critical information, accurately and honestly, to the general public and to employees. But a better basis for collaboration among media, government, and business must first be built. Businesses should consider identifying media allies to work with now in order to improve post-pandemic communications strategies in advance.

• **Individuals and Localities.** Neither governments nor corporations will be able to distribute food on a large scale in a pandemic crisis. The government will likely direct the general population to stay in their homes to minimize contagion. However, people will inevitably disobey such orders when there are widespread shortages of food, water, and other essentials. Therefore, both local police forces and individuals should be prepared, thinking ahead about the ways in which neighborhoods could safeguard themselves and survive the most difficult weeks. Governments can prepare plans now for neighborhoods, and begin by rehearsing the most difficult scenarios at a variety of levels, starting with local police and ambulance services.

Toward Collective Leadership

Once a pandemic strikes, it gets harder to manage processes because there are so many emergencies to handle. No one can anticipate the multiplier effects of such a combustible situation. Every crisis is different. From recent and harsh experience, we know that it will take more than planning for institutions responsible for the products and processes we take for granted to provide the quality of leadership and support that societies need when a pandemic strikes.

Leadership also takes skillful collective action. In a pandemic, the sociomedical nature of the threat means that collaboration is not just a gesture of good faith between the public and private sectors or among multiple institutions; it's an operational necessity for delivering essential goods and services to prevent economies, communities, and countries from collapsing.

The challenges of coordinating communications, situational assessments, and the allocation of resources test not only the resilience of specific entities, but also the interdependent system we rely on to make the world go around. As Dr. Pierre Formenty, a veterinarian and epidemiologist at the World Health Organization in Geneva, said in the *New York Times,* "No single institution has the capacity to do [everything needed]." All industries need to think of themselves as part of a larger system; each organization must play its role while supporting the others as well. (See "The Megacommunity Manifesto," by Mark Gerencser, Fernando Napolitano, and Reginald Van Lee, *s+b*, Summer 2006.)

That lesson has already been brought home in the aftermath of the tsunami that struck Southeast Asia in December 2004. In their response to this enormous disaster, the Royal Thai government, the Thai private sector, and local and international NGOs have modeled new types of cooperative organizational behavior. They're working not just to rebuild the roads, buildings, and utilities in affected areas, but also to rebuild the communities themselves. Ultimately, even the worst pandemic will end, and then it is time to regenerate the physical infrastructure and the social fabric — the webs of community, economic, and organizational relationships that provide the trust and resilience necessary to allow society to recover. ✚

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