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# RISK MANAGEMENT

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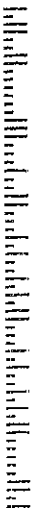
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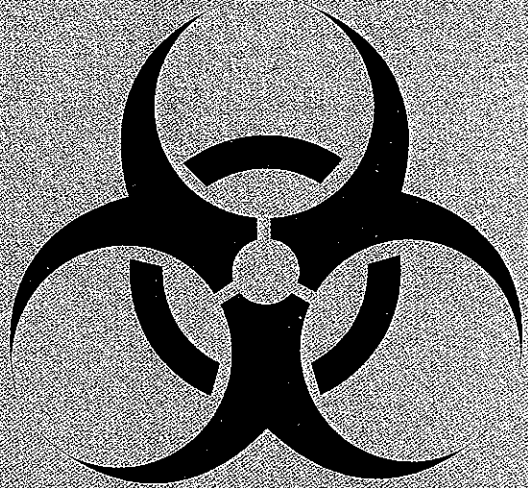
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## Avian Flu: Bra

As the threat of a global avian flu outbreak intensifies, insurance companies must evaluate their readiness and take immediate steps to mitigate the impact.

by Darrell Knapp

# acing for a Pandemic

**H**igh above the jungles of Southeast Asia, a flock of migrating birds circles downward, landing on a pond adjacent to a small hog farm. Several of the birds are infected with the H5N1 virus, commonly known as the avian flu virus. When they fly away, they leave behind excretions and secretions containing cells of that virus.

Some time later, a pig rooting around near the pond inhales a particle containing the virus, which breaks loose and binds itself to receptors outside a cell in the pig's airway. The virus shell fuses with the membrane, moves through it and then releases its RNA (ribonucleic acid, which serves as the template for transferring genes into protein) into that cell. The viral RNA copies itself to a messenger RNA moving back through the cell, further reproducing itself. Before long, the virus is spread throughout the swine.

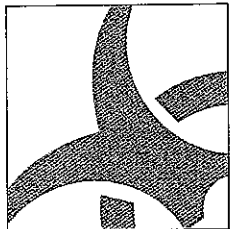
This ominous scenario has probably repeated itself thousand of times over last 10 years. But in this case, the pig is also infected with a human influenza virus. The two viruses intermingle, swapping genes through a process called re-assortment and producing a strain that combines the severity of the H5N1 virus with the human-to-human transferability of the common flu.

Just a couple of days later, as the farmer and his visiting cousin are feeding the pigs, the cousin inhales a small particle of excrement containing this new strain of flu. In a few days, he is coughing and sneezing, and on his return flight to Hong Kong, he infects many other passengers, each of whom passes the virus to other travelers. Before long, this chain of events has ignited a virulent pandemic that spreads illness and death around the world, severely straining the global health care system and devastating businesses worldwide.

**A Predictable Pattern**

This scenario is just one example of how a global avian flu pandemic could break out. That it is based on everyday events only highlights how easily such a cataclysmic outbreak could begin. Experts estimate that there have been between 10 and 13 influenza pandemics in the world since 1700, and that a pandemic will occur every 30 to 50 years. The last three pandemics—the Spanish flu in 1918, the Asian flu in 1957 and the Hong Kong flu in 1968—all occurred in the last century.

Given this pattern, the probability of another pandemic within our lifetimes is not considered remote. And that possibility is becoming more alarming each week as the media reports the rapid spread of



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the avian flu across countries and continents. As of this writing, all 100-plus deaths from the virus have occurred among people who have had direct contact with wild birds and infected poultry. But fears are growing that the virus will soon mutate into a form that can be readily transmitted from person to person.

In a December 2005 report to Congress, the Congressional Budget Office (CBO) developed two pandemic scenarios related to the avian flu. The first, based on a mild pandemic resembling the 1957 and 1968 outbreaks, projected that the avian flu could infect 75 million people in the United States and cause nearly 100,000 deaths. A more severe scenario similar to the 1918 Spanish flu could infect 90 million people in the United States and result in more than two million deaths.

Either of these scenarios would have both short- and long-term impacts on the economy, according to the CBO. The short-term economic impact of a severe pandemic was slightly larger than that produced by the typical recession, but with significantly greater interruptions to industries such as tourism and entertainment. The longer-term impact would be a broad-based reduction of about 0.75% in the labor force, similar to the reduction that occurs during recessionary periods. To put this in perspective, GDP has declined by 1.2% in each quarter of an average recession, compared with a long-term annual growth trend of 3.5%.

**The Impact on Insurers**

How would a severe avian flu pandemic affect the insurance industry, including health, life and property/casualty companies? The scenario outlined by the CBO is an obvious starting point for insurance companies to use in assessing the impact of an avian flu pandemic. The CBO reports severe scenario projects:

- A 30% infection rate for nonfarm workers, resulting in 90 million individuals infected in the United States, with infections spread equally across age and gender groups
- A fatality rate of 2.5%, resulting in more than two million deaths.
- Three weeks of work missed by all survivors, whether they have been infected or not, due to a combination of illness, caring for ill individuals and voluntary or involuntary quarantine
- For farm workers, the infection rate is reduced to 10% and the missed time is reduced to one week due to reduced levels of social interactions that will limit the spread of infection

- A required hospital stay for 10% of infected individuals. Although not specified in the CBO scenario, a four-day average stay was assumed for analysis.

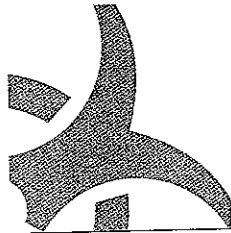
To estimate the full impact of an avian flu outbreak on specific organizations, additional assumptions will be necessary, including the economic support provided by the government, quarantines, hospitalization rates and other treatment protocols such as pharmaceutical advances. In addition, depending on an organization's exposure to international risks, a separate scenario model may be necessary for other geographic regions.

The impact on specific companies will also depend both on the severity of the scenario and company operations. Understanding these impacts requires a great deal of analysis and modeling. On a national basis, we estimate that the CBO scenario would result in a 10% to 15% increase in annual health costs for employer-sponsored health plans, or about \$50 billion using 2005 levels. While an increase of this size will not fully compromise health insurance industry capital levels, it will place considerable stress on thinly capitalized companies. In evaluating how they will be affected, organizations also will need to consider provider contracts and the possibility that provider organizations will experience financial difficulties.

For life insurance carriers, the aggregate result is much the same. If we simply extrapolate an overall 0.75% death rate onto the net life insurance in force, we get death claims of approximately \$123 billion, which is just under 50% of the industry's surplus of \$250 billion. This allows the life insurance industry to survive a pandemic, although the outcomes for specific organizations may vary.

The impact on the broad property/casualty industry will vary significantly by sector and the products written. A pandemic should not even put a dent in industry capital but may be catastrophic for carriers specializing in products that are affected more directly.

Individual insurer failures may result in increased insolvency fund assessments. In addition, all insurers will be adversely affected by the operational and economic considerations mentioned above, which might well temporarily affect the value of investments.



### Risk Exposures

A flu pandemic would expose insurance companies to three primary areas of risk: underwriting risk, operations risk and mar-

**The obvious underwriting risk faced by life insurers is the dramatic increase in mortality projected by many pandemic models.**

ket risk. Life insurers would be exposed to asset/liability matching risk as well.

**Underwriting risk.** For health insurers, a flu pandemic will sharply increase claims costs for general medical insurance products. This increased claims cost will be somewhat offset by postponed elective procedures, a phenomenon also observed following the September 11 terrorist strikes and several major hurricanes.

Another aspect of underwriting risk would be the increase in out-of-network usage as the health care system is overburdened to the point where care within the network becomes unavailable.

Health insurers also could be exposed to health selection risk, especially with new policies. The expansive media coverage that would ac-

company a flu pandemic will heighten awareness of the need for health insurance, swelling demand for new policies just as health insurance is becoming less profitable. In such a scenario, standard underwriting processes focusing on an individual's ability to select would be ineffective because the selection would be driven not by individual medical needs but by broad environmental conditions.

Other health products also will be affected. The impact on short-term disability insurance products could be dramatic, depending on the elimination periods in the policies. Long-term disability insurance is not expected to be affected, since any illnesses resulting from a pandemic generally would not extend beyond the common six-month elimination periods. However, a corresponding

economic downturn may result in increased incidence, especially in certain industries. Dental coverages will likely reap some benefits from a pandemic as many insureds decline to acquire elective services in order to reduce their expo-

sure to infection.

Long-term care (LTC) insurance may also see some benefits because of the lapse-supported nature of the product, where higher mortality would have a favorable impact on product profitability. This favorable impact would be heightened if older individuals were disproportionately affected by a pandemic. There could be some adverse impact on LTC products if primary caregivers become unable to care for individuals, resulting in increased use of home care and skilled nursing facilities. However, it is generally believed that any pandemic-related illnesses will be of a short enough duration that they would not pierce the elimination period associated with LTC products.

The obvious underwriting risk faced by life insurers is the dramatic

increase in mortality projected by many pandemic models. However, selection risk also may occur as media coverage sharply increases the demand for life insurance, challenging a carrier's ability to address claims risk or to recover the increased first-year expense of writing a policy.

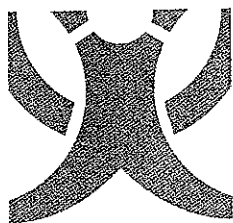
Property/casualty insurers may see an uptick in business interruption claims as commercial policyholders lose employees as a result of illness or experience supply chain interruptions caused by delays from key suppliers. For workers compensation coverage, a pandemic would increase the number of employees working from home or some other location, making it difficult to determine whether a workers comp claim is appropriate.

Medical malpractice writers, too, would be exposed to a heightened risk of medical malpractice claims, for several reasons. First, in a severe pandemic, some bad outcomes are inevitable even if treatment is appropriate, and bad outcomes often lead to medical malpractice claims. Second, as health care providers attempt to treat an illness for which the course of treatment is undefined, they are likely to try experimental treatments that also increase the malpractice risk. Finally, the additional stress on the health care delivery system will likely lead to some compromises in normal care protocols, especially with respect to the seclusion of infected individuals. Although such an action would likely be appropriate, it could lead to malpractice claims.

**Operations risk** A pandemic will create labor shortages that will overwhelm health insurance company operations such as claims processing, member services and the processing of new applications. Delays in claims processing will be further complicated by "timely payment" penalties in effect in a number of

states. There could also be an impact on international outsourcing since a worldwide pandemic may more severely affect developing countries with reduced public health conditions. Any labor shortage could be exacerbated by government- or self-implemented quarantines, requiring all employers to take steps to maintain core operations.

A pandemic would also create several financial-reporting challenges for health carriers. Labor disruptions would create havoc with claim payment patterns at the same time that carriers have less information about the levels of claims incurred because of changes in the health care services being delivered. In addition, claim submissions to health carriers would be incon-



**Investment price risk may vary significantly from country to country because the pandemic's severity will not be consistent across geographic boundaries.**

sistent, since health providers would be suffering from their own labor disruptions.

Health carriers should also be aware of the potential impact of the pandemic on the worldwide reinsurance markets and anticipate cost increases if those markets tighten significantly.

The primary operations concerns for life insurers parallel those for health insurers. A major reduction in the workforce in a labor-intensive industry would occur just as both claims and applications for new policies are on the rise. In addition, insurers' ability to medically underwrite increased applications may be hampered as doctors and laboratories become overwhelmed with providing medical care for flu victims.

Moreover, life insurers likely will

face major disruptions in the distribution channel, which historically has relied on face-to-face communications between producers and policyholders. An extended pandemic threat that causes individuals to limit their contact may be the catalyst that triggers a long-term drift away from the personal distribution system.

The operations risk for property/casualty writers will likely not be as severe as it is for other sectors of the industry. Property/casualty carriers will suffer from the same reduction in the labor force, but without the corresponding increase in required activities such as claims handling.

**Market risk.** The financial impact of a flu pandemic will not hit all industries equally, but equity and bond values may be severely affected if the pandemic broadly reduces economic activity. All holders of debt and equity investments will be affected, but since a greater degree of the life industry's profitability is tied to investment returns, an economic downturn would likely have a much more adverse impact on life insurers.

Health care and pharmacology will likely reap some benefits, while the travel and entertainment industries could be decimated as individuals stay at home to avoid infection. In some industries, the effect will extend over a long period, as occurred with the airline industry following September 11. Adverse financial impacts on both the equity and bond markets are likely and commercial real estate projects such as shopping malls could be severely strained.

Investment price risk may vary significantly from country to country because the pandemic's severity will not be consistent across geographic boundaries. The international impact on a given industry or organization will depend on the nature of its business and its supply

chain, which often has international origins.

Additional market risk may occur if the federal government takes aggressive action to limit the financial impact of a pandemic, such as lowering interest rates. Again, the government reaction is likely to vary significantly from nation to nation, increasing international disparity in results.

**Asset/liability matching risk** Life insurers may face the triple whammy of asset failures due to economic collapse, falling interest rates (resulting from government attempts to prevent economic distress) and higher-than-normal cash outflows (resulting from increased death claims and the collapse of other invested assets). This combination will put stress on insurers' liquidity, forcing many carriers to rethink their ALM strategies. Traditional stress scenarios generally contemplate an increase in cash outflows driven by investment conditions, but rarely consider a death benefit increase in outflows such as may be seen in a pandemic.

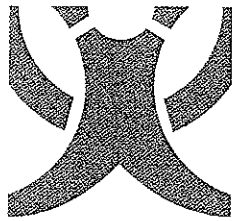
#### Mitigating the Risk

What can insurers do to mitigate the risks from an avian flu pandemic? Here are some potential actions insurers should consider:

- To ensure that pricing matches risks accepted, health carriers should carefully review and clarify policies and contracts regarding out-of-network payments, with emphasis on clauses related to out-of-network services that may arise if network resources are unavailable.
- Health carriers should consider an "options type" of pre-purchase of influenza drug treatments to protect against demand-driven price increases.
- Health and life carriers should develop processes and procedures

for suspension of new business in certain markets in the event that the selection risk becomes too great. This may include consideration of distribution system support in the event of a temporary new-business shutdown.

- Short-term disability carriers should consider adopting policy language that distinguishes between sickness and quarantine to ensure that disability costs are not increased because of considerations relating to a quarantine.



- Life insurers should re-examine their policy wording for when liability attaches and the determination of pre-existing conditions. This would protect against an

**Life insurers may face the triple whammy of asset failures due to economic collapse, falling interest rates and higher-than-normal cash outflows.**

abnormal number of benefit claims occurring simultaneously with, or shortly after, policy issuance.

- Life insurers should consider alternative investment strategies in light of the possible change in cash-outflow patterns driven by pandemic scenarios.
- All carriers should re-evaluate investment levels by industry sector, since some sectors will be affected more adversely than others.
- Property/casualty companies should re-address policy provisions to create better at-work definitions and to distinguish between losses from business interruption versus demand-side reductions in business profitability.

• Property/casualty carriers could work with the health industry to proactively address medical malpractice concerns regarding experimental treatment and changes in care policy due to system overloads as distinguished from true malpractice.

- All carriers should seriously consider the feasibility of alternative work relationships and distribution methods to survive a reduction of workers at the place of business or in outsourced locations.

#### End Analysis

The threat of a flu pandemic is very real. The question is not so much if it will occur, as when and how severe it will be. Two conflicting forces may determine the severity of the impact. First, globalization has made the world a much smaller place and as a result, increased global interactivity enable infectious diseases such as avian flu to spread more quickly across geographic boundaries. Offsetting this are significant advances in science and the monitoring

of infections that may serve to limit the severity of a pandemic. Only time will tell, but organizations should evaluate their preparedness and take immediate steps to mitigate the impact of a pandemic.

All organizations must closely monitor the development of avian flu for any changes in the probability or timing of a pandemic. There will be very little time to react between when a pandemic becomes more certain and when it hits with full force. Organizations that have even a slight advantage in reaction time will have a huge advantage in the ultimate outcome. ■

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