

Avian Flu — A Preparedness Primer

By Connie Harden, J.D., Principal, Buck Consultants

Increasingly, the news media are reporting on growing concern about avian flu and its potential to cause a global pandemic. We've read about the precautionary slaughter of hundreds of millions of chickens in areas where birds have already died from infection. Wild birds carry this disease along migratory flyways, infecting poultry they come into contact with along the way. The World Health Organization (WHO) believes that all cases of human infection so far (with one or two possible exceptions) have been in humans who contracted avian flu from direct contact with infected poultry, rather than from other humans.

To date, the mortality rate among humans infected from any source exceeds 50 percent. All this leads to increasing (but not always well informed) speculation about whether a human pandemic will occur and how severe it will be if it does.

Scientists predict that avian flu will begin infecting North American birds before year-end, and U.S. poultry producers are already taking measures to protect their flocks. However, since transmission of the disease from birds to humans is rare, the spread of bird flu to wild birds and poultry in North America does not significantly increase the risk to humans here.

A human pandemic will occur only if the virus mutates or undergoes genetic reassortment in a way that makes it readily and sustainably transmissible among humans. It's important to note that, by their very nature, flu viruses are exceedingly unstable and mutate frequently. Given that fact, development of human-to-human transmissibility, although far from certain, is a very significant risk.

This article approaches avian flu preparedness from two perspectives. First it looks at three factors that will help us prepare for the flu and prevent its spread. Second, it examines some factors that will make preparedness a challenge.

First, three factors that may help in preparedness and prevention:

Medical advances

The 1918 influenza pandemic killed between 40 and 100 million people worldwide. In the United States, over 550,000 died and 20 million got sick. Since 1918, the United States has experienced two more pandemics: 1957-58 (70,000 deaths) and 1968-69 (36,000 deaths). Although the federal government prepared for a third flu pandemic in 1977-78 by undertaking a major vaccination program, the pandemic never developed and, in fact, some illnesses and deaths resulted from the vaccine itself, rather than from influenza.

Medical science has advanced incredibly over the last 90 years. A new arsenal of antiviral and antibiotic medications has enabled doctors to treat influenza much more effectively than in the past. Furthermore, the developing sciences of immunology and genetics have advanced our understanding of influenza viruses. In addition, the development and distribution of vaccines have been vastly improved (although vaccine manufacturing capacity remains a problem).

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Sophisticated monitoring and prevention measures

The 1918 pandemic claimed more lives in one year than the Black Death of the Middle Ages killed in 100 years. In 1918, the pandemic took less than a month to spread in the U.S. from rather localized outbreaks in six states to both coasts and every state in between. Many victims died within a day or two of falling ill.

Today, the WHO has a six phase pandemic alert protocol with each phase tied to the risk of human infection. Currently, the world is at Phase Three, which is characterized by no or very limited human-to-human transmission. In contrast, Phase Six is characterized by “efficient and sustained” human transmission. The WHO is monitoring areas where bird or human infections have occurred in an effort to identify any incident of human-to-human transmission so that containment and control measures can be implemented.

The WHO, in conjunction with local governments, is focused on controlling the disease among birds by identifying and destroying infected animals. Some governments have also undertaken broad vaccination programs for healthy birds, although the merit of such programs is debatable. The WHO is also coordinating disease control efforts particularly in countries that lack medical and veterinary resources. In the United States, the Centers for Disease Control (CDC) are studying the virus (scientifically known as A(H5N1)) and how it spreads, while the Allergy and Infectious Disease branch of the National Institutes of Health (NIH) is working with drug companies and universities to develop an effective vaccine.

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Developing an effective vaccine is one thing. Manufacturing sufficient quantities in time may be quite another. Present global manufacturing capacity for the seasonal flu virus is 420 million doses per year; however, since a pandemic vaccine would probably have to be administered in a two-dose course (in contrast to the one dose usually required for seasonal viruses), a larger amount of vaccine would be needed. As a result, seasonal manufacturing capacity does not correlate with capacity to manufacture a pandemic flu vaccine. It's encouraging to note, though, that scientists are working to create new techniques that would speed vaccine development and manufacturing. Nevertheless, it could still take four to five years to increase vaccine manufacturing capacity to a level sufficient to vaccinate everyone.

Technology — the 21st Century Enabler of Social Distancing

The highly contagious influenza virus spreads when infected humans (who may not even exhibit symptoms) cough and sneeze in the presence of those not yet infected. The virus can remain alive on dry surfaces for a day or longer.

Social distancing measures can impede the spread of the flu by reducing the frequency of contact among people. Examples of social distancing in a business setting, include:

- Replacing face-to-face meetings with conference calls,
- Canceling meetings, workshops and training that would otherwise result in unnecessary travel, and
- Encouraging employees to work from home or on flexible work schedules.

Implementing any one of these measures twenty or even ten years ago would most likely have fractured the operations of many businesses. Implementing all three of them would probably have been crippling.

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But today, many employees are equipped — or can be equipped — with a laptop, e-mail, Internet and intranet access, a blackberry and the ubiquitous cell phone. These tools make social distancing a viable alternative to congregating many people in offices for extended periods where some of them could unwittingly transmit the potentially deadly virus.

Now, three factors that challenge preparedness

Global Interdependence

The globalization of commerce has affected all businesses, regardless of size. During a flu pandemic, some of those effects could have unintended consequences. For instance, even companies that employ people in areas that escape widespread contagion still may rely on suppliers, vendors and customers in a variety of faraway places that may not escape. In short, a company's entire chain of interdependencies is as durable and reliable as its weakest link. Disruption at a supplier and vendor halfway around the world could affect the whole operation sooner or later.

Pandemic Influenza — The Deadly Definition

By definition, pandemic influenza is a global outbreak of influenza involving an easily transmissible virus that is new to humans. Although the symptoms of pandemic flu are generally similar to those of seasonal flu, the deadly difference is that an avian flu infection can be much more severe because it involves a novel virus strain to which humans lack immunity. Furthermore, as with all flu viruses, a pandemic flu virus is capable of mutating or reassorting with other viruses, making the process of vaccine development more difficult.

As mentioned above, the avian flu virus is already able to pass from birds to some other mammals, including humans. Currently, this virus is not readily transmissible from human to human; however, as the incidence of human cases from whatever source increases, the likelihood of human-to-human transmission also increases.

Some Troubling Statistics

Some scientists believe that major pandemics (such as the one in 1918) strike, on average, every 75 years. There are also troubling parallels between the 1918 Spanish flu virus and the current strain of avian flu. For example, scientists believe that the 1918 virus went directly from birds to humans, without any viral reassortment in an intermediary species such as pigs, and that same pattern seems to be occurring with this avian flu strain. Furthermore, the virus has been mutating in ways that make it more deadly to birds and also more easily transmitted from birds to humans.

The CDC conservatively projects that between 15 and 35 percent of the U.S. population are likely to become ill during a pandemic. It projects U.S. deaths at between 89,000 and 207,000 and hospitalizations at between 319,000 and 733,000, even in a mild pandemic. Less conservative — and less optimistic — projections anticipate that U.S. deaths could exceed one million, if the avian flu virus remains highly pathogenic and virulent.

Conclusion

Businesses and organizations of all sizes must start doing what they can to prepare for this human pandemic, despite all the current uncertainty about whether it will occur and how severe it will be if it does. This article examines the need for preparedness in the context of what medical science, technology and past pandemics have taught us about prevention. They are lessons well worth learning.

About The Author

Connie Harden, JD, is a Principal and tax and legal consultant in Buck's San Francisco office. She has 25 years of experience as an employee benefits attorney and consultant, working to help ensure our clients' compliance with federal and state rules applicable in the design and operation of their retirement plans, health and welfare plans and fringe benefits. She received her law degree from the University of California at Berkeley in 1983.

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