

Governments in a dilemma over bird flu

Uncertainty over the risk posed by bird flu to human health has left policy-makers in a dilemma: how can governments justify committing already scarce public health funds to an unpredictable but potentially catastrophic event?

Experts have warned that the widespread occurrence of the highly pathogenic avian influenza virus, H5N1, could ignite a pandemic capable of killing millions of people around the world. However, calculating with any precision the risk or when it will strike is impossible, and yet the consequences of failing to respond to this uncertain threat could be dire.

“There is no way of predicting when the next pandemic will occur,” said Professor Maria Zambon, Head of the Respiratory Virus Unit at the United Kingdom’s Health Protection Agency.

“Risk assessment in this instance is qualitative, not quantitative. Therefore the margins for error and limits of confidence are wide,” Zambon said.

There were three influenza pandemics last century. The worst was the 1918–19 Spanish flu that killed 20–40 million people worldwide. The Asian flu of 1957–58 killed about one million

globally and the 1968–69 Hong Kong flu was responsible for a global death toll of between one and four million lives.

The three strains involved in these outbreaks are thought to have originated in birds. Of the 15 known avian influenza virus subtypes, H5N1 is of particular concern. It has affected poultry populations in eight countries, three of which — Cambodia, Thailand and Viet Nam — have reported a combined total of 79 human infections of which 46 were fatal.

“Never before have we seen so many countries so widely affected by this disease, and with such devastating economic consequences, for rural farms and households as well as for the poultry industry,” said Dr Anarfi Asamoah-Baah, WHO’s Assistant Director-General for Communicable Diseases, referring to flu caused by the H5N1 virus.

The H5N1 virus has already shown two characteristics of previous

pandemic flu strains: the ability to infect and to cause severe disease in people. It has not yet shown the third: the ability to pass easily between people. Sustained human-to-human transmission would signal the onset of an influenza pandemic and would trigger activation of national pandemic influenza contingency plans.

However, experts fear that the virus, which is known to mutate, could develop the ability to pass easily between humans either through adaptation to its human host or through genetic exchange with a human flu virus. At present, the main source of infection in humans is direct contact with live or contaminated poultry.

“There has been no evidence of any sustained human-to-human transmission but there were short, dead-end infectious chains which are typical for an avian influenza virus which is not adapted to humans,” said Dr Klaus Stöhr, Coordinator of WHO’s Global Influenza Programme, adding that since every cluster of cases could signal the beginning of a pandemic, every case has to be investigated immediately.



WHO/P. Viot

Researcher tests the blood of a chicken at the Communicable Diseases Hospital of the Medical Institute for Avian Influenza in Beijing, China.

While experts agree that the unprecedented scale and spread of H5N1 has significantly heightened the risk of another influenza pandemic, estimates of the number of people it could kill range from 2 million to 50 million.

With today's frequent international travel and cross-border flow of goods, once a pandemic strain does emerge, it will be impossible to prevent it from spreading globally.

"People who are infected with the real pandemic virus will be capable of infecting others even before they have any symptoms and therefore, unlike those infected with SARS (severe acute respiratory syndrome), would be impossible to identify at airports," Stöhr said.

WHO has urged all Member States to develop or update their influenza pandemic preparedness plans "as a matter of urgency". Several countries — mostly developed ones — have recently published updated preparedness plans, while other countries are preparing plans.

National contingency plans are based on the phased response recommended by WHO and aim to reduce the potential impact of a future flu pandemic. The response involves developing a vaccine and stockpiling antiviral drugs, which are known to be effective against H5N1 and are likely to be effective against a future pandemic strain. In addition, WHO has issued recommendations on 30 non-medical interventions that could be used in the event of a pandemic.

"Wherever in the world an influenza pandemic starts, perhaps with its epicentre in the Far East, we must assume we will be unable to prevent it reaching the UK," said Sir Liam Donaldson, Chief Medical Officer for England. "When it does, its impact will be severe in [terms of] the number of illnesses and the disruption to everyday life. The steps we are setting out today will help us to reduce the disease's impact on our population," Donaldson said at the launch of the UK national pandemic influenza contingency plan on 1 March this year.

The United Kingdom also announced plans to procure 14.6 million courses of the antiviral drug, oseltamivir sold under the brandname Tamiflu, which will provide treatment for one in four of the UK population — the proportion most likely to become infected with the disease and the figure

recommended by WHO for planning purposes. The UK is one of several countries stockpiling antiviral drugs and participating in research to speed up the production of a vaccine against a future pandemic flu outbreak.

Current flu vaccines would not offer protection against a future pandemic strain. However, with the increasing likelihood that the next pandemic strain will originate from H5N1, and may not differ from it significantly, WHO is telling Member States that stockpiling vaccines against it may be a viable option for affluent countries.

The advantages of stockpiling the H5N1 vaccine are that it may offer some protection against a future human pandemic strain, it would be immediately available and it might encourage companies to invest in pandemic vaccine development, Stöhr said. He added that the disadvantage of stockpiling is that the vaccine deteriorates after a couple of years and if it is not needed would have to be thrown away.

A corrigendum to a report on the influenza response presented at the WHO Executive Board session in January said that a vaccine that protects against infection by the H5N1 virus could confer almost as much protection against a mutant strain.

Canada, China, France, Japan, the United Kingdom and the United States have already negotiated deals with vaccine manufacturers to develop a prototype H5N1 influenza vaccine. If a future pandemic strain diverges significantly from this virus, these vaccines will, however, not be effective.

Vaccine manufacturing capacity is concentrated in Australia, Europe, Japan and North America but the demand will be global.

WHO has predicted that developing countries are likely to suffer most in the event of an influenza pandemic because their populations are often less healthy and poorly nourished, and because their health systems are understaffed and over-burdened.

Experts at an informal consultation on influenza pandemic preparedness in countries with limited resources, coordinated by WHO in Kuala Lumpur, Malaysia, in June 2004 noted that only a small number of the 192 WHO Member States — mostly developed ones — have contingency plans for this eventuality.

With severely limited resources for health, most developing countries are focusing on disease surveillance and not on stockpiling antiviral drugs or on vaccine development, according to WHO. This means that in the event of an influenza pandemic the most vulnerable countries may not have vaccines or antiviral drugs.

Recently, the human health risk posed by the H5N1 virus has been called into question. Initially experts estimated that it killed around 90% of human cases of flu that it caused, but later this dropped to 67% as more cases were recorded. However, there is growing evidence that the disease does not always present symptoms. This means that there may be more undetected cases and that the real death rate may be lower than previously thought.

According to Stöhr, a lower case-fatality rate does not mean that the H5N1 virus poses less of a threat to humans.

"We have always thought that the case-fatality rate was unusually high and the disease spectrum much wider than only the severe, hospitalized cases," Stöhr told the *Bulletin*. "But even with a very low case-fatality rate, if the disease is easily transmitted, and a lot

of people become infected, then a lot of people will die."

WHO remains certain that a pandemic will strike. Despite the uncertainty over its timing and impact, Stöhr said: "Planning for the next pandemic will pay off, either by saving lives and reducing the impact on economies and social systems, or by improving our response capabilities for other health emergencies". ■

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