



## Planning for Pandemics: Learning from the 2004–05 Avian Influenza Outbreak in Vietnam

By James H. Spencer, David Marasco, and Michelle Eichinger



*A man sells live chickens from the back of his bicycle at Ben Xe Long Bien market in Hanoi, Vietnam. The marketing of live animals in dense population centers is a well-known source of emerging infectious disease. Photo: Paula Bronstein/Getty Images.*

**James H. Spencer** is Graduate School Vice-Provost and Dean at Louisiana State University and an Adjunct Senior Fellow at the East-West Center. **David Marasco** is a doctoral student in the Planning, Design, and Built Environment Department at Clemson University and a Graduate Fellow in the Resilient Infrastructure and Environmental Systems Program. Michelle Eichinger is a Research Associate with Clemson University's College of Behavioral, Social, and Health Sciences.

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Most newly emerging infectious diseases in human populations originate from livestock or wild animals. When infected animals encounter susceptible human hosts, a novel virus may evolve that can then be transmitted from human to human. This is a low-probability event, but—as is now well known—it is an event with potentially catastrophic consequences.

Today, with rapid, and often unplanned urbanization in large parts of the developing world, livestock production, processing, and marketing facilities may be found mixed in with residential and commercial development. Studies have shown that these rapidly changing, poorly planned,

transitional spaces between urban and rural areas are a particularly likely source of disease transmission from animals to human hosts.

International travel can then expand the risk to global proportions. With more than one billion passengers travelling by air every year, even far-flung health risks can have a very real health and economic impact in all corners of the world.

### Policy lessons from Vietnam

During the 2004–05 outbreak of avian influenza in Vietnam, 119 people were infected with the H5N1 virus, and 59 died—an alarming mortality rate of nearly 50 percent. Nearly all of these infections were the result of direct contact with diseased chickens or ducks. Had the virus spread more widely within the human population, public health officials estimate that thousands more would have died.

The avian influenza scare of 2004–05 highlights several policy shortcomings that could increase the risk of a global pandemic. Insufficient knowledge of the future shape of a human pandemic compounded by a contentious debate on alternative courses of action—especially when prevention entails severe economic and social costs—means that warnings of an impending crisis are likely to be ignored, even when experts and leaders agree that a significant risk exists. Yet the limited number of options once a human pandemic is established suggests that planners and policymakers should search for effective interventions earlier in the causal chain before a pathogen “jumps” from animals to human hosts.

Policy recommendations during the 2004–05 outbreak centered on development of a human vaccine. The economic costs of such an approach, while significant, are born in a diffuse and indirect way by governments and their citizens. Inoculation against a disease outbreak that is still hypothetical comes with its own significant political and social costs, however. When US President

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Gerald Ford authorized the vaccination of 95 percent of the US population against what scientists suspected would be a deadly swine flu pandemic in 1976, he unleashed a flurry of wrongful death lawsuits and attacks against public health officials.

Once a human epidemic has begun, medical responses become politically feasible, and the risks associated with vaccination—as well as antiviral treatment, quarantine, and the closing of schools and workplaces—diminish in significance. Then the primary question becomes whether the countries where the threat is greatest have the political, administrative, and economic capacity to act decisively enough to contain a possible global pandemic. Political constraints on the flow of information, low technical capacity at the provincial and local levels, and fear of economic loss are all likely to hamper a quick and decisive response.

Apart from efforts to develop a human vaccine, the Vietnamese government culled 46 million domestic chickens and ducks. While this almost certainly reduced the likelihood of avian influenza spreading in Vietnam and elsewhere, the economic and human costs to affected farmers were staggering, especially since government compensation was minimal.

Today, another outbreak could be more difficult to control because farmers will be tempted to withhold information on sick birds in order to avoid losing their flocks. And another

outbreak might be inevitable because avian influenza undoubtedly persists in wild bird populations. Any move to cull wild birds would quickly outpace the capacity of understaffed provincial health departments and would most likely encounter strong resistance from the environmental community.

In addition to culling, the Vietnamese government initiated a vaccination program for chickens and ducks. The practical implications of such a strategy are daunting, however. Because flu viruses tend to be seasonal, new vaccines need to be developed and distributed to farmers every year. In addition, pigs and possibly other domestic animals can become infected, so new vaccines need to be produced and distributed specifically formulated for multiple species.

### Reducing risk at the source

Despite the challenges, vaccination programs and other medical responses to pandemic threats dominate the policy debate all over the world. Alternative courses of action—promoting public health, strengthening health infrastructure, and improving the management of domestic animals—may be hard to justify in the absence of an existing or looming crisis.

Livestock farming and the transport and marketing of live animals are well-known sources of emerging infectious diseases, and land-use planners have an important role to play in ensuring that farms and other

livestock facilities are placed and managed effectively to reduce the possibility of disease transmission. Appropriate measures include regular hand washing, good water and sanitation systems, frequent checks for fever and other symptoms of human flu, prompt isolation of sick animals, and basic sick-leave compensation for farmers and farm workers.

Given the current uncertainty on whether and how far viruses can be transmitted through air currents, planners also need to ensure that livestock farms, processing facilities, and markets for live animals adhere to appropriate building codes and are situated at a safe distance from human population centers. Planners need to focus particularly on areas adjacent to cities that are transitioning from farming to residential or commercial use. Mixed, unplanned land use in such “in-between” areas potentially provides an ideal site for the transmission of viral disease from animals to human hosts.

As the COVID-19 pandemic clearly illustrates, disease outbreaks can occur anywhere and then spread to every corner of the globe. Policymakers in the US need to be concerned about planning and policy for disease prevention overseas, if not necessarily to influence outcomes in other countries but at least to ensure a longer lead time to respond to an outbreak that could reach the US.



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1601 East-West Road  
Honolulu, HI 96848-1601  
EastWestCenter.org

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**Series editors:**

Derek Ferrar, [ferrard@EastWestCenter.org](mailto:ferrard@EastWestCenter.org) | Sidney B. Westley, [westleys@EastWestCenter.org](mailto:westleys@EastWestCenter.org)