



above > A young poultry vendor shows off a rooster for sale at an outdoor poultry market in Kabul, Afghanistan. Most Afghans live in close quarters to poultry, making possible the transmission of H5N1 virus from infected birds to humans. *Photo by John Moore*

right > A Scarlet Macaw is pictured at the Vogelpark Walsrode in Germany. Most of the park's animals, more than 4,000 birds of roughly 700 species from all continents and climate zones of the world, have been vaccinated, although not all are at risk of contracting the disease. *Photo by Ralph Orlowski*





Birds of a Feather

Like the canary in the coal mine, birds have long been gateway indicators of environmental conditions that affect humans. In the 21st century our web of interdependence extends not just through the natural world, but through the man-made culture created around it. And as recent concerns over global 'bird flu' have shown us, one of the best indicators of our global health is still the humble bird.

THE WORLD HEALTH ORGANISATION (WHO) says that wild waterfowl are the 'natural reservoir' of all influenza A viruses and have most likely carried them for centuries with no apparent harm. It's only when migratory birds infect domesticated poultry flocks that problems really begin, as low bacteria H5 and H7 viruses can mutate to dangerous and pathogenic forms. Although there are various strains of the virus it is the H5N1 and H7N7 which can be lethal to humans.

Avian influenza, seared by the media into public consciousness as 'bird flu', is a contagious disease that should be species-specific. The highly pathogenic form of avian influenza can spread rapidly throughout poultry flocks and causes disease that attacks the internal organs, killing the host bodies within 48 hours. But a growing number of cases in South-East Asia and throughout the world proves the virus can cross the species barrier and infect and even kill humans, causing viral pneumonia and multi-organ failure. Since 2003 the H5N1 influenza virus has spread like wildfire, infecting poultry and migratory birds, throughout much of Indonesia and Vietnam and into Cambodia, China, Thailand, Afghanistan and much of Europe.

The rapid spread of H5N1 has seen the slaughter of millions of birds suspected of infection, costing millions of dollars, from native waterfowl to domesticated chickens. Many of the infections occur in small farms and households that can little afford to lose one of their key assets. Moreover, many rural areas throughout Asia depend on their poultry stocks for food and income. Birds often roam freely, entering homes or sharing space with children who play around them and their droppings. Changing inbuilt cultural patterns of the way humans interact with their domesticated poultry is especially difficult in largely rural, subsistence areas.



A zookeeper disinfects a habitat of penguins at the Shanghai Zoo in Shanghai, China. *Photo by China Photos/Getty Images*



A worker disinfects chickens transported to a chicken slaughtering factory in Xining of Qinghai Province, China. Photo by China Photos/Getty Images

The fear amongst medical experts is that in the right conditions, the virus will spread into a highly infectious mutant pandemic that will pass easily from human to human. And given the ubiquity of inter-continental travel, combined with the battery farm, highly medicated environment much domesticated poultry lives in, the conditions are right for a global outbreak. Unlike previous centuries, a tourist can be infected in South-East Asia and return home to spread a new vector of the contagion before the symptoms even become apparent. Yet few question the conditions which allow H5N1 to propagate so freely.

Despite the large-scale Western promotion of anti-viral medicines to counter H5N1, the best defence is a healthy immune system. The virus mainly kills children, the elderly and the weak, so developing a good resistance through balanced diet, regular exercise, rest and reduced stress goes a long way to restoring the immune system so it can naturally combat these viral infections. Good hygiene is also essential, and people must wash their hands thoroughly with soap

and water after contact with live poultry, birds or their droppings. The virus is sensitive to heat, and to date, no epidemiological data suggest that the disease can be transmitted to humans through properly cooked food (even if contaminated with the virus prior to cooking). However, in a few instances, cases have been linked to consumption of dishes made with raw contaminated poultry blood. WHO recommends five keys to safer food: keep yourself, the area and utensils clean; separate raw and cooked food (cooked meats and seafood); cook thoroughly ensuring that stews and soups are brought to 70°C; keep food at safe temperatures and; use clean water and fresh wholesome raw foods. This will help to ensure the prevention of foodborne disease.

Ultimately, the H5N1 virus points to the genetic connection between humans and our avian cousins and the fact that despite appearances, we are all birds of a feather together. It is a signal in the 'global coalmine' of battery farm conditions to clean up our act and learn to live sustainably – or not at all.

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