

The Bird Flu Menace in East Asia

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The avian influenza virus known as H5N1 first appeared in Hong Kong chicken farms in 1997. Eighteen people were infected and six died. Although the properties of the virus were not well known at the time, the killing of all poultry in Hong Kong's markets and farms was a precaution that may well have averted a larger human outbreak of the disease. Thereafter, H5N1 was largely forgotten but not gone. On 12 December 2003 South Korea's chief veterinary officer sent an emergency report to the World Organization for Animal Health (OIE) in Paris: a large number of chickens at a farm near Seoul had suddenly died of highly pathogenic avian influenza – a disease never before seen in the country. H5N1 had returned and was this time here to stay.

In its sweep through East Asia, H5N1 has forced authorities to slaughter more than 120 million birds. As of October 2005 the virus has been found in birds in Cambodia, China, Indonesia, Japan, Laos, Malaysia, Mongolia, Philippines, South Korea, Taiwan, Thailand and Vietnam. Beyond the region, there have been reports of its appearance in poultry flocks in Kazakhstan, Romania, Russia and Turkey. The damage to poultry industries in affected countries has been immense; however it is negligible in comparison to that which might occur globally if H5N1 is not brought under control.

In Vietnam, Thailand, Cambodia and Indonesia, the virus has repeatedly managed to jump species and successfully infect humans. Inside an immunologically naïve human host, its virulence is devastating: according to recent World Health Organization (WHO) figures, 60 out of 117 laboratory-confirmed human cases have resulted in death. To date, disease in humans has been caused by close contact with infected birds. However, if the H5N1 virus were to adapt itself to spread from person to person as easily as regular human influenza, it could generate a pandemic of catastrophic proportions. The estimated impact most often cited is between two million and 7.4 million deaths worldwide.² Fortunately, the improved virus transmissibility required to ignite a pandemic would likely be accompanied by a lower degree of virulence. That is, H5N1 in pandemic form would not generate rates of mortality as high (around 50 per cent) as those seen so far.

² Editorial, 'Avian Influenza Should be Ruffling Our Feathers', *The Lancet Infectious Diseases* vol. 4, no. 10, 2004, p. 595.

Influenza pandemics are rare but recurring. The twentieth century saw the 1957 'Asian flu' which killed more than two million people, and the milder 1968 'Hong Kong flu' which claimed around 700,000 lives. Worst was the 'Spanish flu' of 1918-1919 which killed more than 20 million people worldwide. Today, scientists are warning that the world is long overdue for another influenza pandemic. And the adverse effects of this coming plague would be all the greater because of increased levels of human interconnectedness – whereas past pandemics spread globally via sea lanes taking six months or more, a modern pandemic could spread via international air travel in a matter of weeks.

H5N1 has the potential to inflict great damage in health and economic terms, however the threat it poses is of such magnitude that it should be elevated to the status of a security issue. Every society tolerates a certain degree of illness such that not all diseases may be considered a security threat – the mild effects of the common cold, for example, are readily accommodated. However, a disease may reasonably be deemed a security threat when its effects reach the point of imposing an intolerable burden on society. In the case of pandemic influenza, that burden would be manifested in the speed with which this unfamiliar disease would move, and in the visceral human dread of contagion which would generate societal disruption disproportionate to the disease's capacity to cause illness and death.

It is worth noting, however, that part of the reason past pandemics were so disruptive is because they took the world by surprise. The present situation is different. The world has been warned in advance, with the unfolding conditions for a pandemic under close observation for nearly two years in East Asia. This advance warning has allowed an unprecedented opportunity for preparing to mitigate the effects of a pandemic. In addition, the outbreak of severe acute respiratory syndrome (SARS) in 2003 was a pandemic 'dress rehearsal' which brought home to governments around the world the health, economic and security significance of a fast-moving, unfamiliar disease. Hospitals were overwhelmed, trade and tourism suffered, and people's fear of contagion often generated high levels of disruption and instability. In China, for example, there were riots in some localities caused by rumours of government plans to establish SARS patient isolation wards. This demonstrates the panic caused when populations imagine a disease out of control, and where governments are seemingly unable to secure the safety of their citizens.

The response to SARS by countries in East Asia was swift, cooperative and comprehensive. Concrete measures agreed to included: standardised health screening for all travellers in the region; information sharing about the identities and whereabouts of those infected with SARS; compulsory pre-departure health checks at airports, ports and all national borders across the region; the establishment of an emergency international hotline; and

quarantining of travellers that showed symptoms of SARS. The disease killed fewer than 800 out of around 8,000 people infected before it was defeated, but the world is unlikely to be so lucky in the case of H5N1.

Many of the public health interventions that succeeded in containing SARS may not be as effective against pandemic influenza. This is largely because the micro-organisms that cause each disease behave differently: influenza is far more contagious than SARS, it has a shorter incubation period, and it can be transmitted before the onset of symptoms. Another crucial difference is that responding to the H5N1 virus is as much an issue of animal health as well as human health. This brings into play veterinary concerns and requires input from international bodies such as the UN Food and Agriculture Organization and the OIE. Notwithstanding these differences, the SARS outbreak underlined the general principle that international cooperation is all-important for defeating a common microbial enemy. It also showed that withholding information only compounds the damage from a contagious disease, hinders the task of containing an outbreak, and heightens the risk posed to other countries.

Unfortunately, some countries in East Asia did not heed these lessons when H5N1 influenza emerged at the end of 2003. The Indonesian government had for a time reported that its poultry industry was infected with Newcastle disease. After Indonesia finally acknowledged that the real cause of illness in its flocks was the H5N1 virus, it ignored WHO advice and insisted that vaccination was an adequate measure to stop the spread of disease. President Megawati Sukarnoputri eventually bowed to WHO pressure and ordered the destruction of 10 million Indonesian chickens. As late as mid-January 2004, deaths in Thailand's chicken industry were still being reported as resulting from poultry cholera, but it soon emerged that the Thai government had known for some time that H5N1 was to blame. In both cases, the delay in official acknowledgement may have caused region-wide response measures to be launched too late.

Because initial outbreaks in poultry were not contained, H5N1 is now endemic in East Asia and expanding into new animal hosts. As a consequence, the strategy of averting a pandemic by eliminating opportunities for human exposure to infected birds is less likely to be successful. The second line of defence now is to prepare early for detecting human H5N1 cases and mitigating the effects of an outbreak. At the national level, this means developing and rehearsing response plans, researching a vaccine against pandemic influenza, and securing supplies of antiviral drugs. Internationally, there is an unprecedented opportunity for cooperation and intervention aimed at delaying the emergence of a pandemic virus or curtailing its spread. Success will be largely dependent upon assistance to the most vulnerable countries in East Asia – those with the weakest health infrastructure – from donors within and beyond the region. This assistance

would most usefully take the form of enhancing disease surveillance networks and strengthening national capabilities for patient care. Thus far, however, international assistance has been inadequate.

H5N1 avian influenza is a regional phenomenon with the potential to trigger a global disaster. The conditions for an influenza pandemic are close to being realized, and the window of opportunity to prepare may not remain open for long. Against a threat that knows no borders, countries that are presently not directly affected by H5N1 must treat this problem as if it were their own – it may become so soon enough.

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