VIRUS ALERT!

How a Flu Pandemic will hit the Global South

Summary

Avian influenza ('bird flu') is now a massive global threat. The H5N1 strain has spread to 55 countries since 2003, infecting over 220 million birds, and it is jumping the species barrier to humans with rising frequency.

Human influenza pandemics have happened regularly throughout history. Every 30 years or so, an influenza strain to which people have no inherited immunity emerges and spreads rapidly around the world. This happened three times in the last century, in 1918, 1957 and 1968. Scientists believe a new human pandemic is now overdue.

Millions of people are likely to die in a pandemic, most of them in the global South. Estimates based on past pandemics range from 2 million to over 70 million, depending on preparations and the nature of the virus. H5N1 has shown similarities to the 1918 virus, which killed over 40 million people in 24 weeks.

Asia and Africa will be worst affected. People already affected by diseases such as HIV/AIDS and malaria will be most vulnerable to a pandemic, but weak health systems mean they will be least equipped to protect themselves.

The intensification of the livestock industry has exacerbated the spread of bird flu, and hence the risk of a human flu pandemic.

Much more funding is urgently needed for surveillance and response systems in the South.

Countries in the South will have almost no access to antiviral drugs in a pandemic without a step change in production. This is being prevented by lack of funds, lack of production capacity at the manufacturer, and strict corporate patents.

The South will have no access to vaccines developed when a pandemic emerges, because global manufacturing capacity exists only in rich countries, and cannot be ramped up sufficiently at short notice.

Solidarity action and campaigning are needed as a matter of urgency.

www.pandemicaction.net

Introduction

"... we tell ourselves that pestilence is a mere bogey of the mind, a bad dream that will pass away. But it doesn't always pass away and, from one bad dream to another, it is men who pass away..." - Albert Camus, The Plague

Every so often, humanity kicks itself. Given weeks, years or even decades to prepare for a terrible event that *might* happen, we fail to do what we could to prepare for what is, after all, just a probability. The Asian tsunami, hurricane Katrina, and even Climate Change are examples. Albert Camus discussed this in his chilling novel *The Plague,* in which a city full of people falls prey to plague, and finds itself woefully unprepared.

An influenza pandemic is one such potential disaster. In 1918, in the space of 24 weeks, between 40 and 100 million people died in a global influenza pandemic that the World Health Organisation (WHO) has called, "**the most deadly disease event in the history of humanity**."[1]

Overwhelmingly these deaths took place in the Global South: in India alone 18.5 million people are thought to have died.[2] But rich countries were affected too, and one doctor treating patients in a USA hospital recounted how, "[t]he deaths in the hospital as a whole exceeded 25% per night during the peak of the epidemic. To make room for others the bodies were being tossed from the cellar into trucks, which when filled carted them away."[3]

The 1918 pandemic was one of three human influenza pandemics to take place last century, and it was the most severe. The two other episodes, which took place in 1957 and 1968, killed 2 million and 1 million people respectively. Using data from the 1957 pandemic, the World Health Organisation (WHO) has projected that **between 2 and 7.4 million people would die from such a 'mild' outbreak**, were it to occur today.[4]

Using data from the 1918 pandemic, a study published in the *Lancet* in December 2006 estimated that a global H5N1 influenza pandemic could kill over 60 million people, **96% of them in the global South.**[5]

No-one can be sure when the next pandemic will occur, or how severe it will be, but there is a growing scientific consensus that one is overdue, and that the H5N1 strain of avian influenza now endemic in wildfowl and poultry is creeping towards a form that could become transmissible among humans.

In late 2005, the WHO stated that, "the risk of pandemic influenza is serious...**Despite an advance warning that has lasted almost two [now 3] years, the world is ill-prepared to defend itself during a pandemic**."[6]

Even the UK government is worried. An assessment of external risks prepared by the UK government's Department for International Development states, "Risk: Human avian flu pandemic causes substantial mortality; adverse impact on development and DFID programmes; and disruption to DFID operations and staff. Probability: high; Impact: high."[7]

In this briefing, we set out the main issues at stake, and the action that is needed at national and international level to reduce the likelihood of a pandemic and ensure that low-income countries are adequately equipped to respond if and when it does. While there are some 'quick wins', many of the problems – and therefore solutions – are systemic issues that are already on the global economic justice agenda.

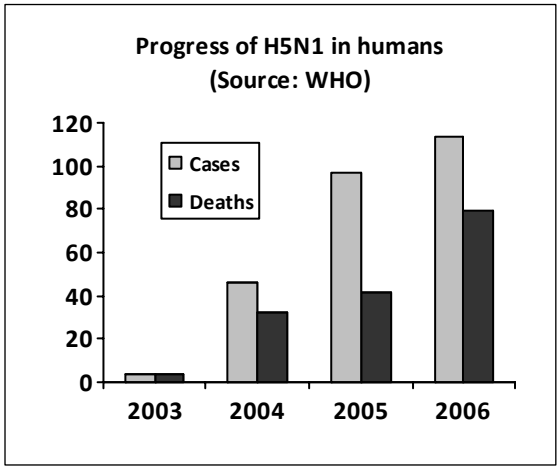
'A tsunami in every city'

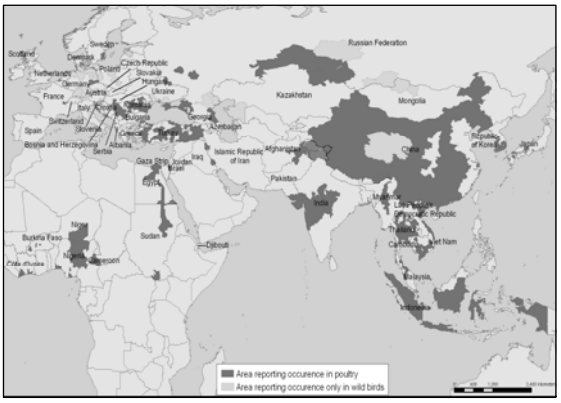
"The truth is that nothing is less sensational than pestilence, and by reason of their very duration great misfortunes are monotonous."

Back at the start of 2006, 'bird flu' was the menace of the moment, a media hot potato and top of many doomsayers' lists of things to watch out for in '06. A year later and pandemic influenza seems to have dropped off the media agenda. So does that mean it was a false alarm? If only. Those in the global public health community tasked with monitoring potentially pandemic strains of influenza believe the risk has continued to increase, not reduce.

As Dr Anthony Fauci, one of the first scientists to react to the embryonic HIV/AIDS pandemic in the early 1980s and now Director of the $4.4bn US National Institute of Allergy and Infectious Diseases (NIAID), said in mid 2005, **"this isn't something that's going to just disappear. This is here to stay.** We will have a pandemic sometime. It may be this year, next year, a year later."[8]

The number of deaths from the H5N1 strain of influenza in humans continues to rise (see diagram), and in poultry it has become endemic. As the WHO says on its website, "**The risk of pandemic influenza is serious.** With the H5N1 virus now firmly entrenched in large parts of Asia, the risk that more human cases will occur will persist. Each additional human case gives the virus an opportunity to improve its transmissibility in humans, and thus develop into a pandemic strain."[9]





While there is no way to predict with certitude when and where one will occur, influenza pandemics are regular occurrences, and there is no reason to think that anything has changed since 1968; in fact, those on the frontlines believe the conditions are ripe for the next pandemic, and only getting more so (see box on page 4).

Historian Professor Mike Davis sets out four ways in which current circumstances lend themselves towards a human pandemic, with global scope: "the Livestock revolution of the 1980-90s (part of the larger world conquest of agriculture by large-scale agro-capitalism)...the industrial revolution in South China (the historical crucible of human influenza)...the emergence of Third World 'supercities' and their

slums...the absence of an international public-health system corresponding to the scale and impact of economic globalisation."[10]

All but one of these factors relate to how the virus will spread once it jumps the species barrier. The exception is the intensification of animal farming, which has created an environment likely to cultivate the emergence and spread of new viruses in the first place. This is for two reasons. The first is that keeping more animals in a small area increases the opportunity for the virus to spread, as an agricultural statistician explains in Science: "[w]ith a group of 5000 animals, if a novel virus shows up, it will have more opportunity to replicate and potentially spread than in a group of 100 pigs on a small farm."

The second reason is the trade in live animals, especially poultry, which means an exchange of viruses from different parts of the world.

This combination of the natural cyclical pattern in influenza genetics and the man-made conditions in livestock farms means we can see a pandemic in the distance, we just don't know when or how big it will be. This is what underlay the startling comment from President Bush's outgoing, Secretary of State for Health and Human Services, Tommy Thompson, in 2003, as reported in the New York Times. "Asked what worried him most, Mr Thompson cited the threat of a human flu pandemic...'**This is a really huge bomb** that could adversely affect impact on the health of the world,' killing 30 million to 70 million people, he said."

The science of pandemic influenza

The influenza virus remains endemic in human populations, despite our ability to develop immunity to most viruses, because it mutates continually. Mutation can happen in small steps, when it is called 'genetic drift', or it can happen in sudden jumps, 'genetic shift'. Because influenza is common in animals as well as people, (not every strain is harmful in every species), genetic shift can create a pandemic strain either when an animal strain acquires mutations that let it jump the species barrier, or when a human strain recombines (swaps bits of its genome) with an avian strain in a third host, usually a pig. Both situations create a virus to which humans are naïve, that is, have no immunity.

The H5N1 strain of influenza, which – of several strains circulating in animals – poses the biggest pandemic risk, is endemic in poultry and other bird species in large parts of south-east Asia, and is spreading further afield. "Never before in the history of the disease have so many countries been simultaneously affected, resulting in the loss of so many birds," observes the WHO.[1]

There are three properties an avian influenza virus needs to have to become pandemic in humans, and H5N1 already has two of them: it is a new strain to which humans have no immunity, and it can infect humans, causing serious illness and usually death. "All prerequisites for the start of a pandemic have therefore been met save one," says the WHO, "the establishment of efficient and sustained human-to-human transmission of the virus."[1]

Each time the virus in birds acquires a mutation giving it the ability to infect humans, there is a chance that it might also gain the ability to be transmitted from person to person. As yet, there is no conclusive evidence that this has happened, but as the frequency of avian-to-human transmissions increases, so does the probability that it will do.

The poor on the frontline

"No longer were there individual destinies; only a collective destiny, made of plague and emotions shared by all."

No-one disputes that the global South will bear the brunt of an influenza pandemic, just as it has of the HIV/AIDS pandemic, and as it will do from climate change. The reasons for this are manifold. First, it is because it is likely to be on the frontline when the pandemic emerges. Cases of H5N1 in humans are localised in east Asia, where the virus is endemic in bird populations, at present, and most working assumptions are that this will continue to be the case.

Second, Southern countries don't have the capacity to set about reducing the prevalence of the virus in birds (to reduce the risk of a pandemic strain emerging) or to conduct the kind of surveillance of bird and human populations necessary to ensure a swift and effective reaction. The UK's Royal Society observed how lucky it was that the SARS virus was contained in Hong Kong and Toronto, two relatively wealthy cities. "Suppose the virus had flown from Hong Kong to Durban instead of Toronto. It is a city of similar size but without a similar health infrastructure, and with a significant proportion of its inhabitants immune-compromised owing to HIV-1 infection. Then **Africa could have become endemic for SARS by now**."[11]

Third, avian influenza will cost people in the South more because they are more likely to depend on livestock for their livelihoods. The World Bank has estimated that, "[if] bird flu becomes enzootic throughout the world to the degree observed in Vietnam in 2004 (approximately 12 percent of all domestic birds died from the disease or were culled to prevent spread)… **regional impacts could be as high as 0.7 percent of GDP**. Because the poultry sector is more important in developing countries and relatively labor intensive, job losses could represent about 0.2 percent of the global work force, or some 5 million jobs during the time it takes the global economy to adjust."[12]

To contain the virus in birds requires mass culling, of the kind used to stamp out foot and mouth disease in the UK. As poultry are an important livelihood resource for millions of poor people, governments need the resources to compensate farmers. "There are both practical and ethical reasons why policymakers and public health officials should focus on the most vulnerable populations. We have little hope of averting a pandemic if poor villagers are afraid to report sick birds or possible human cases to public health authorities," observed Professor Ruth Faden, of Johns Hopkins Bloomberg School of Public Health.[13]

Fourth, in an eventual human pandemic, people in the South will be more vulnerable to infection, both by influenza and by the associated secondary infections, because of the precarious livelihoods and poor health of their populations. In 1918, Iran and parts of India experienced huge infection levels. In Iran, between eight and 22% of the entire population died of influenza.[14]

In India, the more severe second wave of the pandemic coincided with a poor year's monsoon, such that, "**[f]amine and influenza formed a set of mutually exacerbating catastrophes**," as one historian observed.[15] He continues,

"In Bombay Presidency the severe second wave came at the time of the harvest of the early crop, and sowing of the late crop. With morbidity estimated to be in excess of 50 percent of the population, and with the concentration of severe attacks in the most productive age range, 20-40, the effect on agricultural production was extreme...absolute lack of any public health organization redoubled infection's impact upon the famished population."

Professor Davis outlines how, "[p]overty, malnutrition, chronic illness, and co-infection were thus powerful determinants of the precise tax that the 1918 influenza extracted from different populations. Indeed, **the global pandemic itself was really a constellation of individual epidemics, each shaped by local socioeconomic and public-health conditions**. In some countries, such as India and Iran, the co-factors (hunger, malaria, anaemia) formed deadly nonlinear synergies with influenza and its secondary infections."[16]

Fifth, developing countries will not have the resources to mitigate the impact of a pandemic. Two drugs, Tamiflu and Relenza, are the best hope of stalling the spread of the pandemic and gaining some degree of control over it. But they are strictly bound by patents. African and Asian countries have neither the funds to stockpile branded antiviral drugs, the diplomatic might to confront the global intellectual property system, nor the capacity to manufacture generics themselves.

As the WHO puts it, "**Most countries will have no access to antivirals throughout the course of a pandemic**."[17] As far as an eventual vaccine is concerned, it's a similar story. "Because the vaccine needs to closely match the pandemic virus, large-scale commercial production will not start until the new virus has emerged and a pandemic has been declared. **Current global production capacity falls far short of the demand expected during a pandemic,"** says the WHO.[18]

As Davis concludes, "[i]n the face of the peril of avian influenza, as with HIV/AIDS earlier, **world public health resources are organised rather like the lifeboats on the Titanic**: many of the first-class passengers and even some of the crew will drown because of the company's skinflint lack of foresight; the poor Paddies in steerage, however, do not even have a single lifeboat between them, and thus, they are doomed to swim in icy waters."[19]

The WHO gives a taste for the likely impacts of a pandemic: **"**While neither the timing nor the severity of the next pandemic can be predicted, history shows that these events consistently bring an explosive surge in the number of illnesses and deaths sufficient to temporarily paralyse public services and economic productivity."[20]

A test of global solidarity

"... once the faintest stirring of hope became possible, the dominion of the plague was ended."

It's a familiar story in global health crises. We know how to limit or mitigate the impact, but rich countries have not made the resources and political will necessary available. "Technical experts are sometimes accused of having overestimated the risks from this disease, or of exaggerating its potential threat," Modibo Traore, head of the African Union's InterAfrican Bureau for Animal Resources, has said.[21] "The rampant demotivation that has resulted seems to have affected the main players in the struggle on all continents, and notably the donor community." When international donors met in Bamako in December 2006, only a third of the conservative amount requested by the UN was pledged.

The necessary responses can be divided into two timeframes. First, a crash programme of increased financial and technical assistance to Southern countries, a temporary 'workaround' to the patent issue (such as compulsory licensing), and an immediately increase global vaccine production capacity.

In the longer term, pandemic influenza needs to be integrated into broader debates and development agendas. It gives an added impulse to demands for a reform of global intellectual property law, access to essential medicines, and health system capacity building. In addition, the intensification of the livestock industry needs to be curtailed and reversed.

Those campaigning for global justice need to incorporate AHI into their advocacy and activism agendas as soon as possible. The global community needs to:

1. Provide resources for a proper surveillance and response system across the global South, through:

a) Properly resourced local, national and regional avian flu surveillance centres;

b) A long-term programme to curtail the spread of H5N1 in livestock;

c) Compensation for farmers when livestock needs to be culled.

2. Prepare for a truly global effort to slow and limit the spread of an eventual pandemic, including:

a) Seasonal vaccinations for existing human influenza strains across the global South;

b) Significantly scaled-up global vaccine production capacity;

c) A much greater stockpile of antiviral drugs, using compulsory licensing if it is necessary in order to produce sufficient amounts quickly and affordably;

d) Plans in place to ensure equitable distribution of vaccines and antivirals in the event of a pandemic.

3. Address the underlying factors aggravating risk and impact, in particular:

a) Changes in agriculture to reduce and eliminate the intensive farming of livestock;

b) An end to patents that restrict access to medicines and inhibit the development of production capacity in the South.

Join us: take action

Pandemic Action is a new UK-based campaigning initiative aiming to bring a global solidarity agenda to the debate around avian influenza.

We believe the threat of a human flu pandemic, which may kill tens of millions of people, requires radical campaigning action focused on the health needs of the world community, not merely of the rich nations.

We are looking for partners in the UK and internationally to work collectively on this campaign. For more information and to sign our pledge visit: **www.pandemicaction.net**

Email us on **info@pandemicaction.net**. Or write to Pandemic Action, c/o Voices UK, 5 Caledonian Road, London, N1 9DX, United Kingdom.

References

1 WHO (2005): *Avian Influenza: assessing the threat.* Geneva: World Health Organisation <http://www.who.int/gb/ebwha/pdf._files/EB114/B114_6-en.pdf>

2 Johnson, N. & Mueller, J. (2002): "Updating the Accounts: Global Mortality of the 1918-1920 'Spanish' Influenza Pandemic," *Bulletin of the History of Medicine* 76, cited in Davis, M (2007): *The Monster at Our Door: The Global Threat of Avian Flu.* New Press, pp. 26-27

3 Starr, I (2006): "Influenza in 1918: Recollections of the Epidemic in Philadelphia", *Annals of Internal Medicine* 145(2)

4 WHO (2005): *Avian influenza frequently asked questions* [online] <http://www.who.int/csr/disease/avian_influenza/avian_faqs/en/index.html>

5 Murray, C. et al (2006): "Estimation of potential global influenza mortality on the basis of vital registry data from the 1918-20 pandemic: a quantitative analysis" *Lancet* 368(9554):2187-8

6 WHO (2005), *op cit*

7 DFID (2005): *Corporate Risk Register* [online] <http://www.dfid.gov.uk/aboutdfid/audit-committee/corporate-risk-reg160105.pdf>

8 PBS (2005): Transcript of interview from *News Hour with Jim Lehrer*, 26th May [online] <http://www.pbs.org/newshour/bb/health/jan-june05/flu_5-26.html>

9 WHO (2005), *op cit*

10 Davis (2007), *op cit*

11 Weiss, R. & A. McLean (2004) "What have we learnt from SARS?", *Philosophical Transactions of the Royal Society B: Biological Sciences* 359(1447):1137-1140

12 Burns, A et al (2006): *Evaluating the Economic Consequences of Avian Influenza* [online] <http://siteresources.worldbank.org/INTTOPAVIFLU/Resources/EvaluatingAIeconomics.pdf>

13 Berman Bioethics Institute (2006): *Experts Issue Urgent Call to Adopt New Principles to Aid and Protect World's Most Vulnerable Populations from Influenza Pandemic*. Press release, 29th September [online] <http://www.hopkinsmedicine.org/bioethics/bellagio/BellagioStatementofPrinciples.pdf>

14 Amir Afkhami, 'Compromised Constitutions: The Iranian Experience with the 1918 Influenza Pandemic', Bulletin of the History of Medicine 77 (2003), pp. 371-72.

15 Mills, I (1986): "The 1918-19 Influenza Pandemic – The Indian Experience," *Indian Economic and Social History Review* 23, no. 1, pp. 1-40, cited in Davis (2007), *op cit*.

16 Davis (2007), *op cit*

17 WHO (nd): *WHO consultation on priority public health interventions,* Executive summary [online] <http://www.who.int/csr/disease/avian_influenza/executivesummary/en/index2.html>

18 WHO (2005), *op cit*

19 Davis (2007), *op cit*

20 WHO (2005), *op cit*

21 Quoted in Thompson, A (2006): *Bird flu experts meet to fight virus, complacency*. Reuters, 6th December. [online] <http://www.alertnet.org/thenews/newsdesk/L06413869.htm>

All websites last viewed 18th January 2007