

Human Face of a Pandemic

Understanding the reality of pandemic influenza



How prepared are you for pandemic influenza?

*It is widely believed in the scientific community that a global pandemic of influenza is both overdue and inevitable, and that it could kill millions of people.*¹⁻³

Governments and intergovernmental agencies worldwide are now emphasising the inevitable impact that pandemic influenza will have on individuals, societies and global business.^{1,2,4,5}

Voluntary isolation or quarantine may be recommended for people with influenza and members of their household. Schools could be closed, and ‘social distancing’ measures could be introduced in the workplace. Substantial disruption of essential services such as healthcare and utilities may also be expected.^{4,6}

What is pandemic influenza?

The influenza virus is constantly changing and adapting.⁷ A pandemic occurs when the influenza virus mutates to a sub-type to which humans have little or no immunity.⁸

Pandemics are not short-lived events.⁹ Past pandemics have lasted more than a year and spread globally in two or even three waves. It is highly likely that the next pandemic will feature waves of infection, circling the globe over a period of many months.³ An effective vaccine is unlikely to be available until six months after the pandemic strain emerges, and medical interventions and resources would fail to meet demand in the initial months of a pandemic.^{10,11}

“The moment the pandemic starts it is too late to get prepared”

Dr David Nabarro, United Nations System Coordinator for Avian & Human Influenza



The military were particularly alert to the threat of pandemic influenza: This poster appeared in a Naval Aircraft Factory in Philadelphia, Pennsylvania in 1918

Bird flu: How real is the risk?

*Scientists believe that mutated avian (bird) viruses, that have crossed the genetic species barrier, were the most likely origin of the last three human influenza pandemics.¹² The H5N1 bird flu virus – which is extremely contagious in poultry – has caused scientists considerable concern in recent years.*¹³

Health experts have been monitoring the regular outbreaks of H5N1 influenza in humans since 1996.¹⁴ As of February 2008, H5N1 outbreaks had been recorded in 14 countries, 369 people had been infected, and of these 234 died.¹⁵

The World Health Organization (WHO) considers we are now at Pandemic Alert Stage 3, when a virus new to humans (in this case H5N1) is causing infections but does not spread easily from one person to another. The WHO will announce Pandemic Alert Stage 4 when there is evidence of increased human-to-human transmission, Stage 5 when there is significant human-to-human transmission, and finally declare a pandemic when there is efficient and sustained human-to-human transmission of the virus (Pandemic Alert Stage 6).^{16,17}

One pandemic is never the same as another, because viruses are unique and the society they invade is ever-changing.⁸ Experts have warned that a new influenza virus could circle

Inter-pandemic phase	Low risk of human cases	1
	Higher risk of human cases	2
Pandemic alert New virus causes human cases	No or very limited human-to-human transmission	3
	Evidence of increased human-to-human transmission	4
	Evidence of significant human-to-human transmission	5
Pandemic	Efficient and sustained human-to-human transmission	6

Table to show the current WHO phase of pandemic alert (phase 3)

the globe in less than three months because of the speed and volume of international travel.³

Quite apart from the pressure on health services, this would mean major social upheaval and economic loss, work absenteeism, and disruption to travel and business.¹

“I am not at liberty to give you a prediction on numbers, but the range of deaths could be anything from 5 to 150 million”

Dr David Nabarro, United Nations System Coordinator for Avian & Human Influenza

Are you prepared for the impact on your business?

Any future influenza pandemic will result in a huge demand on all levels of government, and the demand for public services is likely to exceed their capacity to respond.^{1,11} This will inevitably mean that much of the initial burden will fall on individuals and the private sector.¹

This burden is illustrated by recent high profile natural disasters such as the Asian tsunami and the New Orleans hurricane which demonstrated the role of public-private partnerships in disaster response.¹⁹

Although government pandemic plans have been developed to ensure treatment of either selected, or all infected, individuals, government agencies and healthcare services are likely to be overwhelmed in the initial stages. The effects on businesses and corporations are likely to be particularly challenging as employee shortages are expected due to health concerns and inadequate public transportation.^{4,11} For previous pandemics, even for the 'milder' pandemics of 1957 and 1968, around 25 – 30% of the populations became ill.^{20,21}

Pandemic influenza is consistently recognised as having far greater implications for economic security than a major terrorist attack and the

World Bank has estimated its global economic impact will be up to US\$1 trillion.²²

Business analysts have emphasised that when the next inevitable influenza pandemic arrives, businesses from all sectors will suffer huge financial losses²³ and financially vulnerable enterprises could face bankruptcy.²⁴ Economists and forecasters have defined a vision of how the business world will operate during an influenza pandemic:

- Supply chain disruptions, with increased costs rippling along the global supply chain¹
- Key learnings from the SARS outbreak has demonstrated that businesses relying on face-to-face contact (entertainment, retail sales, hotels, restaurants) could expect severe 'demand shock' as people limit their contact with others²⁵
- Transportation may be severely affected and the impact would cascade through industry sectors¹¹

SARS

The impact of SARS (Severe Acute Respiratory Syndrome) illustrates the impact that infectious diseases can have on economies. SARS never came close to reaching pandemic status, but within weeks the disease, which had spread from a single case in rural China, had caused losses totalling US\$18 billion in East Asia.¹

“Avian influenza is the biggest threat to humanity – far greater than global warming, nuclear terrorism and natural disasters”

Tim Jones, Principal, Innovaro Ltd, and Leo Roodhart, VP Group Innovation Game Changer, Shell International BV



Face masks were a common sight in places affected by pandemic influenza. This picture shows Seattle policemen wearing protective gauze face masks during the influenza pandemic of 1918-20

How will you protect your business?

It is unlikely that businesses will be able to insure against the effects of pandemic influenza, meaning that rigorous business continuity planning will be essential if enterprises are to survive.¹

Companies that outsource could be particularly vulnerable. Of the top ten countries used by the international community as outsourcing locations, 70% have had confirmed human cases of avian influenza.¹

Corporations and small businesses are encouraged to envisage the coming pandemic as a truly catastrophic event rather than a manageable disruption.¹ The most recent guidance from the Centers for Disease Control and Prevention in the US highlights that these plans should be sufficiently flexible, and based on sound projections of the impact of pandemic influenza on businesses.¹⁶

Guidance issued to businesses recommends that plans should include measures to address:

- Absenteeism of up to 35%, or a permanent loss of a significant proportion of employees¹
- Procedures for remote working and communication with employees²⁶
- Fluxing and unpredictable consumer demand¹
- Identification of essential core functions and staff¹¹
- Identification of services that could be curtailed or closed down if necessary²⁶
- Supply chain integrity, including ensuring that supplier organisations have appropriate plans in place to cover business continuity¹¹
- Provision of medical interventions for employees¹



Organisations will need to identify which services could be shut down during a pandemic

“I know of no other health emergency that can spread to every corner of the globe within a few months ... this will almost certainly be the greatest health crisis experienced for almost a century”

Dr Margaret Chan, Director-General of the World Health Organization

Professor Ahmet Faik Oner, 49, from Yüzüncü Yıl Üniversitesi Hospital in Van, Turkey, treated eight children with H5N1 infection two years ago following a local outbreak. He believes with a proper preparedness plan, the effect of an influenza pandemic can be greatly reduced.

Professor Oner was the consultant on duty when three young brothers and sisters arrived at his hospital on New Year's Eve 2005 suffering from high fever, fatigue and coughing. He suspected infection with the H5N1 influenza virus.

The children had been in close contact with infected chickens kept at their home and as a result their families and neighbours were examined, isolated and quarantined. All poultry in the village was culled and farm vehicles sprayed with chemicals. Sadly, all three children died.

Two children from neighbouring families were also found to be infected, as were two relatives living three miles (five kilometres) away, one of whom died.

The outbreak was confirmed as H5N1 by the WHO laboratory in London. As a result local people were very worried, and presented at hospitals with the slightest hint of symptoms. Professor Oner commented: *“Hundreds of locals swamped the University hospital.*

Of the 625 people who presented, 159 were hospitalised with clinical symptoms.”

Professor Oner believes the virus can be contained by early antiviral intervention, but says it is vital that these people get the antivirals as early as possible in the course of the disease. Of the children who died, the average time between onset of the illness and antiviral treatment was ten days; of those who survived the average time was five days.

He says governments and businesses must stockpile antivirals such as Tamiflu. He adds that extensive education programmes are needed to help inform the public and make sure hospitals have the correct equipment.

“The H5N1 influenza illness is very dangerous, but the Turkish government was successful in the management of this local outbreak as antivirals were available. With a good plan, many countries can successfully deal with such an outbreak and prevent further spread.”

“It is vital that every business and organisation should have a written plan and measures in place so everyone is clear what will happen in the event of the next, inevitable pandemic”



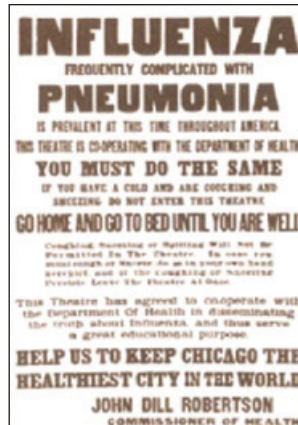
Professor John Oxford, Professor of Virology, Queen Mary's School of Medicine & Dentistry, United Kingdom

People in past pandemics

Experts from the World Health Organization (WHO) and other bodies now believe that the world is closer to the prospect of another influenza pandemic than at any time since 1968, when the last one occurred.¹⁷

The 1968/9 Hong Kong influenza pandemic killed one million; the 1957 Asian pandemic killed more than two million, and in 1918, 40 million people worldwide died of Spanish influenza.³ These victims were not the old and infirm or the very young, but people of working age, in fact half of the people dying were aged 20–40 and 99 per cent were under 65.¹⁸

Footage from the 1918 pandemic illustrates the severe measures put in place to minimise transmission of infection. For example, face masks were worn by those who did venture out and posters ordered sufferers sneezing and coughing to “go home and go to bed until you are well”. The military was particularly affected and ‘sneeze screens’ were put up between beds in naval hospitals and drill halls.



The pandemic affected every aspect of public life. Public health notices like this appeared in places where the public gathered

Pandemic of 1968/9

Similar to the 1918 pandemic, a desperate situation was evident in the UK in the most recent 1968/9 pandemic. Newspapers from the time report 5,250 people in the UK dying in a fortnight, two years after the initial identified case. They also report burials were delayed by up to 10 days in some areas because funeral directors were so overwhelmed.

In addition, there were reports that hundreds of nurses were absent through sickness, so Scouts and Guides and schoolchildren were drafted in to help clean and disinfect operating theatres at local hospitals. One teacher remembers “children were dropping like flies . . . one had to step over pools of vomit in the corridors at school.” Postal services and fire brigades also reported high absenteeism, while ambulance services voiced concern over carrying influenza infected patients.

“I was taken ill so suddenly, I wondered if I could get home without collapsing. . . I was too ill to care . . . it was the only time in my life I felt incapable of doing anything”

Former patient Jeanne Jennings, who had influenza in the pandemics of 1957 and 1968/9

“The surgery was inundated. . . we instructed patients to go home and stay in bed. . . I felt I could have just laid on the floor and died”

Dr Marjory Dawes, a GP from London who caught influenza in the 1957 pandemic

Dr Douglas Fleming OBE, 66, a retired General Practitioner (GP) and expert in influenza surveillance lives in Birmingham, UK. He was working as a family doctor during the 1968/9 Hong Kong influenza pandemic. Dozens of his patients became suddenly and seriously ill.

Dr Fleming was working on call on December 26. He would expect four call-outs over the Christmas holidays but in 1969, he and his GP partner went to 40. The patients were acutely ill with high fever, and typically two or more people in the same family were afflicted.

He remembers visiting dozens of patients with extremely high temperatures: “When you pulled the bed clothes back, you would see the steam rise from the patient.”

Cases peaked the following week in the New Year with 1,250 per 100,000 population reported to be consulting their general practitioner – *ten times the usual peak winter rate*. The illness lasted longer than usual, with many people sick and off work for two weeks.

The unusual factor was the age of the victims. Usually influenza affects children and the elderly, but in 1969, as in the Spanish influenza of 1918, the older middle-aged, 45–64, were hardest hit. All Dr Fleming could give patients was aspirin or paracetamol to reduce their temperature, and antibiotics only if there were secondary complications such as bronchitis and pneumonia. However nationally, many

people died in the acute phase of the illness before secondary complications set in.

“I remember seeing a teenager dying. She had been visited at home one day and I was called again on the following day because she had become much worse. I sent her to hospital. She died later that day.”

As a result of the 1968/9 pandemic, much more importance was put on the notification of influenza incidence in the UK. Dr Fleming became a leading authority on influenza surveillance for the Royal College of General Practitioners, and has spent much of his working life devoted to influenza monitoring at the Birmingham Research Unit in the UK. The severity of a future influenza pandemic cannot be predicted, but spread is likely to be even more rapid than in previous pandemics.

“People are more mobile today than they were in 1969, and we may be more vulnerable because of this. Although the last influenza pandemic had a major impact on society, the country did not grind to a halt. Should a pandemic occur now, there would be much greater pressures on the health services because of the advances in the management of respiratory disease.”

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