

### What is pandemic flu?

Flu that spreads rapidly causing widespread epidemics around the world. Pandemic influenza occurs when a new, highly infectious and dangerous strain of the influenza virus appears.

In contrast to the 'ordinary' or 'seasonal', flu outbreaks which we see every winter in the UK, flu pandemics occur infrequently – usually every few decades. There were three in the last century. The most serious was in 1918, killing millions of people worldwide. Smaller pandemics happened in 1957 and 1968.

### What is the difference between an epidemic and a pandemic?

A pandemic occurs over large geographical areas (usually worldwide) and affects a high proportion of the population; an epidemic, although it may be serious, usually refers to what is happening in one country or region.

### Is another pandemic of influenza likely?

Flu viruses are constantly changing and adapting, so it is likely that viruses sufficiently different from 'ordinary' flu strains to cause a pandemic will emerge from time to time. International disease experts are saying that the world is overdue for the next pandemic.

### When is the next pandemic due?

We do not know – it can't be predicted. The gaps between previous pandemics have varied widely. Intervals between previous pandemics have varied from 11 to 42 years with no recognisable pattern. Three influenza pandemics occurred in the last century – 1918/19 (Spanish flu), 1957/58 (Asian flu) and 1968/69 (Hong Kong flu). All affected large numbers of the population, causing many deaths and huge economic and social disruption.

#### Pandemics during the last century

Year	1918-1919	1957-1958	1968-1969
<b>Flu type</b>	Spanish Flu	Asian Flu	Hong Kong Flu
<b>Likely origin</b>	Unknown (The first cases were in Europe/USA)	China	China
<b>Estimated deaths</b>			
<b>Global</b>	50 million	1 million	1 million
<b>UK</b>	250,000	33,000	30,000
<b>Age group most affected</b>	Young adults aged 20-50	Very young /very old	Very old/those with medical conditions

### **Where is the new virus likely to come from?**

Past experience suggests that it will first appear in Asia, but it could be anywhere, including the UK.

### **Will it arrive in winter like normal flu?**

Not necessarily. A new virus may not follow the usual seasonal pattern of ordinary influenza. It could occur at any time of the year.

### **How long will it take to spread to the UK?**

Probably less than six months and possibly just a few weeks. The increasing speed and volume of modern travel means infectious diseases can travel very rapidly round the globe.

### **How is the virus spread?**

The virus is easily passed from person to person by breathing in air containing the virus produced when an infected person talks, coughs or sneezes. It can also spread through hand/face contact after touching a person or surface contaminated with the virus.

### **How will a new virus be detected?**

Scientists in an international network of laboratories, co-ordinated by the World Health Organization (WHO) are watching for it all the time. This network provides a mechanism for monitoring flu viruses around the world, detecting the emergence of influenza viruses with pandemic potential, and alerting other countries.

### **How will we know when a pandemic is possible?**

When a new strain of influenza virus has not only been identified but also causing illness and has started spreading from one person to another.

### **Can't it be prevented at this stage?**

International effort will be put to trying to control a pandemic at this early stage. However, influenza is highly infectious and because whole populations will be susceptible to the new virus, despite people's best efforts it is likely to continue to spread.

### **What will make a pandemic more likely to happen?**

A pandemic will be considered imminent when a new virus has shown it can spread easily between people. In practice, this means when a new strain of the virus has been identified as the cause of chains of illness passed from one person to another or illness in more than one country, with no obvious links.

## **What can we expect to happen?**

Once the pandemic reaches the UK it will take a few weeks to take hold, but it will then cause widespread illness across the country over a period of 2-3 months. There may be a second wave of illness a few weeks or months later. Previous experience suggests around a quarter of the population will develop flu during this time.

## **How many people in the UK are likely to catch flu during the pandemic?**

From past experience, up to a quarter of the population are likely to develop flu, although it could be more. More than this may be infected without getting symptoms (sub-clinical infection).

## **Could everyone become ill?**

Everyone will be susceptible, but in the past as many people as become ill shake off the infection without developing illness (asymptomatic infection).

## **How predictable will the effects of a pandemic be?**

Every pandemic is different so we cannot be sure how a new pandemic will behave. But we can make sensible plans for what we think is most likely, based on previous experience and our knowledge of how the world has changes since the last pandemic in 1968.

## **How will this impact on health services?**

A flu pandemic will, therefore, place considerable pressure on health and social services due to the greatly increased number of patients with influenza who will require treatment together with depletion of the workforce due to illness.

## **How will this impact on business?**

Each pandemic is different and the impact on business cannot be fully established until more is known about how a pandemic is evolving. Absences from work will depend largely on the age group most affected by the virus. Previous pandemics suggest that up to 10% or more of the population may have to take days off work. Absence may be compounded by the need for some workers to care for family members, and any disruption to transport services.

## **Will schools be affected?**

Pandemic flu is likely to spread rapidly in schools, so they may have to close. Some may also have to close for short periods because of staff shortages. This, in turn, will affect working parents who may need to stay at home to care for their children. Closing schools will, therefore, have an impact on business continuity and the maintenance of essential services. Decisions such as whether to close schools as a measure to try to slow the spread of the pandemic will be taken at the time.

## **Will other sectors of the community be affected?**

Pandemic flu will impact on all services including health, police, fire, the military, fuel supply, food preparation, distribution and transport, prisons, education and business. All are likely to be affected by staff sickness, travel restrictions and other potentially restrictive countermeasures, and by the knock-on effects of reduced transport, deliveries etc.

## **Will people be prevented from travelling?**

At the start of a pandemic, before it reaches the UK, people are likely to be advised not to travel to affected areas or attend international gatherings such as large conferences and sports events. Later, depending on how the disease develops, measures may have to be taken to restrict people's movements to prevent or delay further spread of the disease.

## **Will the NHS be able to cope with so many patients all at once?**

There will certainly be greatly increased pressure on the health service, which is used to planning for such emergencies. A flu pandemic is one of the more serious crises which the NHS plans for.

## **Who is at risk?**

Everyone is at risk during a flu pandemic, as no one will have immunity to the virus. Older people and those with chronic health problems may be at greater risk of severe complication like pneumonia but until the virus starts circulating it is not possible to know for sure who is at greatest risk.

## **What are the differences between pandemic flu and ordinary flu?**

Ordinary flu is the flu that circulates in the human population all the time and produces the winter flu we see in the UK every year. Ordinary flu viruses are monitored closely. The strains likely to be circulating each year can be fairly reliably predicted so that appropriate vaccines can be prepared each year.

Pandemic flu is caused by a new or novel strain of influenza virus. One way that this could happen is as a result of an avian flu virus and ordinary flu virus and the two viruses mixing their genes to produce a virus that can spread between people. Because it is new, no one has any protection against it and until it is identified, a vaccine cannot be developed against it. It can therefore spread very rapidly and cause high rates of illness and death. See the table opposite for a summary of many of the differences between ordinary and pandemic flu.

## **How many people are likely to die?**

This will depend on factors such as how virulent the virus proves to be, which age groups are mainly affected, and how much vaccine is available. According to recent estimates, 25% of the population could fall ill. It is estimated that a pandemic could lead to seven million deaths worldwide and over 50,000 deaths could occur in the UK.

## **How long will the pandemic last in the UK?**

It is estimated that pandemic flu will be widespread in the UK within about ten weeks of its first arriving, and will last for about three months. There may be a second wave of infection a few months later. These times are estimates, and may change.

## **Avian flu**

### **What is bird flu?**

Bird – or avian – flu is caused by a virus that usually infects birds (particularly poultry) but occasionally crosses the species barrier and infects humans –recently predominantly in the Far East, although it also happens elsewhere. One strain of bird flu – H5N1 – has been associated with a very high death rate when people have been affected.

## **Influenza vaccine**

### **What is the best line of defence in an influenza pandemic?**

Vaccines are the best line of defence in reducing illness and deaths during normal seasonal influenza. The vaccine has to change each year as the viruses circulating change. This can be done because the changes can be fairly reliably predicted. Vaccines can also play an important role in responding to an influenza pandemic but because the virus will be entirely new and not predictable in the same way, a specific vaccine cannot be made in advance. Preparatory work is being undertaken to be in the best possible position to produce vaccine against a pandemic strain when the situation arises, but they are unlikely to be available in the early stages.

The following table summarises the main differences between ordinary flu and pandemic flu

**Ordinary flu**

- Ordinary flu occurs every year during the winter months in the UK.
- It affects 10-15% of the UK population, causing around 12,000 deaths every year.
- Globally, epidemics of 'ordinary' flu are thought to kill between 500,000 to 1million people every year.
- Most people recover from ordinary flu within one or two weeks without requiring medical treatment.
- Deaths are generally confined to 'at risk' groups including:
  - elderly people over 65 years of age
  - people with existing medical conditions such as lung diseases, diabetes, cancer, kidney or heart problems
  - people whose immune systems are compromised due to HIV/AIDS or because they have a transplant, for example
  - the very young.
- The vaccine against ordinary flu is effective because the virus strain in circulation each winter can be fairly reliably predicted.
- Annual vaccination, when the correct virus strain is fairly reliably predicted, and antiviral drugs are available for those at risk of becoming seriously ill.

**Pandemic flu**

- Pandemic flu occurs roughly every thirty years and can take place in any season.
- It affects many more people than 'ordinary' flu – a quarter or more of the population – and is associated with much higher rates of illness and death. For example, the worst flu pandemic last century – the 1918 'Spanish Flu', caused around 250,000 deaths in the UK alone and up to 40 million deaths worldwide.
- Pandemic flu, usually associated with a higher severity of illness and consequently a higher risk of death, represents a much more serious infection than ordinary flu.
- People of all age groups may be at risk of infection with pandemic flu, not just 'at risk' groups.
- A vaccine against pandemic flu will not be available at the start of a pandemic. This is because the virus strain will be completely new. It will be different from the viruses that circulated the previous winter, and not predictable in the same way.
- Antiviral drugs may be in limited supply, their use depending on evidence of their efficacy which will only emerge once the pandemic is under way.

## **What do vaccines do?**

Vaccines are biological agents that stimulate the body to produce antibodies or other immunity. Influenza vaccines produce antibodies against strains closely related to the strains of the virus contained in the vaccine. On exposure to flu virus, the antibodies help prevent infection and reduce the severity of the illness. Normal flu vaccines contain parts of three viruses thought most likely to be circulating during the forthcoming winter.

## **How effective are influenza vaccines?**

This depends on how well the vaccine matches the strains of virus currently causing illness. Even with the best match influenza vaccines are not 100% effective in preventing illness. But they can be expected to reduce the most serious illness complications, the need for hospital care and deaths.

## **Will a vaccine be available to prevent illness in a pandemic?**

Until the virus has been identified, it is not possible to prepare a vaccine against a pandemic strain of influenza virus. Once the virus is identified, the vaccine will take about four to six months to produce. Therefore, depending on the gap between the two waves of infection a vaccine should be available for the second wave of infection.

## **How long will the vaccine take to produce?**

The vaccine will take at least 4-6 months to produce.

## **Why can't we use currently available flu vaccine?**

Currently available flu vaccines only protect against the currently circulating ordinary flu. The virus causing a pandemic will be so different from the strains in the vaccine that they are very unlikely to provide any significant immunity in a pandemic situation. New vaccine must be developed to match the new pandemic strain.

## **Can any vaccine left from previous years be used?**

No. It will only provide protection against old strains of influenza virus, not against a new strain.

## **Can't we anticipate what viruses might cause a pandemic and make a vaccine available?**

There is no vaccine ready to protect against pandemic flu. The virus that causes pandemic flu will be new and a vaccine to protect against it cannot be made until the virus has been identified. Before a pandemic starts it is difficult, if not impossible, to predict what strain will cause it and even then, predictions may prove wrong, or the predicted virus may have changed enough for a pre-prepared

vaccine to be ineffective. 'Ordinary' flu vaccines will not provide protection and having had a flu 'jab' in the recent past does not protect someone.

### **Can we be sure the UK will be able to obtain enough vaccine for its own needs?**

The UK is discussing its needs with manufacturers, but it is very unlikely enough vaccine can be produced for everyone to be immunised before the first wave of illness due to the pandemic strain.

### **Does this mean that the vaccine will be rationed?**

Priority will be given to certain groups first. Healthcare workers and other essential service key workers will need to take precedence over other groups, as it will be important to maintain health and other essential services. Those groups most at risk of serious illness will then receive the vaccine as supplies increase.

### **Who makes the decision on rationing?**

The Joint Committee on Vaccination and Immunisation (JCVI) (an independent advisory committee) advises the Government on issues relating to immunisation. It has made the following provisional recommendations for prioritising groups for vaccination:

- healthcare workers most at risk
- essential service workers
- clinical 'high-risk' groups
- closed communities such as nursing homes
- general population.

These would be kept under review during a pandemic and modified if necessary. Final decisions will be based on advice from the JCVI and the UK National Influenza Pandemic Committee.

### **Will the whole population be vaccinated?**

Whilst the overall aim will be to vaccinate the entire population, this will not be possible in the early stages of a pandemic. A tiered approach will be taken to vaccination as vaccine becomes available. An important part of the response is to optimise the use of vaccine and other resources in limited supply.

### **Who purchases the vaccine?**

The Department of Health is responsible for purchasing and supplying a pandemic vaccine on behalf of the whole of the UK. The Department will liaise with the health departments of Scotland, Wales and Northern Ireland for the supply of vaccines to these regions.

## **Are there any other ways to prevent influenza?**

Antiviral agents can be used to prevent influenza, for example in the early stages of a pandemic. But, again, until the virus starts circulating it is not possible to know how effective antivirals will be, or the best way to use them.

## **Does the UK have stocks of influenza vaccine?**

A pandemic vaccine cannot be stockpiled until the virus causing the pandemic is known. However, the UK is taking steps that should help speed up production of a vaccine when the time comes. Even so, it takes at least four to six months to manufacture influenza vaccine.

## **How will vaccine be equitably distributed?**

Vaccine will be distributed on a per capita basis, according to the groups being immunised.

## **Who will do the vaccinations?**

The precise vaccine formulation, dose and dose schedule will not be known until nearer the time, so detailed arrangements for immunisation are not yet established. Mass community immunisation plans are currently being developed and will examine the possibility of immunisation by people other than doctors/nurses such as medical students and pharmacists.

## **Antiviral drugs**

### **What are antiviral drugs?**

Antiviral drugs are special medicines for the treatment of certain viral infections. Two types of antiviral drugs are available against influenza. They will have an important role in the prevention and treatment of pandemic influenza, especially during the time before vaccine becomes generally available.

### **Does the UK have contingency stockpiles of antiviral drugs and other essential pharmaceuticals?**

The UK is building up a stockpile of antiviral drugs against the contingency of an influenza pandemic.

### **Which antiviral drug does the UK government currently have?**

In addition to the drugs routinely available in the NHS, the UK has a limited stockpile of two antiviral drugs: oseltamivir and amantadine.

### **Do antivirals have side effects?**

The antivirals which are likely to be of most use in a pandemic are generally well tolerated, but on occasion can cause nausea and vomiting.

## **Will they be recommended for all groups of the population?**

During a pandemic, antivirals will have to be used in the most effective way, taking into account emerging evidence about the pandemic and the effectiveness of the drugs as well as their availability. Some groups of people will, therefore, take priorities over others.

## **Other countermeasures**

### **Are there any other countermeasures available?**

Since vaccines and antiviral drugs are likely to be in limited supply, especially at the onset of a pandemic, other public health and 'social' interventions may be the only available countermeasures to limit or slow the spread of the disease. Measures such as hand washing, and limiting non-essential travel and mass gatherings of people may slow the spread of the virus to reduce the impact and 'buy' valuable time.

## **The pandemic plan**

### **What contingency plans does the UK have for an influenza pandemic?**

The UK was one of the first countries to have a pandemic plan in place. This has now been revised and issued. The plan provides the overall framework for an integrated UK-wide response, escalating as the pandemic threat increases and then as the pandemic evolves. At its simplest it covers actions to be taken before, during and after the pandemic. Visit [www.scotland.gov.uk](http://www.scotland.gov.uk) for further information. The plan concentrates on the central response, but it contains information for all organisations involved in preparing for and responding to an influenza pandemic in order to provide a coherent approach with each part knowing its role in relation to others.

The plan is also intended to be flexible so that our response can be adapted as a pandemic evolves and knowledge about the new virus, its impact and the effectiveness of available countermeasures emerges.

### **What would we do in the UK if pandemic flu arrives?**

If the pandemic started outside the UK, the government would already have put its contingency plan into action and started preparing for the pandemic in the UK. A graduated series of public health measures would be implemented to reduce the impact, and help control the pandemic.

## **What are the objectives of the plan?**

The overall aim of the plan is to minimise the impact of the pandemic on the UK population in particular to:

- reduce illness and save lives
- provide health care for the sick
- ensure that essential services can continue, and
- ensure the public, health professionals and the media have up to date, comprehensive information at all stages.

The plan also aims to reduce the disruption a pandemic may cause to people's daily lives.

## **What are key elements of the pandemic plan?**

The key elements of pandemic planning incorporate:

- establishing 'command and control' structure to lead and co-ordinate the response
- communications
- monitoring the pandemic (surveillance)
- the public health response
- the health service response
- the civil contingencies response
- preparatory work to support the response
- international collaboration.

## **What control measures are envisaged?**

- vaccination of identified high-risk groups as and when vaccine becomes available
- Use of antiviral drugs
- Appropriate advice about the use of healthcare services
- Appropriate treatment of cases according to nationally agreed principles
- Other 'social' measures to reduce person to person spread.

## **What preparations are being made in the UK?**

Publishing the plan is an important step in preparing for a pandemic. But improving our preparedness is ongoing work, putting into place the actions described in the plan.

## **What is the role of Health Protection Scotland (HPS)?**

Health Protection Scotland is the principle organisation in Scotland coordinating the national health protection response to influenza pandemic. It provides expert advice to the Scottish Executive Health Department (SEHD), NHS Boards and others by monitoring the occurrence of influenza and providing virological and epidemiological data on which national decisions such as the choice of vaccine and use of antiviral agents will be based.

## **What will happen at the end of a pandemic?**

The DH will review the data about the pandemic as it affects the UK and the effectiveness of its response and will make recommendations for future modification of pandemic influenza contingency plans.

## **General questions about pandemic flu**

### **Can anyone get pandemic flu?**

Anyone could get sick from pandemic flu. A pandemic flu would be a new virus, to which no one is immune. However, about half of those who are infected can expect to have no symptoms – called asymptomatic infection.

### **What are the symptoms?**

Symptoms are similar to (although usually more severe than) other types of flu – sudden onset of fever, headache, extreme tiredness and aching muscles, respiratory symptoms such as sore throat or cough.

### **Could the virus infect all age groups?**

It is expected that all age groups, would be affected as no-one will have immunity to the new virus.

### **Is pandemic flu more serious than seasonal flu?**

An influenza pandemic is usually very different from seasonal influenza. It causes more severe illness and affects more people. It is expected that during a pandemic of influenza 25% of the population could fall ill (compared with up to 10% in a normal winter) and that the illness will be more serious. In the space of a few months, the pandemic could lead to 7 million deaths worldwide and at least 50,000 in the UK.

### **How can I protect myself and my family?**

During a pandemic, the advice is similar to that for 'ordinary' flu.

## **Are we at risk right now?**

Pandemics are unpredictable in their timing, so we cannot be sure, although experts say that the warning signs have increased.

## **Why are the experts concerned?**

The avian (bird) flu that is affecting poultry flocks in Asia at the present time has increased experts' concern. The avian flu virus (H5N1) which is causing these outbreaks has affected some humans causing serious illness, and a high proportion have died. Scientists fear that this virus may change with time to make it a more serious threat for humans and start another pandemic.

## **Is there treatment available?**

As a new pandemic has not materialised yet there is no vaccine and it could take several months after the start of a pandemic before one could be manufactured on any scale. Antiviral drugs are available, which limit the symptoms and as a result lessen the chances of serious complications. They possibly also reduce spread of the disease. They will need to be used in the most effective way, according to expert advice.

## **How will we know what to do?**

There will be regular updates on the television telling us what is happening and what to do. People with mild to moderate symptoms will be advised to stay at home.

## **How can I reduce my risk and protect myself and my family?**

- Cover your mouth and nose when you sneeze or
- Wash your hands often – to get rid of germs
- Avoid touching your eyes, nose or mouth
- Stay at home when you are sick – if you have a cough and a fever, it is best to rest at home take medicines to relieve the symptoms (following the instructions with the medicine) and drink plenty of fluids. This will speed your recovery and help prevent the spread of infection. If you need medical advice or assistance, phone your GP surgery first, or phone NHS Helpline 0800 224488
- Throw tissues away into the rubbish
- Eat healthy foods. Keep your immune system fit
- Avoid mass gatherings as far as you can

### **Why won't antibiotics work?**

Influenza is a virus, so antibiotics will not work unless influenza has led to a bacterial illness that requires treatment.

### **Can I still travel abroad?**

In the event of a pandemic international travel, particularly to and from areas already affected, is likely to be discouraged in an attempt to slow, or delay, international spread of the virus.

This document is also available at [www.scotland.gov.uk](http://www.scotland.gov.uk)