

# 5 Preparing for a pandemic

## 5.1 The critical need for pre-planning

The periods between previous influenza pandemics have varied widely and the fact that nearly 40 years have elapsed since the last should not induce complacency. As it is probable that another pandemic will emerge, spread rapidly and result in grave consequences, robust and resilient preparations are essential. The Civil Contingencies Act 2004 and its accompanying non-legislative measures provide a single framework for civil protection, and resilience forums have been established to coordinate, develop and maintain links between partner agencies and coordinate planning at regional and local level. These forums provide an effective mechanism for developing integrated plans for all major threats, including pandemic influenza. A phased approach allows for a step-wise escalation of planning and responses, proportionate to the risk at any particular time.

Further information on the Civil Contingencies Act and regional and local resilience arrangements can be found at [www.ukresilience.info/ccact/index.shtm](http://www.ukresilience.info/ccact/index.shtm)

## 5.2 International collaboration

An influenza pandemic is by definition an international event expected to affect most countries. International collaboration offers the best opportunity for early warning, mitigating the impact and gaining public confidence in the response through:

- sharing information and research
- rapid identification and alerting
- timely surveillance to monitor international spread
- sharing epidemiological information to inform national policies
- achieving coherent – though not necessarily harmonised – national responses and public information for use before and during a pandemic
- considering the effects of national policies on neighbouring and other countries.

The UK will continue to develop and strengthen its international networks, working with the World Health Organization (WHO), the European Union (EU) and other bilateral and multi-national groups. In particular, the UK will:

- work to improve WHO and EU influenza surveillance
- support the UK-based WHO Collaborating Centre
- work within the framework of the International Health Regulations

- work collaboratively to develop and support the work of the European Centre for Disease Prevention and Control in improving the detection and control of communicable diseases in Europe
- work to improve the EU Early Warning and Response System (EWRS) and the mechanisms for sharing information between member states
- support research and the development of countermeasures, including vaccines.

### 5.3 National arrangements for early detection and alert

During the inter-pandemic period, clinicians and the public need to remain vigilant in order to identify individuals with unusual influenza or other respiratory virus infections – whether arising in the UK or imported from elsewhere. This must be supported by the laboratory capacity and capability to identify a new virus promptly. Close collaboration with animal health surveillance is also required to assess the risks of a new mammal or bird influenza virus crossing species and, if possible, take steps to prevent that occurring.

#### 5.3.1 Clinical recognition

The Health Protection Agency (HPA) maintains WHO phase-specific algorithms on its website for the investigation, management and reporting of those patients of whom clinicians and virologists should maintain heightened awareness – those patients who are more likely to acquire or import novel influenza viruses. These would normally include patients with respiratory illnesses who have recently returned from an area affected by outbreaks of a novel virus in animals or humans; poultry workers; contacts of people with known avian influenza; or people who have been in contact with unusual outbreaks of respiratory disease, for example in a healthcare setting. Decisions on whether (and how) to investigate such patients should be taken in consultation with the local health protection unit. As alert levels increase, the Department of Health will reinforce the need for heightened awareness and provide relevant information to health professionals and the public.

#### 5.3.2 Laboratory diagnosis

The UK has a network of regional laboratories capable of providing a specialist diagnostic service for influenza A, influenza B and a specified potential pandemic influenza subtype (currently H5). Any new or unusual virus is sent to the National Influenza Reference Laboratory at the HPA Centre for Infections in Colindale for detailed characterisation. The Centre for Infections will also develop diagnostic reagents if necessary, validate any new diagnostic tests, roll

out new tests as appropriate, and undertake antiviral susceptibility testing. The HPA will immediately inform the Department of Health if a new influenza virus from a human infection is confirmed.

### **5.3.3 Capacity and capability**

Should it be required, the HPA Centre for Infections will be able to draw on the expertise, resources and containment facilities of the HPA Centre for Emergency Preparedness and Response, including the Special Pathogens Reference Unit.

### **5.3.4 Liaison with veterinary laboratories**

The National Influenza Reference Laboratory and the Veterinary Laboratories Agency maintain links to ensure a continuous flow of new knowledge about the epidemiological, biological and genetic characteristics of influenza viruses.

## **5.4 WHO international phases and UK alert levels**

WHO has defined phases in the evolution of a pandemic (see Table 3) which allow for a step-wise escalation in planning and response that is proportionate to the risk from first emergence of a novel influenza virus. WHO will inform its member states of any change in the alert phase, and this classification is used internationally. If a pandemic were declared, action would depend on whether cases had been identified in the UK and the extent of spread. For UK purposes, four additional alert levels have therefore been included within WHO Phase 6; these are consistent with those used for other communicable disease emergencies.

**Table 3: WHO international phases and UK alert levels**

Phase	WHO international phases	Overarching public health goals
<b>Inter-pandemic period</b>		
1	No new influenza virus subtypes detected in humans	Strengthen influenza pandemic preparedness at global, regional, national and sub-national levels
2	Animal influenza virus subtype poses substantial risk	Minimise the risk of transmission to humans; detect and report such transmission rapidly if it occurs
<b>Pandemic alert period</b>		
3	Human infection(s) with a new subtype, but no (or rare) person-to-person spread to a close contact	Ensure rapid characterisation of the new virus subtype and early detection, notification and response to additional cases
4	Small cluster(s) with limited person-to-person transmission but spread is highly localised, suggesting that the virus is not well adapted to humans	Contain new virus or delay its spread transmission to gain time to implement preparedness measures, including vaccine development
5	Large cluster(s) but person-to-person spread still localised, suggesting that the virus is becoming increasingly better adapted to humans	Maximise efforts to contain or delay spread, to possibly avert a pandemic and to gain time to implement response measures
<b>Pandemic period</b>		
6	Increased and sustained transmission in general population <b>UK alert levels</b> 1 Virus/cases only outside the UK 2 Virus isolated in the UK 3 Outbreak(s) in the UK 4 Widespread activity across the UK	Minimise the impact of the pandemic

## 5.5 Inter-pandemic period (WHO Phases 1–2)

The inter-pandemic years have provided opportunities to improve knowledge, refine policies, build capacity and prepare for the likely emergence of an influenza pandemic. Work has also focused on contributing to multi-national efforts to reduce the opportunities for a new influenza virus to emerge, developing capability for effective surveillance and detection in every country, and improving domestic preparations in all sectors to address the threat.

Scientists believe that it is highly probable that the next pandemic will emerge from an animal reservoir. Expanding and improving coordination and cooperation between the organisations responsible for human and animal health has therefore remained an important objective. Through the Department for International Development and the Department for Environment, Food and Rural Affairs, the Government has been working with international agencies to support a range of veterinary and social strategies – in particular improved animal husbandry, veterinary control and education – in potential source countries to strengthen veterinary and human health services related to the control of avian influenza. The Government has also supported WHO and EU initiatives to improve the capacity to detect and monitor the emergence of a novel virus in those parts of the world with poorly developed health surveillance systems.

Domestic preparations have focused on developing surge capacity in health and social care, and preparing measures to ensure wider business continuity and maintain essential services and supplies in a pandemic scenario. Health priorities include the management of seasonal influenza; facilitating arrangements for the rapid development, manufacture and supply of a specific vaccine; maintaining adequate supplies of essential pharmaceutical and other materials; developing an ethical framework to underpin planning; and improving hygiene awareness amongst the general population. Regular joint reviews, testing and exercising of business continuity and response plans across all sectors have been critical to the development and robustness of UK arrangements throughout this period.

## 5.6 Pandemic alert period (WHO Phases 3–5)

As international phases change, the Government will monitor developments, reassess national risk and review preparedness arrangements at all levels across each sector. The general aim is to accelerate, consolidate and test preparedness efforts before Phase 4, and to be fully prepared to initiate and implement response actions during any phase thereafter.

The initial UK response depends significantly on the location of an incident or outbreak and the extent of travel or trade connections with that region. Should

a case, cases or outbreak originate in the UK, the overriding priority will be to halt, limit or slow the spread. If outside the UK, the priorities would include:

- supporting the efforts of WHO and governments to limit or control the spread of infection
- maintaining international liaison
- providing advice and information to UK citizens abroad
- initiating domestic measures to increase vigilance, and alerting the NHS to look for and investigate any illness that might be due to the virus in the UK
- reviewing the likely efficacy of any possible travel or other restrictions, and making UK policy clear
- contributing to vaccine research and development
- securing access to vaccine supplies, other pharmaceuticals and non-consumable supplies as they become available
- providing information that builds public awareness and understanding
- preparing to implement all response arrangements.

During Phase 4, all organisations should review their business and service continuity arrangements, consider initiating measures to enhance and preserve essential supplies, and finalise plans for pre-distribution of any stockpiled items. Expert groups will convene to review emerging information, provide advice on adjustments in response strategies and make recommendations in respect of optimal clinical practices. Steps to prepare and inform the public will be accelerated, with particular emphasis on enhancing understanding, explaining the likely issues and limitations, describing how essential services will respond, and advising people on self-help and community help. Information messages will also emphasise the importance of staying at home if ill, taking sensible precautions, adopting good hygiene habits and identifying friends or relatives who may require or be able to provide assistance and support during the pandemic.

During Phase 5, response plans must be ready for instant implementation and activated when required. National and local coordination and communication arrangements may be activated, the National Flu Line service established and arrangements for the development and supply of a specific vaccine reviewed. Health departments (directorates in Scotland) will be monitoring the development and emerging epidemiology of the pandemic, and considering proportionate response measures – including the implementation of service restrictions to allow healthcare organisations to finalise preparations, adjust working practices and

release capacity in preparation for a pandemic. Advertising campaigns and a door-to-door leaflet drop will be implemented; the messages will emphasise that people should maintain essential activities as far as possible and will explain how services will operate and how they should be accessed. There will be particular emphasis on the fact that symptomatic patients should stay at home if ill and seek assistance via the National Flu Line service.

## **5.7 Preventing a pandemic's initial development**

Theoretical modelling suggests that it may be possible to contain (or at least slow) the spread of infection from rural parts of the country of origin at the source – provided that the virus is detected early, area quarantine and stringent social distancing measures are quickly applied, and prophylactic antiviral medicines are given promptly to the 50,000 people nearest to the original source. WHO has established an antiviral stockpile for this purpose, but the success of such measures depends critically on early detection and the effectiveness of local planning and response in parts of the world where such systems are not well developed. Although these continue to improve, there can be little certainty that a containment policy would succeed. Even if the measures fail to contain the outbreak completely, they might delay the spread by about a month, giving others more time to prepare.

Should the virus originate in the UK, rapid detection, isolation and treatment of sufferers, the application of stringent containment measures and the use of antiviral prophylaxis for all close contacts may possibly contain or limit its spread. However, if the virus enters the UK through travellers from infected areas, such internal containment efforts are considered unlikely to succeed due to the large number of initial contacts expected.