

Background Document

1 Introduction

- 1.1 The Government judges that one of the highest current risks to the UK is the possible emergence of an influenza pandemic that is, the rapid worldwide spread of influenza caused by a novel virus strain to which people would have no immunity, resulting in more serious illness than caused by seasonal influenza.
- 1.2 Influenza pandemics appear to have occurred rarely and randomly throughout human history. Historical evidence indicates that the timing, severity and duration of each episode can be variable and unpredictable. There have been four recorded pandemics of influenza during the past 100 years: in 1918, 1957, 1968 and 2009. 1918 was by far the most serious event, causing an estimated 200,000 deaths in England and Wales, and some 50-100 million worldwide.
- 1.3 Although much has been discovered about pandemic influenza, there remain considerable levels of uncertainty in the scientific evidence base. However, what is known is that influenza infection is usually caused by the 'influenza A' type of virus. Crucially, influenza viruses are also capable of infecting animals, including mammals, poultry and wild migratory birds. This provides both a large reservoir for influenza viruses, allowing novel strains to emerge, and a vehicle for the transport of such novel influenza strains around the globe.
- 1.4 Because a novel influenza viral strain could arise at any point in time and in any location; it is not considered feasible, at present, to prevent such a strain occurring in the first place. It is also considered highly unlikely to be able to "contain" such an outbreak at source, which would most likely be overseas, perhaps in Southeast Asia based on historical analyses. As would most likely be the case with a newly-arising pandemic that was spreading through the UK, multiple and parallel cases of infection would have already been imported from initial overseas epidemics.
- 1.5 There is, therefore, no scientific rationale to support the notion that such a pandemic in the UK could successfully be "contained" by currently-available interventions.
- 1.6 During a pandemic, the National Security Council (Threats, Hazards, Resilience and Contingencies) (NSC (THRC)) will coordinate Central Government activities, make key strategic decisions such as the countermeasures required and determine UK priorities. It is also likely that Cabinet Office Briefing Room (COBR) will activate a Scientific Advisory Group for Emergencies (SAGE) to coordinate strategic scientific and technical advice to support UK cross-government decision making. The Department of Health, as lead Government department, would work closely with the Devolved Administrations using meetings of the four nations' health departments at official and ministerial level, which worked particularly well during the H1N1 (2009) influenza pandemic, to agree health specific issues ahead of NSC(THRC) discussions.
- 1.7 The Department of Health (DH) is the lead government department for pandemic preparedness and response. It has overall responsibility for developing and maintaining the contingency preparedness for the health and social care response, maintaining liaison

with international health organisations and providing information and specialist advice to ministers, other government departments and responding organisations.

- 1.8 NHS England has assumed responsibility for many pandemic preparedness and response activities previously delivered by primary care trusts and strategic health authorities. These include assurance that the NHS in England has effective plans and arrangements in place to respond to an influenza pandemic and commissioning of the primary care aspects of a response (for example vaccine delivery to patients and arrangements of antiviral collection points).

2 The UK influenza pandemic preparedness strategy

- 2.1 The UK Influenza Pandemic Preparedness Strategy 2011¹, is not substantially different from that of the 2007 National Framework for responding to an influenza pandemic (and the Scottish equivalent). It builds upon but supersedes the approach set out in the 2007 national framework, taking account of the experience and lessons learned in the H1N1(2009) influenza pandemic and the latest scientific evidence. However, there are a number of important differences in the way the UK will respond, most notably the precautionary principal outlined below:

- **Precautionary:** the response to any new virus should take into account the risk that it could be severe in nature. Plans must therefore be in place for an influenza pandemic with the potential to cause severe symptoms in individuals and widespread disruption to society.
- **Proportionality:** the response to a pandemic should be no more and no less than that necessary in relation to the known risks. Plans therefore need to be in place not only for high impact pandemics, but also for milder scenarios, with the ability to adapt them as new evidence emerges.
- **Flexibility:** there should be a consistent, UK-wide approach to the response to a new pandemic but with local flexibility and agility in the timing of transition from one phase of response to another to take account of local patterns of spread of infection and the different healthcare systems in the four countries.

- 2.2 An emphasis on the need for rapid and accurate assessment of the nature of the influenza virus and its effects. Given the uncertainty about the quality of early information relating to the virus, and its applicability to the UK, the initial response will need to reflect the levels of risk based on this limited evidence (i.e. the precautionary principle outlined above). Good quality data from early cases in the UK will be essential in tailoring the response;

- 2.3 Plans should be put in place that ensure a response proportionate to meet the differing demands of pandemic influenza viruses of milder and more severe impact, rather than just focusing on the “reasonable worst case” planning assumptions (i.e. the proportionality principle outlined above);

- 2.4 A more flexible approach should be adopted, with the timing of introduction and cessation of response measures determined by local indicators, rather than the WHO phases previously used (i.e. the flexibility principle outlined above). However, a consistent overall approach needs to be maintained, in part to ensure optimum use of limited resources and to maintain public confidence. Decisions about the nature of the national response to the pandemic (e.g. who should be given priority for vaccination and how antivirals should be

¹ UK Influenza Pandemic Preparedness Strategy 2011, Chapter 1 – pages 7-8

used) will therefore continue to be taken by Ministers based on expert scientific and clinical advice. There will be local flexibility in how these policy decisions are implemented, although this brings with it a responsibility to ensure local decisions do not have a detrimental effect on other areas; and

- 2.5 Better use should be made of behavioural science to understand how people may behave during a pandemic. Some of the expertise relating to this has fed into chapter 5 of the UK Influenza Pandemic Preparedness Strategy 2011, and should be consulted in the development of communications and public engagement plans.
- 2.6 The media and public and professional appetite for information is likely to be intense at times, requiring frequent, consistent and coordinated communications.
- 2.7 In light of the above, a new UK approach to the indicators for action in a future pandemic response has been developed. The escalation levels introduced in 2013 by the WHO replaced the numbered six stage process used in 2009 and takes the form of a series of phases, named: Detection, Assessment, Treatment, Escalation and Recovery. The phases are not numbered as they are not linear, may not follow in strict order, and it is possible to move back and forth or jump phases. It should also be recognised that there may not be clear delineation between phases. More detail on the new phases can be found in the UK Strategy².
- 2.8 WHO escalation levels introduced in 2013 are described in and replace the numbered six stage process used in 2009.

UK PHASE	Trigger	Key System Activities*
Detection	Declaration of WHO phase 4 ³ or influenza related Public Health Emergency of International Concern.	• Arrange first meeting of the System Pandemic Flu Control Team chaired by the DPH • Agree local data gathering and reporting arrangements • Confirm organisational and system specific pandemic flu arrangements are ready to operationalise
Assessment	Identification of a novel influenza virus in patients in the UK.	
Treatment	Confirmed cases in the local health and social care system.	• Coordinate response through the System Pandemic Flu Control Team as part of the command and control structure • Review, update and recirculate response checklists as required in line with national guidance and local context.
Escalation	When demand for services start to exceed available capacity.	
Recovery	Demand for service reduces to a manageable level.	• Coordinate gradual managed return to normality • Hold system wide debriefs both individual and multi-agency and plan for potential second wave

² UK Influenza Pandemic Preparedness Strategy, Chapter 3.

³ WHO Phase 4 = Sustained human to human transmission.

- 2.9 Local level multi-agency plans should be developed to fit within the overall strategic approach set out above. The development and testing of these plans both locally and as part of wider Local Resilience Forum exercises will play a vital role in ensuring that the objectives as set out above can be met in the event of a pandemic.
- 2.10 Based on the scientific evidence base the UK will initiate a strategy to mitigate the effects of an influenza pandemic that would likely involve a diverse range of measures, referred to collectively as “defense-in-depth”. From the list supplied by the Department of Health the following should be considered by DWFRS and directed as part of its Pandemic Incident Response Plan:
- *effective communication to staff, including skills training, to promote habits of stringent respiratory etiquette and hand hygiene, particularly amongst children;*
 - *environmental restructuring at DWFRS workplaces and fire appliances to consolidate habits of stringent respiratory hand hygiene via cues, prompts and improved access to respiratory and hand hygiene facilities, such as tissues and soap;*
 - *increased cleaning of solid surfaces potentially contaminated with virus, such as door handles or light switches;*
 - *the use of facemasks and respirators to protect staff who interact with the public;*
 - *restrictions on meetings, including shared travel, especially in the event of a severe pandemic.*
- 2.11 The expectation is that all public health guidance will be circulated through the LRF’s for use by DWFRS. This public service advice will also be available direct from Public Health England (PHE) or the Department of Health (DH).

3 Anti-virials

- 3.1 Anti-virials inhibit the viral proteins on the surface of the influenza virus which prevents the ability of the virus to replicate effectively within the body, hence lessening the symptoms and the likelihood of complications.
- 3.2 This is unlike vaccines, which must be based on a strain closely related to the pandemic strain to provide protection. Contrary to popular belief the time required to produce a type specific vaccine could be longer than the pandemic lasts.
- 3.3 The current focus of the vaccine manufacturers is on the development of H5N1-based pre pandemic vaccines. However, there is a risk that the next pandemic will not be caused by an H5N1 derived virus or even from the H5 family. The H5N1 – based vaccines currently in advanced phases of development are unlikely to be effective against other non-H5 influenza viruses.

4 Planning Assumptions

- 4.1 The summary of planning assumptions and available guidance from sources such as the World Health Organisation (WHO), Department of Health (DH), Civil Contingencies Secretariat (CCS), Cabinet Office (CO) the Local Resilience Forum (LRF) and their publications such as the UK Influenza Pandemic Preparedness Strategy 2011 is:

- A future influenza pandemic could emerge at anytime, anywhere in the world including the UK
- It is not possible to stop the spread or to eradicate the virus.
- From arrival in the UK, it will be 1-2 weeks until cases are reported from all major population centres
- DWFRS can reasonably expect to receive 2 weeks' notice of a Pandemic influenza event. However, it took only a few days in the 2009 swine flu pandemic to move to the response activation phase from the point that the World Health Organisation (WHO) advised that there was an increased risk of a pandemic.
- Local hotspots may occur and be more highly peaked than the national average
- Vaccine supplies may not start to be available for four to six months from the emergence of the new virus.
- The event may consist of a single or multiple waves of infection.
- Each wave can be expected to last between 14 – 16 weeks with a peak infection rate lasting for approximately 3 weeks.
- A clinical attack rate of 50% is expected (the % of all staff who will be infected in each wave)
- We can expect this to translate to an infection rate of between 10-12% per week.
- Adults are infectious for up to 5 days from the onset of symptoms.
- Children are infectious for up to 7 days from the onset of symptoms.
- Normal length of absence would be 7 – 10 days
- As DWFRS is not a large national employer and we also have small specialist teams DWFRS should plan for absence rates of between 30-35%. This is in addition to our normal rates of absence. (i.e. 40% total)
- Hospitalisation following infection will be up to 4%
- Death following infection will be up to 2.5%

4.2 Other considerations to be considered during both the planning and pandemic event include;

- Schools and colleges may close⁴ dependant on the nature and severity of the Pandemic event.
Mass public gatherings may be restricted or banned.⁵ However no additional restrictions, such as restrictions to public events will be placed on the public unless it is absolutely necessary to protect the health of the public and then only for so long as it is appropriate.⁶
- There may be restrictions over travel, probably including a limitation of public transport availability.
- The capacity of our suppliers and partners will be similarly affected.
- Those with children or dependents who are ill will be unlikely to attend work.
- There will be a high likelihood of our staff suffering a family bereavement during a pandemic event.
- The capacity of churches, crematoriums, funeral directors to cope with the additional burden will lead to extensive delays. Refer to table 1
- The funeral delays will extend the bereavement process which will have an impact on our staff. This will be exacerbated by additional delays from financial institutions, legal professionals and Government probate offices who will be similarly overwhelmed.

⁴ Department of Health Scientific Summary of Pandemic Influenza & its Mitigation- *scientific evidence base 2011*, chapter 2- pages 19-20 - Department of Health (2009 J) "Impact of School Closures on an Influenza Pandemic: Scientific Evidence base Review"

⁵ Department of Health Scientific Summary of Pandemic Influenza & its Mitigation- *scientific evidence base 2011*, chapter 2- pages 20-22

⁶ UK Influenza Pandemic Preparedness Strategy 2011

Post pandemic will be considerably more difficult to recruit leading to an extended period before the restoration of normality.

4.3 Table 1 below shows indicative data for Dorset plus Wiltshire & Swindon

Week	% total cases	Clinical cases in LRF x 2	Additional GP consultations	Additional hospital admissions	Additional Deaths	Total Deaths	Deaths over and above capacity (Nb a positive figure denotes bodies over and above capacity)
1	0.1	750	213.75	30	18.75	93	-116
2	0.2	1500	427.5	60	37.5	112	-97
3	0.8	6000	1710	240	150	225	15
4	3.1	23250	6626	930	581	656	446
5	10.6	79500	22657	3180	1987	2062	1852
6	21.6	162000	46170	6480	4050	4125	3915
7	21.2	159000	45315	6360	3975	4050	3840
8	14.3	107250	30566	4290	2681	2756	2546
9	9.7	72750	20733	2910	1818	1893	1683
10	7.5	56250	16031	2250	1406	1481	1271
11	5.2	39000	11115	1560	975	1050	840
12	2.6	19500	5557	780	487	562	352
13	1.6	12000	3420	480	300	375	165
14	0.9	6750	1923	270	168	243	33
15	0.7	5250	1496	210	131	206	-3.75
Total	100.1	750750	213963	30030	18768	18843	

www.dh.gov.uk/en/Publichealth/Flu

<http://www.cabinetoffice.gov.uk/resource-library/emergency-response-and-recovery>