NHS England

Operating Framework for Managing the Response to Pandemic Influenza

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NHS England Operating Framework for Managing the Response to Pandemic Influenza

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Foreword

Pandemic influenza is recognised by the Government as the single most disruptive event facing the UK today. As such this remains at the top of the UK Government National Risk Register. The 2009/10 A(H1N1) influenza pandemic has not altered the likelihood of a future pandemic. Additionally the general mild nature of the 2009/10 pandemic must not be taken as an indicator of the potential severity of future such events.

NHS England is responsible for leading the mobilisation of the NHS in the event of an emergency or incident and for ensuring it has the capability for NHS command, control, communication and coordination and leadership of all providers of NHS funded care.

NHS England staff, at all levels of the organisations, should be aware of the key aspects of pandemic influenza preparedness and response, and through this document, be able to identify their role and responsibilities in planning for and responding to an outbreak of pandemic influenza. The Operating Framework for Managing the Response to Pandemic Influenza is intended to complement and support existing plans, policies and arrangements. The Local Health Resilience Partnerships (LHRP will oversee health pandemic preparedness and act as a conduit for health to engage with the Local Resilience Forum (LRF)-wide preparedness arrangements. Clinical Commissioning Groups (CCGs), Public Health England (PHE) and the Directors of Public Health (DsPH) in local authorities also have roles to play in pandemic influenza resilience. It is essential our planning is in partnership and aligned to ensure the best possible outcomes for members of the public .During a pandemic response, there will be a requirement for reporting across NHS England at all levels as the pandemic starts to impact on NHS operational capacity. This operating framework builds on work undertaken across the system through managing capacity and demand during periods of increased activity such as winter or a surge of patients within the system.

Dame Barbara Hakin

Chief Operating Officer and Deputy Chief Executive

NHS England

1. Introduction

The threat and potential impact of pandemic influenza is such that it remains the top risk on the UK Cabinet Office National Risk Register and continues to direct significant amounts of emergency preparedness activity on a global basis.

Lessons identified during the response to the 2009/10 influenza pandemic caused by the A(H1N1)pdm09 virus[1] and subsequent 2010/11 winter seasonal influenza outbreak have informed ongoing preparedness activity.

The Department of Health (DH) published the revised *UK Influenza Pandemic Preparedness Strategy* in November 2011 https://www.gov.uk/government/publications/responding-to-a-uk-flu-pandemic . The strategy remains supported by a suite of existing national guidance and scientific evidence, as well as newly produced information including a detailed stand-alone health and social care document published in April 2012 https://www.gov.uk/government/publications/health-and-social-care-response-to-flu-pandemics and communications guidance published in December 2012. https://www.gov.uk/government/publications/communications-strategy-for-uk-flu-pandemics

Upon initiation of a pandemic response in the UK, NHS England Incident Management Teams (IMTs) will convene and meet as appropriate to the level of response to coordinate and support the response of NHS organisations. NHS England National, Regional and Area Teams will ensure that capacity to respond to a concurrent major incident or emergency is maintained; in terms of personnel, facilities and capacity.

Local Health Resilience Partnerships (LHRPs) provide a strategic forum to facilitate health sector preparedness and planning for emergencies. The LHRP has a role in ensuring integrated plans are in place across the health economy to enable the health sector to respond to a pandemic.

NHS England, Public Health England (PHE) and Directors of Public Health (DsPH) in local authorities have important roles at all levels to ensure a coordinated health and social care response that provides the services needed by members of the public throughout a pandemic.

Local Resilience Fora (LRFs) will coordinate multi agency planning for pandemic influenza. During the response, NHS England will represent the NHS at any Strategic Coordinating Groups (SCGs), and ensure close collaboration with all NHS funded organisations through the LHRP and relevant sub-group structures as part of the planning process.

This document will supplement the overarching generic NHS England Incident response plan which details how NHS England will review and respond to significant incidents and emergencies. This should be read alongside other key guidance such as the NHS England Emergency Planning Framework (2013) and NHS Command and Control framework for the NHS during significant incidents and emergencies that set out the arrangements for NHS England in planning for and responding to emergencies. http://www.england.nhs.uk/ourwork/gov/eprr/

[1] A(H1N1)pdm09 is the official terminology for the virus that caused the 2009/10 swine flu pandemic

2. Purpose

This document describes the function of NHS England pertaining to influenza pandemic preparedness and response.

The purpose of this document is to outline the:

- roles and responsibilities of NHS England before, during and after a pandemic
- pandemic specific command and control arrangements for the NHS
- communication routes and information flow for the NHS during a pandemic
- governance processes during pandemic planning and response

The overarching principles behind this document are that:

- it is not intended to supersede or replace existing national or local guidance, and should be read in conjunction with relevant plans
- the NHS plans and prepares in advance to ensure the best possible service in the prevailing circumstances is provided to patients during a pandemic
- regional and local response roles must fulfil the responsibilities of the Civil Contingencies Act 2004
- there will be clarity and consistency of health advice at all levels
- arrangements for national and region-wide command, control, coordination and communication must be practical, appropriate and enhance the local response
- mechanisms at all levels must be sustainable for periods of several months as multiple waves of influenza activity are possible
- current systems will be enhanced within the health sector and across partner organisations

This document provides a framework for managing the response to pandemic influenza and should be read in conjunction with current national guidance and any supplementary information produced during a pandemic.

3. Objectives

The strategic objectives for the NHS in a pandemic response are to:

- provide the public with information
- contain the emergency – limiting its escalation or spread
- maintain critical and normal services at an appropriate level in response to pressures during the pandemic
- protect the health and safety of personnel
- promote self-help and recovery
- maintain timely and appropriate reporting of the situation to inform decisions
- restore normality as soon as possible
- evaluate the response and identifying lessons to be learned

The following sections detail the roles and responsibilities of NHS England in order to

achieve the aims and objectives of this operating model. Key overarching strategies towards this include:

- establishing and maintaining a network of pandemic influenza leads across the NHS to work with relevant partners to identify gaps, mitigate residual risks, and enable pandemic influenza plans that are tested, appropriate and up to date
- ensuring planned and tested emergency preparedness command, control and communications procedures and facilities to oversee and manage the NHS response to a pandemic, including operational NHS England business
- use of traditional and social media channels to communicate with professionals and the public in an open and timely fashion appropriate to any major incident response

4. Background to Pandemic Influenza

Pandemics have occurred throughout history when a new subtype of influenza develops the ability to spread rapidly through a global human population with little or no immunity to it. Three pandemics occurred in the 20th century (in 1918, 1957 and 1968), with the first pandemic of the 21st century that started in April 2009.

The 20th century pandemics ranged in severity from something resembling a severe outbreak of seasonal influenza to a major event where millions of people became ill and died. They also varied with respect to number of waves of disease, age groups affected and symptoms caused. Planning at the start of the 21st century was based on these events, however the 2009 pandemic did not manifest as anticipated, thus illustrating the uncertainty underpinning the science behind pandemic preparedness.

4.1 Planning Assumptions

Influenza pandemic planning in the UK has been based on an assessment of the 'reasonable worst case' derived from experience and a mathematical analysis of seasonal influenza and previous pandemics. This suggests that up to 50% of the population could experience symptoms of pandemic influenza during one or more pandemic waves lasting 15 weeks, although the nature and severity of the symptoms would vary from person to person. Analysis of previous influenza pandemics suggests that we should plan for up to 2.5% of those with symptoms dying as a result of influenza, assuming no effective treatment was available.

The *UK Influenza Pandemic Preparedness Strategy 2011* recognises that the combination of particularly high attack rates and a severe disease is also relatively (but unquantifiably) improbable, and consequently suggests planning for a lower level of population mortality is sensible. Therefore the NHS should ensure plans are flexible and scalable for a range of impacts.

Appendix 1 compares national planning assumptions published in 2007 (used to plan for the 2009 pandemic), with commentary on the 2009 pandemic and with the 2011 UK Influenza Pandemic Preparedness Strategy. This illustrates the capricious nature of pandemics and the requirement for flexibility at all levels of preparedness and response.

While the profile of the next pandemic remains by its very nature unknown, it is prudent to continue to plan and prepare using modelling assumptions based on experiences of previous pandemics.

Although all parts of society will be affected by a pandemic, the NHS is likely to be particularly impacted due to an increase in demand for services from patients coupled with a potential reduction in staffing (due to a variety of factors including personal illness and caring responsibilities) and possible supply chain disruptions.

Planning at all levels needs to be comprehensive and flexible to address the breadth of possible scenarios. A proportional, graded response that can be adjusted as the threat alters, including cessation or commencement of certain functions, is required.

It is essential that NHS England considers all possible impacts due to pandemic influenza and is ready to lead the NHS response in conjunction with relevant partners.

5. The 2011 UK Influenza Pandemic Preparedness Strategy

The *UK Influenza Pandemic Preparedness Strategy 2011* built upon lessons identified during the 2009 pandemic and 2010/11 winter season. This section summarises key aspects of the 2011 Strategy and includes references to a range of activities that will be undertaken by various health partners, including PHE, NHS England, providers of NHS funded care and other health and multi-agency partners.

The strategy recognises that the World Health Organization (WHO) pandemic alert phases were not ideally suited as a response framework within individual countries. In 2009, the UK was well into its first wave of infection by the time WHO declared the official start of the pandemic. The use of WHO phases as a trigger for the different stages of local response, as detailed in the 2007 National Framework, proved to be challenging and were ultimately confusing for the public as did categorisation of UK Alert Levels which were not used.

The 2011 UK Strategy recognised that a more flexible approach is required for pandemic preparedness and response. In June 2013, WHO revised its own pandemic preparedness arrangements and published interim guidance on pandemic influenza risk management that is also more flexible than previous guidance and reflects a continuum of influenza activity.

The overall objectives of the UK's approach to preparing for an influenza pandemic are to:

- minimise the potential health impact of a future influenza pandemic
- minimise the potential impact of a pandemic on society and the economy
- instil and maintain trust and confidence

Towards this, the Strategy identifies a series of stages, referred to as '**DATER'**

Detection,

Assessment,

Treatment,

Escalation and

Recovery

These stages are non-linear and have identified indicators for moving between them.

The stages are not numbered as they are non-linear and may not follow in strict order; it is also possible to move back and forth or jump stages. It should also be recognised that there may not be clear delineation between stages, particularly when considering regional variation and comparisons.

Given the uncertainty about the scale, severity and pattern of development of any future pandemic, three key principles should underpin all pandemic preparedness and response activity:

- **Precautionary:** the response to any new virus should take into account the risk that it could be severe in nature
- **Proportionality**: the response to a pandemic should be no more and no less than that necessary in relation to the known risks
- **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

The Strategy further elaborates on the proportionate aspect of the response by describing the nature and scale of illness in low, moderate and high impact scenarios, and further attributes potential healthcare and wider societal actions as well as key public messages (see **Appendix 2**).

5.1 Detection, Assessment, Treatment, Escalation and Recovery (DATER)

The 2011 UK Influenza Pandemic Preparedness Strategy provides the following information relating to the five DATER stages:

Detection: This stage would commence on either the declaration of the current WHO phase 4 or earlier on the basis of reliable intelligence or if an influenza-related 'Public Health Emergency of International Concern' (or PHEIC) is declared by the WHO. The focus in this stage would be:

- intelligence gathering from countries already affected
- enhanced surveillance within the UK
- the development of diagnostics specific to the new virus
- information and communications to the public and professionals

The indicator for moving to the next stage would be the identification of the novel influenza virus in patients in the UK.

Assessment: The focus in this stage would be:

- the collection and analysis of detailed clinical and epidemiological information on early cases, on which to base early estimates of impact and severity in the UK.
- reducing the risk of transmission and infection with the virus within the local community by:
  - actively finding cases;
  - encourage self isolation of confirmed and suspected cases; and
  - treatment of cases/ suspected cases and use of antiviral prophylaxis for close/

vulnerable contacts, based on a risk assessment of the possible impact of the disease

The indicator for moving from this stage would be evidence of sustained community transmission of the virus, i.e. cases not linked to any known or previously identified cases.

These two stages together form the **initial response**. This may be relatively short and the phases may be combined depending on the speed with which the virus spreads, or the severity with which individuals and communities are affected. It will not be possible to halt the spread of a new pandemic influenza virus, and it would be a waste of public health resources and capacity to attempt to do so.

Treatment: The focus in this stage would be:

- treatment of individual cases and population treatment through routine NHS services, including the potential for using the National Pandemic Flu Service (NPFS) if the level of pressures on primary care necessitate this
- enhancement of the health response to deal with increasing numbers of cases
- consider enhancing public health measures to disrupt local transmission of the virus as appropriate, such as localised school closures based on public health risk assessment
- depending upon the development of the pandemic, to prepare for targeted vaccinations as the vaccine becomes available

Arrangements will be activated to ensure that necessary detailed surveillance activity continues in relation to samples of community cases, hospitalised cases and deaths.

When demands for services start to exceed the available capacity, additional measures will need to be taken. This decision is likely to be made at a regional or local level as not all parts of the UK will be affected at the same time or to the same degree of intensity.

Escalation: The focus in this stage would be:

- escalation of surge management arrangements in health and other sectors
- prioritisation and triage of service delivery with the aim to maintain essential services
- resiliency measures, encompassing robust contingency plans
- consideration of de-escalation of response if the situation is judged to have improved sufficiently

These two stages form the **Treatment** stage of the pandemic. Whilst escalation measures may not be needed in mild pandemics, it would be prudent to prepare for the implementation of the **Escalation** stage at an early part of the **Treatment** stage, if not before.

Recovery: The focus in this stage would be:

- normalisation of services, perhaps to a new definition of what constitutes normal service

- restoration of business as usual services, including an element of catching-up with activity that may have been scaled-down as part ohf the pandemic response e.g. reschedule routine operations
- post-incident review of response, and sharing information on what went well, what could be improved, and lessons learnt
- taking steps to address staff exhaustion
- planning and preparation for a resurgence of influenza, including activities carried out in the Detection phase
- continuing to consider targeted vaccination, when available
- preparing for post-pandemic seasonal influenza

The indicator for this stage would be when influenza activity is either significantly reduced compared to the peak or when the activity is considered to be within acceptable parameters. An overview of how services' capacities are able to meet demand will also inform this decision.

6. Roles and Responsibilities of NHS England

In line with the roles and responsibilities for emergency preparedness, resilience and response (EPRR) identified in the 2013 Emergency Preparedness Framework (www.england.nhs.uk/wp-content/uploads/2013/03/eprr-framework.pdf), NHS England at all levels has key roles and responsibilities in the planning for and response to pandemic influenza.

The following table illustrates key roles and responsibilities of NHS England (based on the 2011 UK Influenza Pandemic Preparedness Strategy). It describes how the respective parts of NHS England individually and collectively deliver an integrated leadership role in planning for and managing the response of the NHS to an influenza pandemic. Many of these roles cannot be delivered alone and will require collaboration with national, regional and local partners, including PHE and DH.

To reflect regional variations, it is acknowledged that in London actions attributed to the Area Team will be delivered by the Regional Team in London.

6.1 Before the pandemic, NHS England will:

	National	Regional	Area Team
identify a Pandemic Influenza Lead to head organisational planning arrangements in light of national and international developments, advice and guidance	✓	✓	✓
monitor and evaluate risks and impacts locally, identifying gaps and mitigating critical vulnerabilities where possible			✓
lead NHS pandemic influenza preparedness, encouraging, supporting and ensuring local health pandemic preparedness			✓
maintain effective business continuity plans to respond in a pandemic, identifying key issues within NHS England, including which normal business functions are essential and which can be suspended or postponed	✓	✓	✓
through LHRPs, LRFs and similar fora, work with local NHS and multi-agency partners to discuss, plan and share best practice, address specific issues and keep pandemic response plans in line with national guidance			✓
through LHRPs. promote a streamlined and coherent approach to pandemic flu planning across local NHS organisations			✓
through LHRPs, develop an understanding of local plans and arrangements in order to support local planning and response activities			✓
through LHRPs, work with local providers to facilitate the development of agreements with the independent and voluntary healthcare sector			✓
ensure the LHRP is appropriately appraised of			✓

relevant issues and progress across the NHS and partners			
identify with relevant local partners, systems and processes to provide antiviral collection points (ACPs) and antiviral distribution systems, personal protective equipment (PPE) distribution routes and vaccine delivery processes (including pre-identified areas, systems and processes to maintain temperature control records of any stock held)			✓
ensure that NHS commissioned services (including nationally commissioned specialist services such as ECMO) are included in planning arrangements	✓		✓
ensure tested command, control, coordination and communication plans are in place for NHS England	✓	✓	✓
undertake appropriate assurance processes through agreed mechanisms to ensure providers and commissioners have adequate provisions in place for managing a pandemic, including providing assurance of this to NHS England nationally e.g. through the annual EPRR assurance process and regular discussion with providers and commissioners of NHS funded care via LHRPs			✓
ensure arrangements are in place to mobilise appropriate NHS staff to support PHE to identify and report any suspected case of infection with a novel virus		✓	✓
ensure the development, maintenance, testing and exercising of effective and integrated (multi-agency) health response plans	✓	✓	✓
provide up to date operational guidance to the NHS for use in a pandemic that includes representation across medical, nursing, operations and other appropriate Directorates	✓		
act as a conduit for information and consistent advice from DH and PHE to providers of NHS funded care	✓	✓	✓
ensure staff within NHS England, the wider health economy and inter-agency partners (including with independent and voluntary health sector) where appropriate are supported and informed in pandemic influenza preparedness and response phases	✓	✓	✓
monitor the national and international situation through liaison with partners such as DH and PHE	✓		

6.2 During the pandemic (DATE phases), NHS England will:

	National	Regional	Area Team
convene Incident Management Team (IMT) at the appropriate levels with appropriate representation to oversee command, control, coordination and communication with the NHS and partners during a pandemic response appropriate to the current and predicted impact of the event.	✓	✓	✓
provide leadership to the NHS response, coordinate the strategic response across the health portfolio locally, and oversee the local response			✓
agree the appropriate level of response for the NHS locally and ensure the NHS and relevant partners are kept appropriately appraised of the evolution of the situation			✓
ensure that NHS England Directorates and Teams enact their business continuity plans and mobilise resources appropriately	✓	✓	✓
convene a recovery team with appropriate representation to oversee a return to normal business functioning both within NHS England and across providers	✓	✓	✓
ensure the most effective deployment of available resources through adapting the response according to capacity and managing the NHS response to surge, including ensuring the commissioning additional NHS capacity where required (e.g. ICU (through CCGs), ECMO (through NHS England Specialised Commissioning)	✓		✓
appropriately enact any agreements with independent or voluntary health sector providers to support local NHS providers			✓
maintain the on-call systems and capacity in the event of concurrent major incidents	✓	✓	✓
liaise with neighbouring teams to support the local effort, securing mutual aid regionally or nationally if required	✓	✓	✓
provide support and guidance to local NHS organisations and partners as necessary			✓
oversee the local management of ACPs, including confirmation of locations, and ensuring local stock management, ACP governance and reporting information to the centre			✓
oversee PPE storage, stock management and distribution to local providers			✓

reach agreement on the vaccine delivery arrangements including the contract arrangements with GPs	✓		
manage any pandemic influenza specific vaccination campaign			✓
monitor and collate information from providers of NHS funded care through regular situation reports (SitReps) as directed and as appropriate to the situation		✓	✓
represent the NHS at Strategic Coordination Group (SCG) meetings			✓
with communications teams across the NHS and PHE, collaborate and activate regional and local coordinated communication arrangements to ensure consistent, clear and timely dissemination of information and guidance to health organisations, partner organisations, the public and the media	✓	✓	✓
facilitate decision making on the provision of NHS services and service priorities in conjunction with DH	✓		
act as a conduit for information from DH, NHS England National, regional teams, LRFs and other fora to the local NHS			✓
maintain links with national, regional and international partners appropriate to organisational level	✓	✓	✓

6.3 After the pandemic (Recovery (R) phase), NHS England will:

	National	Regional	Area Team
assess the impact of the pandemic through undertaking comprehensive hot and cold debriefs involving NHS commissioning and provider organisations at all levels	✓	✓	✓
review staffing arrangements in conjunction with the local NHS organisations	✓	✓	✓
acknowledge staff contributions and review welfare arrangements, providing support as necessary	✓	✓	✓
ensure a staged recovery of NHS England and the NHS as soon as appropriate	✓	✓	✓
review national, regional and local resources and capabilities	✓	✓	✓
review effectiveness of antiviral and personal protective equipment distribution, and of vaccination campaigns	✓	✓	✓
ensure readiness is maintained internally and across the NHS to manage subsequent waves of pandemic influenza or of increased	✓	✓	✓

seasonal influenza activity in the following winter			
review and report on pandemic response arrangements and update to reflect lessons identified	✓	✓	✓
oversee the return of unused countermeasures as required to national stockpiles			✓

7. Communication

A robust communication strategy is an important part of the response to a pandemic. Nationally this is outlined in the *UK Pandemic Influenza Communications Strategy 2012*. This communications strategy considers health-related communication in the UK in the stages leading up to a pandemic, during a pandemic, and during the recovery phase. It provides a high-level strategy as some characteristics of the virus will only become known once a pandemic is well underway. It focuses on mainstream communications channels with targeted elements for specific audiences, recognising that an effective two-way communications strategy that positively engages key groups before and during a pandemic is essential.

NHS England communications at all levels with the NHS, partners, stakeholders and the public during a pandemic will build on existing mechanisms and good practice. NHS England spokespeople will be trained and briefed to provide messages to audiences in a timely and appropriate manner. Additionally, communications cascades will be used to ensure information reaches audiences. Where appropriate, messages will be developed and delivered in partnership with other organisations, including PHE and the LHRP and LRF partners.

8. Reporting

As the pandemic reaches the UK and numbers of cases increases, there will be a regular requirement for situation reports (SitReps) from the local multi-agency coordination group, NHS England at all levels, and DH. The 'daily rhythm' will be defined as the acute phase of the pandemic is approached, but will vary as the impact waxes and wanes; clarity will be provided as the pandemic progresses. It is essential that the burden of reporting on the NHS is minimized, and as such should be joined up across recipients both in terms of data requested and timing.

9. Freedom of Information

The Freedom of Information (FOI) Act 2000 gives the public a wide-ranging right to see all kinds of information held by the government and public authorities. Authorities will only be able to withhold information if an exemption in the Act allows them to. This document will therefore be made easily accessible and publicly available.

Health organisations should consider carefully any request under the FOI Act before releasing information. Where there is any doubt as to the sensitivity of the request, further guidance and support should be sought.

10. Equality and Diversity

Equality and diversity are at the heart of the NHS strategy. Throughout the production of this document, due regard has been given to eliminate discrimination, harassment and victimisation, to advance equality of opportunity, and to foster good relations between people who share a relevant protected characteristic (as cited in under the Equality Act 2010) and those who do not share it.This document should therefore abide by the Equality and Diversity Act 2010.

11. References and sources of further information

This document should be read in conjunction with the following sources of information:

- NHS England EPRR documentation and supporting materials: www.england.nhs.uk/ourwork/gov/eprr/
- Health & Social Care Act 2012 www.legislation.gov.uk/ukpga/2012/7/enacted
- Civil Contingencies Act 2004: www.legislation.gov.uk/ukpga/2004/36/contents
- Cabinet Office: www.gov.uk/government/policies/improving-the-uks-ability-to-absorb-respond-to-and-recover-from-emergencies
- National Risk Register: https://www.gov.uk/government/publications/national-risk-register-for-civil-emergencies-2013-edition
- WHO Pandemic Influenza Risk Management Interim Guidance 2013: www.who.int/influenza/preparedness/pandemic/influenza_risk_management/en/index.html

12. Glossary

ACP	Antiviral Collection Point
CCG	Clinical Commissioning Group
DH	Department of Health
DsPH	Directors of Public Health
ECDC	European Centre for Disease Control
ECMO	Extra Corporeal Membrane Oxygenation
EPRR	Emergency Preparedness, Resilience and Response
ICU	Intensive Care Unit
IMT	Incident Management Team
LHRP	Local Health Resilience Partnership
LRF	Local Resilience Forum
NPFS	National Pandemic Flu Service
PHE	Public Health England
PPE	Personal Protective Equipment
WHO	World Health Organization

Appendix 1. Pandemic planning assumptions

This table compares the pandemic planning assumptions in *Pandemic Flu: A national framework for responding to an influenza pandemic* (2007), the events of the 2009/10 pandemic, and the *UK Influenza Pandemic Preparedness Strategy* (2011). It illustrates the need for flexibility and proportionality at the local level as part of the national response to a pandemic.

Planning assumption	2007 National Framework	2009/10 pandemic experiences	2011 National Strategy
Where it will start…	While it is unknown where the next pandemic will start, a strain of avian influenza from the Middle East, Africa or south east Asia such as A/H5N1 remains a potential source	The 2009/10 pandemic originated in central America (Mexico), from a virus largely of swine origin	An influenza pandemic could emerge anywhere in the world, including in the UK
When it will start…	Unlike seasonal flu, a pandemic can start at any time of the year	The 2009/10 pandemic commenced in April 2009	An influenza pandemic could emerge at any time of the year
Stopping the spread…	Although it may be theoretically possible to contain the initial spread of a pandemic virus originating in a rural area, the measures required to do so are likely to prove difficult to implement.	The 2009/10 pandemic spread rapidly from central America to the rest of the world	It will not be possible to stop the spread of, or to eradicate, the pandemic influenza virus, either in the country of origin or in the UK, as it will spread too rapidly and too widely
When it will reach the UK…	A pandemic virus arising anywhere in the world could reach the UK within two to four weeks	The 2009/10 virus reached the UK within days of being identified in Mexico	Regardless of where or when it emerges, it is likely to reach the UK very quickly
How spread will start in the UK…	Spread across the country to all major population centres could take one to two weeks, peaking within 50 days of arrival	It took around 100 days to spread significantly across the country	From arrival in the UK, it will probably be a further one to two weeks until sporadic cases and small clusters of disease are occurring across the country
Where it will first enter the	As a major international hub, London is a likely site for	The first UK cases were identified in Glasgow, and cases were identified	

UK…	introduction of the pandemic virus into the UK	in London a few days later	
How long it will last and when it will peak…	A pandemic in the UK could last 15 weeks, with peak incidence around weeks six to eight; local epidemics could be over quicker (six to eight weeks) with a proportionally higher peak	The first wave lasted around 16 weeks, with a peak at week 12.	Initially, pandemic influenza activity in the UK may last for three to five months, depending on the season.
How many waves there will be…	A pandemic in the UK could occur over one or more waves, weeks or months apart; subsequent waves could be more severe than the first	There were two waves of the 2009/10 pandemic in the UK, the second wave was of similar intensity to the first; the 2010/11 winter saw more severe cases requiring critical care than either 2009/10 wave	There may be subsequent substantial activity weeks or months apart even after the pandemic is declared over; subsequent winters are likely to see a different level of flu activity compared to pre-pandemic winters
What the clinical attack rate will be…	The reasonable worst case scenario could be 50% clinical attack rate over the whole pandemic with up to 22% of cases in the peak week	The clinical attack rate of the 2009/10 pandemic will not be known for some time, however initial data indicates that around 50% of adults and 66% of children were exposed	Studies suggest that roughly half of all people will display symptoms (ranging from mild to severe) but the proportion with severe symptoms will not be known in advance
How patients will seek healthcare support…	28.5% of affected individuals could need GP/ health care attention; up to 4% of cases could need acute care (thus exceeding normal capacity) and there could be a maximum case fatality rate of 2.5% (range from 0.4% to 2.5%)	Fewer patients sought healthcare during the 2009/10 pandemic than anticipated, although it is expected that there were a large number of asymptomatic cases (as above) and the 2010/11 winter saw more severe cases requiring critical care than either 2009/10 wave	Health services should prepare for up to 30% of symptomatic patients requiring assessment and treatment in usual pathways of primary care. 1-4% of symptomatic patients will require hospital care, depending on how severe the illness caused by the virus is. There is likely to be increased demand for intensive care
How many deaths there	A pandemic could cause 50 - 750,000 excess deaths across the	There were approximately 450 deaths across the country attributed	Up to 2.5% of those with symptoms could die as a result of influenza if no treatment proved effective. Local

will be…	country.	to the virus during the pandemic	planners should prepare to cope with a mortality rate of up to 210–315,000 additional deaths
Which age groups will be affected…	The 1918 pandemic particularly affected those aged 20-45, whereas the 1957 and 1968 pandemics mainly affected the very young and elderly; we do not know which age groups will be affected in the next pandemic	The 2009 pandemic affected all age groups; the majority of cases were in teens and young adults, hospitalisations in under-5's and deaths in 50-64 year olds	All ages are likely to be affected but those with certain underlying medical conditions, children and otherwise fit younger adults could be at relatively greater risk as older people may have some residual immunity from previous exposure to a similar virus.
How many staff will be absent from work…	Over the duration of a pandemic, up to 50% of employees may be absent from work due to illness, caring responsibilities and/or societal disruptions, with up to 20% absent in the peak week; for smaller units/teams this could rise to 35%	For the majority patients, the illness caused by the 2009/10 pandemic virus was mild and consequently there was minimal impact on wider society; many people had asymptomatic infections and so would not have known they were ill	Absence should follow the pandemic profile. Up to 50% of staff may require time off at some stage. In a widespread and severe pandemic, some with caring responsibilities will need additional time off; 15-20% of staff may be absent on any given day. Small units or teams may suffer higher staff absences: 30-35% absent on any given day.
How long staff might be absent from work if sick…	Ill staff could be absent from work for 7-10 days, and may not be able to function to capacity upon return to work for a further fortnight or so	For the majority patients, the illness caused by the 2009/10 pandemic virus was mild and staff absence was minimal	Most people will return to normal activity within 7 to 10 days

Appendix 2: Proportionality: planning for uncertainty

As reliable information becomes available, the appropriate response to the pandemic can be determined. The table below (taken from the *UK Influenza Pandemic Preparedness Strategy 2011*) outlines how the response might be taken forward in different pandemic scenarios. It is important to recognise that these are indicative only, the actual response measures will be determined at the time in the light of scientific, clinical and operational advice.

Impact	Nature and scale of illness	Key healthcare delivery	Impact on wider society	Public messages
INITIAL PHASE **(pandemic impact unknown at this stage)**	Sporadic influenza cases may be reported from the community Possible limited local outbreaks (schools, care homes) Possible increased proportion of critical care cases with influenza	Response led by public health services supported by primary care and pharmacy services, and making preparations for extra support should this initial phase be extended Detection, diagnosis and reporting of early cases through testing and contact tracing National Pandemic Flu Service (NPFS) not activated. Local areas may start initial preparations to use NPFS and Antiviral Collection Points (ACPs) Influenza information line may be activated Consider support arrangements for Health Protection Teams Normal health services continue	Possible public concern arising from media reporting of cases at home or abroad Possible disruption to international travel and concern among intending / returning travellers Possible school closures to disrupt the spread of local disease outbreak, based on public health risk assessment Review and update of pandemic response plans	Advice on good respiratory and hand hygiene Advice about how to obtain further information e.g. to consult Government and NHS websites and other channels for up to date information Establish transparent approach to communicating emerging science, the level of uncertainty about severity and impact, and the likely evolution of the situation
LOW	Similar numbers of cases to moderate or severe seasonal	Primary and hospital services coping with increased pressures associated with respiratory	Increase in staff absence due to sickness – similar to levels seen in seasonal influenza	As above; Information on the pandemic and the clinical

	influenza outbreaks AND In the vast majority of cases – mild to moderate clinical features	illness, with maximum effort Paediatric/Intensive care units (PICU/ICU) nearing or at maximum pressure No significant deferral of usual activities Influenza information line function active ACPs established in hotspots only – consider using community pharmacies alongside other arrangements NPFS active depending on pressures in primary care Scottish Flu Response centre at NHS 24 may be active in Scotland Use existing legislation to allow the supply of antiviral medicines at premises that are not a registered pharmacy Continued compliance with statistical reporting standards to maintain confidence in publicly disseminated information	outbreaks Consider arrangements for sickness absence surveillance No significant or sustained impact on service and business capacity	effects of infection, and what to do Information about antiviral medicines and tailored messages for children, pregnant women, elderly and other at risk groups (in liaison with expert bodies and support groups) How to use your local health service Employers planning in advance for sickness absence, service reprioritisation and alternative ways of working
MODERATE	Higher number of cases than large seasonal epidemic Young healthy people and those in at-risk groups	Health services no longer able to continue all activity ICUs/PICUs under severe pressure Local and regional decisions to cease some health care activity	Supplies of electricity, gas and fuel will remain at near-normal levels of supply. Routine maintenance afforded a lower level of priority if there are staffing shortfalls, essential repairs expected to continue	Information on the pandemic and the clinical effects of the infection Advice on seeking medical assessment when not improving or

	severely affected AND/OR more severe illness	Influenza information line function active NPFS activated as required in each country Local areas establish ACPs as required in each country Contingency plans for supporting care at home and respite care Continued compliance with statistical reporting standards	Potential disruption to general supplies if peak staff absence coincides with technical or weather related supply difficulties Prepare to implement business continuity arrangements for management of excess deaths, if necessary Concern among teachers and parents about infection spread in educational settings may lead to teacher and pupil absence Supply chain companies implement business continuity plans Possible review of legislation regarding drivers' hours Justice system affected by absence of staff, judiciary and other parties. Maintain essential services in accordance with established business priorities	getting worse Information on NPFS Information on collection of medicines Information about antiviral medicines and tailored messages for children, pregnant women, elderly; and other at-risk groups (in liaison with expert bodies and support groups) Infection control and business continuity advice for specific occupations. E.g. funeral directors, registrars, cemetery and crematorium managers, police etc as appropriate Managing expectations of Critical Care
HIGH	Widespread disease in the UK AND/OR most age-groups affected AND/OR severe, debilitating	GPs, community pharmacies, district nurses, dental practitioners and social carers, independent sector, residential homes and voluntary organisations fully stretched trying to support essential care in the community with	Emphasis on maintaining supplies and staffing Transport, schools, shops affected by sickness and family care absences Numbers of deaths putting pressure on mortuary and	Messages about progress of the pandemic, availability of healthcare and other services Advice on how to minimise risks of

	illness with or without severe or frequent complications	consequential pressure on secondary care Hospitals can only provide emergency services NPFS working to capacity; ACPs under pressure Influenza information line function active Critical Care services: demand outstrips supply, even at maximum expansion Continued compliance with statistical reporting standards	undertaker services Possible implementation of national legislative changes to facilitate changes in working practice (e.g. death certification, drivers' hours, sickness self-certification requirements, Mental Health Act, benefits payments) Justice system affected by absence of staff, judiciary and other parties. Maintain essential services in accordance with established business priorities	transmission Information on how to support family members and neighbours Advice on where to get help for emergencies Truth about how services are coping and what they are doing to cope Explanation of triage systems to align demand and capacity Some civil contingencies advice, including advice to specific occupations such as paramedics, funeral directors, registrars, cemetery and crematorium managers, police etc as appropriate