

SCOTTISH EXECUTIVE

**A National Framework
For Responding To An
Influenza Pandemic**

March 2007

Invitation to comment

Your comments are invited on this document. Please send your views and feedback to our dedicated email address at: pandemicflu@scotland.gsi.gov.uk by 16 May 2007.

or in writing to:
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More information on pandemic influenza is available at:
<http://www.scotland.gov.uk/Topics/Health/health/AvianInfluenza/PandemicFlu>

FOREWORD

Influenza pandemics have occurred across the world two or three times every century causing illness, deaths and severe disruption to society. History and science suggest we are likely to face other pandemics in this century, but we are unable to predict when that might happen. International concern has also been raised by the cases of avian influenza in recent years because this could be a source of an influenza pandemic.

Managing the impact of such a pandemic presents us with unique and difficult challenges if we are to save lives and keep our society running. The Scottish Executive has been working very hard to meet these challenges both across Scotland and as part of the wider UK planning.

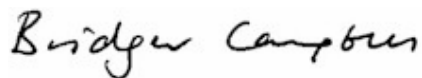
We recognise that we all will have a part to play in dealing with a pandemic. An outbreak will place considerable pressures on a range of sectors and will require people in the public, private and voluntary sectors to work across boundaries. The wider public will also need to be made aware of how they can prepare themselves and their communities.

To assist and support organisations in their planning, this document sets out the Scottish Executive's strategic approach to dealing with an influenza pandemic, provides information on the potential impact, sets out key planning assumptions and proposes a planning framework. It updates the UK health departments' UK Influenza Pandemic Contingency Plan, published in October 2005, expanding it to illustrate the breadth of planning across many different sectors.

We hope you will find this is a useful document and welcome your comments on it.



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1. INTRODUCTION

Throughout history, influenza pandemics have swept across the world. They affect every country in the world, causing illness, deaths and severe disruption to society, lasting from three months to a year. Managing the impact of an influenza pandemic therefore presents us with unique and difficult challenges if we are to save lives and keep our society running.

Planning to deal with the consequences of a pandemic is critical and this plan sets out the Scottish Executive's approach.

1.1 Why do we need a plan?

The UK Health Departments Pandemic Influenza Contingency Plan was last updated in October 2005. There have been a number of developments since then including –

- developments in scientific advice;
- advances in our national and local planning;
- developments in our communications plans;
- experience gained from UK and Scottish wide pandemic flu exercises, including a major exercise “Winter Willow” held in February 2007.

It makes sense to reflect these developments and our collective knowledge in our strategic planning framework.

However, this plan is primarily about saving lives and reducing the impact on individuals, communities and our society that a pandemic will have. This plan is about ensuring that, when (not if) a pandemic arrives we have planned to meet the consequences together and can therefore respond effectively together. Those consequences may be severe, but, as this plan shows, working together, making the most of our available resources and responding in a flexible way to the pandemic will help us to reduce its impact with benefits for all of us.

All of our planning effort is about keeping our services running in a sustainable way for as long as it is safe to do so. However, we must be realistic – if a pandemic is particularly severe, some services may find it very difficult to cope.

1.2 Who is this plan for?

This plan is primarily directed at those who are planning our response to an influenza pandemic and those who will, ultimately, be required to put those plans into action. This covers, for example, local and national Government, the NHS and community care services, transport providers, financial institutions and many other private and public bodies.

When pandemic influenza arrives in this country, we will be calling upon a wide range of individuals to help us to cope effectively. There will be expectations placed on frontline staff to continue to contribute their skills and knowledge during a pandemic at a time when resources are severely depleted and when everyone has to balance their responsibilities at work against their responsibilities at home. Frontline staff, in the NHS, for example, may also be asked to work flexibly and to undertake new roles for the duration of the pandemic.

There will also be expectations placed on members of the public, whose support and confidence will be crucial if we are to respond effectively. This will include – helping to tackle the pandemic by using infection control measures such as hand washing; helping to ease the strain on the NHS and community care services by caring for ill relatives at home; collecting drugs and prescriptions for ill friends and family; behaving responsibly to maintain public order; and, listening to and acting on Government advice and announcements.

If we want to place expectations on others then we also need to be prepared to offer support.

For frontline staff such as NHS and local authority staff, we need to ensure that arrangements are in place to cover alternative workforce arrangements, that pay agreements are in place, that appropriate protective equipment is provided, that counselling services are available and that relevant training is made available. It should be our aim to ensure that staff, are, in every way, supported to continue to come to work.

Members of the public must be given clear, consistent and regular information about the pandemic and the actions they should take. We must ensure that individuals and families are confident about the actions we will be taking across the country to enable us to continue to provide key services as far as we can. Our aim is to be as open as possible about the wide extent of planning that is taking place and about the measures we have available to use to deal with the impact. This plan sets out how information will be provided to the public during a pandemic and also provides information about infection control and policy on the use of masks, vaccines and antivirals.

1.3 The UK approach

This Scottish Framework is based on the published UK National Framework for Responding to an Influenza Pandemic.

That framework sets out the strategic approach to dealing with an influenza pandemic, provides information on the impact of the pandemic, sets out key planning assumptions and proposes a planning framework.

For the first time, this plan is a cross Government plan that illustrates the breadth of planning across many different sectors.

The Devolved Administrations work closely with the UK Government across the broad spectrum of planning activities. This includes attendance at all UK level planning groups and committees covering policy, operational planning, ethics and scientific advice. We all recognise very clearly that, since a flu pandemic knows no boundaries, we must also work effectively across administrative boundaries to ensure that our planning works in practice and that the strategic aims and fundamental principles of how we will respond to a pandemic apply equally across the UK.

The strategic aims, scientific advice and key planning assumptions for the Scottish Framework are therefore the same as those which appear in the UK Framework. In addition, fundamental planning principles apply equally across the UK, for example the key principles underlying the approach to care.

In this plan, our planning assumptions are based on 3 attack rates, as in previous versions of the plan – 25%, 35% and 50%. It is important to emphasise that planning should take place across the range of possible attack rates, including the upper end of the scale. To inform planning, we have considered the potential impact of fatality rates of 0.4%, 1%, 1.5% and 2.5%. At a 25% attack rate we could expect between 5,100 and 31,700 additional deaths in Scotland. At a 50% attack rate this could rise to between 10,200 and 63,700 additional deaths.

The estimates given in the plan for GP consultations and hospitalisations have increased. This is consistent with feedback we have received over the last 12 months from the NHS and has been taken into account, for example, in the approach to a primary care model.

1.4 The Scottish plan

The Scottish framework, whilst based on strategic aims and principles agreed across the UK, applies those aims and principles more specifically to Scotland – our population, our geography and the structure of our services, including our health and community care services.

The Scottish framework also sets out the conclusions of some of the national planning work which is taking place across all sectors.

Within health and community care services, the framework sets out where possible, the conclusions of a range of planning activities which the Scottish Executive is taking forward in partnership with the NHS and others. Those planning activities are based on a project plan led by the Scottish Executive Health Department.

The SEHD plan is based on ensuring that Scotland is well prepared to respond effectively to a pandemic, employing a range of measures in advance of and during a pandemic to mitigate its impact on health and community care services. To achieve that aim, the programme seeks to provide assurance of our preparedness in two key areas – SEHD and health and community care services. We want to ensure that SEHD is ready and able to respond to a

pandemic and that health and community care services are ready and able to minimise loss of life and suffering. Additionally, good communications are required to promote confidence in Government and NHS Scotland both during preparations and in an outbreak so the plan also seeks to ensure that our communication arrangements promote stakeholder and public confidence.

Work on health and community care services includes a range of activities including prioritisation of services, care in the community, surveillance and vaccination. Whilst the conclusions of some areas of work are reflected in the framework, others are ongoing and more information will be available in due course.

Further details about Scottish Executive pandemic influenza planning activities can be found at:

www.scotland.gov.uk/Topics/Health/health/AvianInfluenza/PandemicFlu

You can also sign up to our newsletter to obtain regular notice of new developments and best practice planning guidance at:

<http://register.scotland.gov.uk/?rt=187>

STRATEGIC APPROACH

1.5 Aim and scope

Aim

This framework sets out the strategic approach of the Scottish Executive to planning for and dealing with an influenza pandemic. It proposes a framework for local decision making which should ensure the appropriate levels of national consistency and local flexibility. This includes a framework for the model of care which should be provided during a pandemic.

The primary aim of this framework is to guide and support those in health and community care and related organisations and agencies who are involved in planning for an influenza pandemic or who will be involved in delivering our response during a pandemic. It also provides information and key planning assumptions which will assist contingency planning and preparations for pandemic influenza across government and public and private sector organisations who will be dealing with its wider social and economic impact. The framework provides guidance both for those working at a policy or management level and those working at operational level on the frontline.

Fundamentally, it should also help organisations to work together across boundaries to ensure that our response is workable and effective in practice.

The response is based on the phases defined by the World Health Organisation (WHO) in 2005 which trigger an escalation in the actions that need to be taken in the pre-pandemic, pandemic and post-pandemic phases.

Scope

This framework relates specifically to preparations for dealing with an influenza pandemic. It does not deal with avian flu. The section on the background to pandemic flu explains the links between the two.

1.6 Strategic objectives

The overarching objectives in planning and preparing for an influenza pandemic must be to reduce illness and save lives. However the Government's strategic objectives also recognise the need to prepare in accordance with the risk and resources available and to support the continuation of normal life as far as we realistically can.

The Government's key overarching strategic objectives are to:

- protect UK citizens and visitors against the health and wider consequences as far as possible
- prepare proportionately to the risk, taking into account both the likelihood of the emergence of a virus that could cause a pandemic and the likely impact
- support international efforts to prevent and detect its emergence and prevent, slow or limit its spread
- minimise the potential health, social and economic impact on the UK
- organise and adapt the health and community care systems to provide treatment and support for the large numbers likely to suffer from influenza or its complications whilst maintaining other essential care
- cope with significant numbers of deaths
- support the continuation of everyday activities as far as practical by protecting the ability of our critical national infrastructure to provide essential services
- uphold the rule of law and the democratic process
- instil and maintain trust and confidence by ensuring that the public and media are engaged and well informed in advance of and throughout the pandemic period
- promote a return to normality and the restoration of disrupted services at the earliest opportunity

For those planning their operational response to a pandemic, your aims should be to:

- develop an integrated response, working across boundaries
- respond promptly to changes in the pandemic alert levels
- develop a response which is flexible and proportionate but can be "ramped up" according to the severity of the pandemic, whilst acknowledging and addressing issues around scarcity of resources
- base your response on existing services, systems and processes wherever practical as this will be more easily understood by staff and by the public
- ensure you have also planned for the "recovery phase" between pandemic waves and for the post-pandemic phase
- test the effectiveness of your planned response against the views of your frontline staff and others
- consider the adaptability of your response to other emergencies and threats provided this won't compromise your pandemic response

The Health and Community Care Response

The challenge of reducing illness and saving lives during a pandemic will be to do so whilst also coping with the inevitable scarcity of both professional skills and resources. Professional health and community care skills are likely to be in short supply due to illness. In addition, depending on the severity of a pandemic, health and community care resources may be stretched far beyond their usual capacity. Therefore, although we must strive to maintain services

as far as possible, the potential impact of a pandemic and the expected duration of one or more pandemic waves, will mean that available resources must be prioritised. This framework sets out the steps we recommend in order to deal with and prioritise the use of scarce resources. This covers:

- prioritisation of services; and the resulting impact on performance targets the utilisation of workforce skills and capacity
- dealing with staff absences.

In particular this framework recognises that it may be necessary to suspend any elective surgical work during a pandemic and that should this be the case, the emphasis will be on caring for flu patients and offering essential care for other illnesses.

Planning should also incorporate actions to be taken in the post pandemic phase to ensure that service recovery is built in and takes place as quickly as possible.

The health and community care aims are to reduce mortality and morbidity by:

- maintaining surveillance to detect the emergence of a novel virus strain or any illness attributable to it
- providing prompt access to rapid and reliable diagnostic tests
- providing data to monitor the impact and effectiveness of interventions, adjusting our response to reflect emerging data
- reducing disease transmission and rates of illness by applying infection control measures
- developing surge capacity to meet expected demand and making effective use of potentially scarce medical skills and resources
- reducing or ceasing non essential activity as demand increases but maintaining essential care
- assessing and treating all symptomatic patients promptly
- providing effective treatment for those suffering complications
- providing vaccination if and when suitable vaccines become available
- providing public advice, education and information

The response to an influenza pandemic in Scotland should be based within the overall context of emergency planning in Scotland and follow as closely as possible “Preparing Scotland: Scottish Guidance on Preparing for Emergencies” and the guidance on “Managing Incidents Presenting Actual or Potential Risks to Health” issued by SEHD in January 2003.

1.7 Scientific advice to underpin policy and operational plans

Scientific Advisory Group

To ensure that the best scientific advice is fed into policy and the development of operational plans the Department of Health, the Scottish Executive Health

Department and other UK Health Departments are advised by a Pandemic Influenza Scientific Advisory Group (SAG). The SAG meeting minutes and a regularly updated summary of the current position on mathematical modelling are published on the DH website.

Continued improvement in the scientific evidence base, and applying the result of ongoing research and modelling to the development of policy and operational plans, is of critical importance to the UK's strategic and operational response and that of Scotland working within a UK context. As scientific knowledge and information are constantly advancing regular revision and review of the Scottish framework and plans at all levels are essential.

UK National Influenza Pandemic Committee

The Chief Medical Officers of all 4 UK Health Departments receive specialist advice on the health response from the UK National Influenza Pandemic Committee (UKNIPC). UKNIPC consists of clinical, scientific and other experts drawn from a range of relevant organisations and agencies. The Pandemic Influenza Scientific Advisory Committee (SAG) and other UK expert advisory committees (such as the Advisory Committee on Dangerous Pathogens (ACDP), National Expert Panel on New and Emerging Infections (NEPNEI) and Joint Committee on Vaccination and Immunisation (JCVI) on vaccination issues) also inform and support the work of UKNIPC.

Further consideration is being given to the need for scientific advice in Scotland.

1.8 Legal framework

International

Recently-revised *International Health Regulations 2005 (IHR)* place a duty upon States to notify WHO of all events - irrespective of cause - occurring in their territory that potentially constitute a public health emergency of international concern. They also set out core requirements for surveillance and response. Annex 2 of the Regulations requires States that are parties to the IHR to notify WHO of any case of 'human influenza caused by a new subtype'. All WHO Member States are bound by the *IHR* unless they have rejected or entered a reservation.

The IHR come into force formally on 15 June 2007 (though States can have another year to adjust their legislative and practical arrangements if needed) but the World Health Assembly in May 2006 passed a resolution urging States to implement certain provisions of the IHR that are deemed relevant to pandemic flu earlier. The goal is to create a framework within which WHO and others can actively assist States in responding to international public health risks by directly linking the regulations to the WHO's alert and response activities.

The European Commission funds a European Influenza Surveillance Scheme (EISS) that monitors and reports on influenza activity in the EU. Article 4 of Decision 2119/98/EC of the European Parliament requires Member States to inform the Commission and each other via the Communicable Diseases Early Warning and Response System of any relevant infectious disease threats with public health implications for other Member States and the control measures applied. The decision also requires member states and the Commission to collaborate in the control of communicable disease threats. The EU Centre for Disease Prevention and Control (ECDC) in Stockholm provides supporting capacity and capability.

National

Public health powers in Scotland are provided by the Public Health (Scotland) Acts of 1897 (c.38), 1945 and Health Services and Public Health Act 1968 (c.46).

Powers under public health acts generally rest with the designated medical officer in Scotland. Key provisions include:

- powers to seek orders from a sheriff requiring a person to be medically examined and to be removed to and detained in hospital
- powers for a sheriff to request a person not to work with a view to preventing the spread of infection, to require a child who has been exposed to infection not to attend school
- the creation of criminal offences where people expose others to the risk of infection
- some powers to require the provision of information to help control the spread of disease

In Scotland, those powers are available for infectious diseases generally.

Part 2 of the Civil Contingencies Act 2004 established a new generic emergency powers framework. Emergency powers allow the Government to make special temporary legislation (emergency regulations) as a last resort in the most serious of emergencies where existing legislation is insufficient to respond in the most effective way. Emergency regulations may make provision of any kind that could be made by an Act of Parliament or by exercise of the Royal Prerogative, so long as such action is needed urgently and is both necessary and proportionate in the circumstances. Further information about the powers and safeguards in Part 2 of the Civil Contingencies Act please consult Chapter 13 of *Emergency Response and Recovery* or the *Short Guide to the Civil Contingencies Act* which can both be found on www.ukresilience.info/

For planning purposes, the presumption should be that the Government will rely on voluntary compliance with national advice and is unlikely to invoke emergency or compulsory powers unless they become necessary, in which case the least restrictive measures will be applied first.

1.9 Ethical considerations

In preparing for and responding to an influenza pandemic, people working at all levels from government to those on the front line will face difficult decisions and choices that will impact on the freedom, health and in some cases prospects of survival of individuals. Many people are also likely to face individual dilemmas and tensions between their personal, professional and work obligations. Given expected levels of additional demand, capacity limitations, staffing constraints and potential shortages of essential medical supplies, hard choices and compromises are likely to be particularly necessary in the fields of health and community care.

People are more likely to accept the need for and the consequences of difficult decisions if those have been made in an open, transparent and inclusive way. National and local preparations for an influenza pandemic should therefore be based on widely held ethical values, with the choices that may become necessary discussed openly as plans are developed so that they reflect what most people will accept as proportional and fair.

The UK Ethics Committee was established to provide advice and has developed an ethical framework to inform the development and implementation of health and social care and public health response policy. The systematic use of the principles it contains can act as a checklist to ensure that all the ethical aspects have been considered.

Further details of the ethical framework are available on the Department of Health website <http://www.dh.gov.uk/PandemicFlu/fs/en>

2 BACKGROUND TO PANDEMIC INFLUENZA

2.1 Influenza viruses and their pandemic potential

Influenza is an acute highly infectious viral infection. There are 3 broad types of influenza virus – A, B and C. Influenza A viruses generally cause more serious illness than B and C and are the cause of most winter epidemics and all known pandemics.

Influenza A viruses can affect a wide range of animal species as well as humans and have a remarkable ability to adapt and change.

The human influenza A viruses which circulate each year undergo frequent genetic modification which result in changes to their main surface antigens (the haemagglutinin (H) and neuraminidase (N)). These year on year changes in influenza viruses are usually minor and are referred to as 'antigenic drift'. This phenomenon explains why influenza vaccines need to be reformulated every year.

From time to time a major stepwise adaptation of the virus or exchange of genetic material between influenza viruses (eg of human and avian origin) results in a major change in the surface antigens called 'antigenic shift'.

Antigenic shift is specific to influenza A viruses and a pandemic of influenza result when a new or re-emerging influenza A virus subtype emerges which is:

- markedly different from recently circulating strains
- able to infect people
- readily transmissible from person-to-person
- capable of causing illness in a high proportion of those infected and
- able to spread widely because few - if any - people have natural or acquired immunity to it.

Whilst such a virus could first emerge anywhere in the world - including the UK – South East Asia is widely considered to be the most likely potential source. Rapid spread is likely to cause an epidemic within the country of origin and becoming a pandemic when it spreads between countries.

The conditions that allow a new virus to develop emerge and spread continue to exist and some features of modern society, such as air travel, could accelerate the rate of spread. Experts therefore agree that there is a high probability of another pandemic occurring, although timing and impact are impossible to predict.

In particular the widespread occurrence of the highly pathogenic avian (bird) influenza virus A/H5N1 in poultry in South East Asia since 2003 is of concern. The A/H5N1 virus, which is extremely contagious and rapidly fatal in most birds, has spread widely in domestic poultry flocks and wild water fowl in the Far East and more recently to other parts of the world, including Europe. The

virus has also infected humans (through transmission from bird to human) but to date there has only been limited evidence of person-to-person transmission and even if that has occurred it has been with difficulty and unsustainable.

A growing reservoir of infection in birds combined with transmission to more people over time, increases the opportunity for the A/H5N1 virus either to adapt to give it greater affinity to humans or exchange genes with a human influenza virus to produce a completely new virus capable of spreading easily between people and causing a pandemic. The close proximity of humans to poultry and pigs in many parts of the world, eg the Far East, facilitates mingling of human and animal viruses and increases the risk that they may exchange genetic material resulting in a new “reassorted” human strain.

2.2 How influenza spreads

Influenza is one of the most difficult infectious diseases to control because the virus spreads rapidly and easily from person to person. There are two main methods of spread:

- the respiratory route when an infected person talks, coughs or sneezes
- hand-face contact if hands are contaminated with the virus after touching an infected person or surface contaminated with infected secretion.

The disease has a short incubation period in the range of one to four days (typically two to three) and without intervention - or significant immunity in the population - historical evidence suggests one person infects about 1.4 to 1.8 others on average and that influenza spreads particularly rapidly in closed communities such as schools or residential homes. Sufferers are most infectious early in the illness. They may be infectious before the onset of clinical symptoms and are highly infectious for four to five days thereafter. Children and those with conditions that affect their immune systems can be infectious for seven or more days. Some people can be infected without showing symptoms and as they may shed virus, be able to pass on the infection.

Experimental studies suggest influenza viruses can survive in the environment for periods of up to 48 hours and transfer from contaminated surfaces to hands. Experimental data suggest that the virus can survive on hard non-porous surfaces for up to 72 hours and be recovered from soft porous items for up to 24 hours. Studies have also shown that careful hand washing, commercially available alcohol hand disinfectant and domestic cleaning products can easily deactivate the virus.

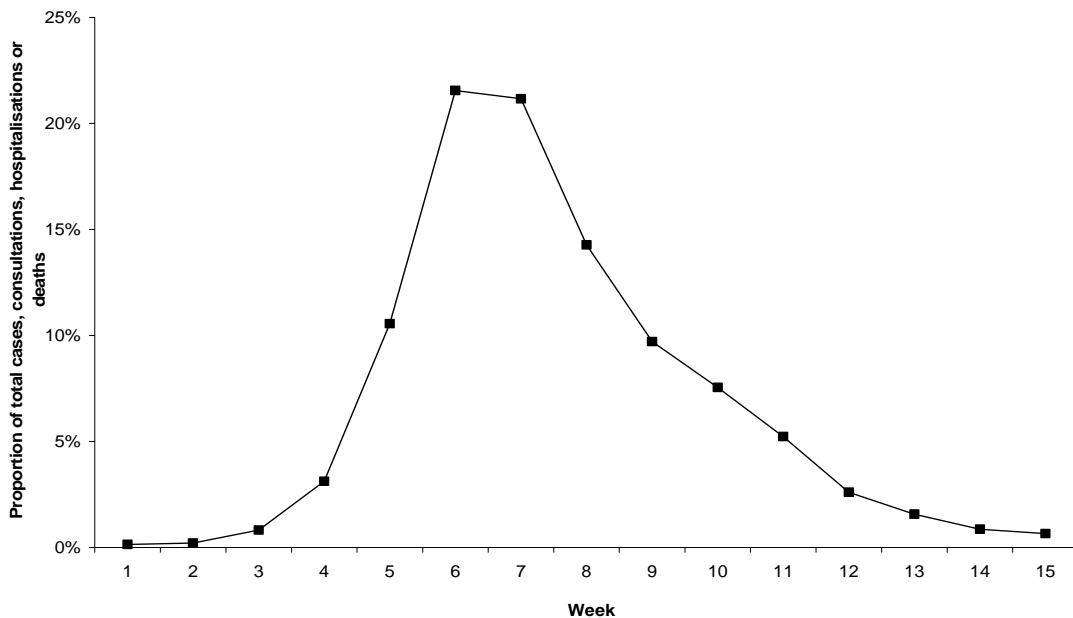
2.3 What an influenza pandemic might look like

Influenza pandemics have swept the world from time to time throughout history with devastating effect, far in excess of that resulting from ‘seasonal flu’ which occurs most winters.

Past pandemics have varied in scale, severity and consequence but in general, their impact has been much greater than that of even the most severe winter 'epidemic'. There have also been material differences in the age groups most affected, the time of year they occur and the speed of spread, all of which influence their overall impact. Although little information is available on earlier pandemics, the three that occurred in the twentieth century are well documented. The worst (often referred to as 'Spanish Flu') occurred in 1918/19. It caused serious illness, an estimated 20-40 million deaths worldwide with peak mortality rates in people aged 20-45 and major disruption. Some residual health problems attributed to it lasted for many years thereafter. Whilst the pandemics in 1957 and 1968 were much less severe, they also caused significant illness levels - mainly in the young and the old - and an estimated one to four million deaths.

It is impossible to forecast the precise characteristics, spread and impact of a new influenza virus strain. Modelling suggests that from the time it begins in the country of origin it may take as little as two to four weeks to build from a few to around a thousand cases and could reach the UK within two to four weeks thereafter. Once in the UK, it is likely to spread to all major population centres within one to two weeks, with its peak some 50 days from initial entry.

An influenza pandemic can occur either in one or in a series of 'waves' weeks to months apart. To inform preparedness planning, a profile based on the three pandemics that occurred in the last century and current models of disease transmission has been constructed. That profile is intended to show the fastest overall national progression of a pandemic from the time it becomes the dominant respiratory disease. More locally, epidemics might be over more quickly (6-8 weeks) with a proportionately higher peak.



Single wave profile showing proportion of new clinical cases, consultations, hospital admissions or deaths, by week.

Vaccination or mass treatment with antiviral medicines (assuming their efficacy is similar to that against seasonal influenza) can be expected to modify this profile.

2.4 Predicting the health and wider impact

It is impossible to predict the exact nature, timing or impact of any future pandemic. For planning purposes, impact assessments are derived from a combination of current virological and clinical knowledge, expert analysis, extrapolations from previous pandemics and mathematical modelling.

Mathematical modelling maps the range of possible risks and the robustness of proposed responses. All impact predictions are estimates - not forecasts - made to manage the risks of a pandemic and the actual shape and impact may turn out to be very different.

When pandemics happen, many millions of people around the world can become ill with influenza and a proportion die from the disease itself or complications such as pneumonia. Depending upon the virulence of the virus, the susceptibility of the population and the effectiveness of countermeasures, up to half the population could have developed illness and between 5,100 and 63,700 additional deaths could have occurred in Scotland by the end of the pandemic.

In the absence of early or effective interventions, society is also likely to face much wider social and economic disruption, threats to the continuity of essential services, lower production levels, shortages and distribution difficulties. Individual organisations may also suffer the pandemic's impact on business and services. Difficulties in maintaining business and service continuity will be exacerbated if the virus affects those of working age more than other groups and fear of infection, illness, care providing responsibilities, stress, bereavement and potential travel disruption are all likely to lead to higher levels of absence. Staffing is therefore the critical element in business/service continuity plans.

In addition to maintaining business continuity, organisations will need to consider the security of premises, including manufacturing plants. High levels of public and political concern, scrutiny and demands for advice and information are also inevitable at all stages of an influenza pandemic. An effective communications strategy that provides timely advice and information on the situation in the UK and in other countries forms a key part of the management strategy.

Given the lack of relevant information, assessments of impact on the overall UK economy are necessarily simplistic and can only be illustrative. One such illustrative assessment suggests that illness-related absence from work by 25% of employees (only half of what may be expected in a widespread pandemic) could reduce the year's GDP by between £3bn and £7bn. Between 0.3% - 0.6% additional premature deaths could cause a further reduction of £1bn to £7bn depending on whether case fatality rates are low

(0.37%) or high (2.5%) and whether earnings or gross output are used in the calculation. Longer term, the impact of premature death could reduce future lifetime earnings by £21bn to £26bn at a low and by £145bn to £172bn at a high case fatality rate.

Further information on the principles underlying the use of modelling in preparing for an influenza pandemic and some of the results thus far are available at www.dh.gov.uk/pandemicflu

Further advice on business continuity aspects is available at www.ukresilience.info/ccact/index.shtm

3 STRUCTURES FOR PLANNING AND RESPONSE

Planning for and responding to the challenges of an influenza pandemic requires the combined and co-ordinated effort of all levels of Government, public authorities/agencies and a wide range of private and voluntary organisations.

At the international, UK and Scottish level, a number of structures are already in place for the planning and response phase and this chapter details those organisations and structures.

3.1 International

As an influenza pandemic will be an international public health emergency, the UK works closely with international bodies and other countries to encourage coordinated surveillance, planning, research and response. Key to this is the World Health Organisation (WHO). The World Health Organization is the United Nations specialised agency for health. It seeks to improve epidemic and pandemic influenza preparedness and responses by co-ordinating international surveillance, investigation and response.

At European level, the European Centre for Disease Prevention and Control (ECDC) was established in 2005 as an agency of the EC to support improved control of communicable diseases in Europe. Its role is to identify, assess and communicate current and emerging threats from communicable diseases. The centre works with the EC, Member States, other agencies and international organisations to perform these tasks.

3.2 UK Planning structures

MISC32 Cabinet Committee

A Ministerial Committee (MISC 32) on pandemic flu was established in 2005 to guide the preparations for a potential influenza pandemic and related international activity. It comprises Ministers from across central government departments and is attended by the Minister for Health and Community Care to represent the Scottish Executive.

MISC32 Flu Working Group

MISC32 Flu Working Group is the UK officials group which guides the preparations for a potential influenza pandemic and related international activity. Scottish Executive officials attend this group.

Scientific Groups

As detailed in section 1.7, there are a number of UK groups set up to ensure that the best scientific advice is fed into policy and the development of operational plans.

These include the Scientific Advisory Group and UK National Influenza Pandemic Committee (UKNIPC). Scottish Executive officials attend these groups.

Committee on ethical aspects of pandemic influenza (CEAPI)

As detailed in section 1.9 a UK Ethics Committee has been set up to consider ethical issues in public health, healthcare and community care arising from pandemic influenza. There is Scottish representation on the group and it is chaired by the Very Reverend Graham Forbes, Provost of St Mary's Cathedral Edinburgh.

Pandemic Influenza Management Group

Department of Health in England have set up new structures for their pandemic influenza planning. It has at its centre the Pandemic Influenza Management Group (PIMG) which is made up of senior DH officials. The objectives of this group are to provide leadership, governance and assurance of all the projects and initiatives required to prepare for a flu pandemic. DH has also set up a number of working groups to consider specific issues such as healthcare, community care and surveillance. Scottish Executive officials attend these groups as observers to ensure consistency and communication with health pandemic flu planning in England and Wales.

3.3 Scottish Planning structures

The Scottish Executive Justice Department has overall responsibility for planning the pandemic flu response in Scotland. Centrally, this is done through two main groups, outlined below. Planning in the NHS and community care sector is lead by the Scottish Executive Health Department (SEHD) through their pandemic flu steering group.

Ministerial Group on Civil Contingencies (MGCC)

Scottish pandemic flu planning is overseen by the Ministerial Group for Civil Contingencies, a Scottish Cabinet committee which keeps under review the Executive's policy for managing the consequences of major disruptive incidents in Scotland.

Scottish Emergencies Co-ordinating Committee (SECC)

SECC is the senior official committee involved in the Scottish Executive's emergency response. The Scottish Executive's Pandemic Influenza Preparedness work programme is managed at official level by the Scottish Emergencies Co-ordinating Committee's sub-group for Pandemic Influenza - SECC (Flu). This Group, chaired by a senior official from the Justice Department, brings together policy leads from across the Scottish Executive with representatives of responder organisations.

Health and Community Care Pandemic Influenza Steering Group

The Health and Community Care Pandemic Influenza Steering Group has been established by SEHD to lead the planning process for pandemic influenza across health and community care services in Scotland. Its aim is to set clear strategic and policy direction and will be directly accountable to the Minister for Health and Community Care for progress. It is a partnership between the Scottish Executive and the health and community care services and includes membership from NHS Boards, National Services Scotland, HPS, COSLA and the Association of Directors of Social Work.

Strategic Co-ordinating Groups (SCGs)

Strategic co-ordinating groups are established in each of the eight police forces in Scotland. They bring together key senior management of category 1 and 2 responders and are responsible for developing business continuity plans for their area and producing SCG multi-agency plans. The SCG is usually chaired by the areas Chief of Police and/or the Local Authority Chief Executive.

3.4 UK response structures

Civil Contingencies Committee (CCC)

CCC will take the Ministerial lead for the UK response on behalf of the Westminster Cabinet. It will receive advice from the Lead Government Department and the Cabinet Office Briefing Room (COBR).

Department for Health - Lead Government Department (LGD)

The Department for Health will be responsible for the overall government response and will be supported by the Cabinet Office Briefing Room (COBR).

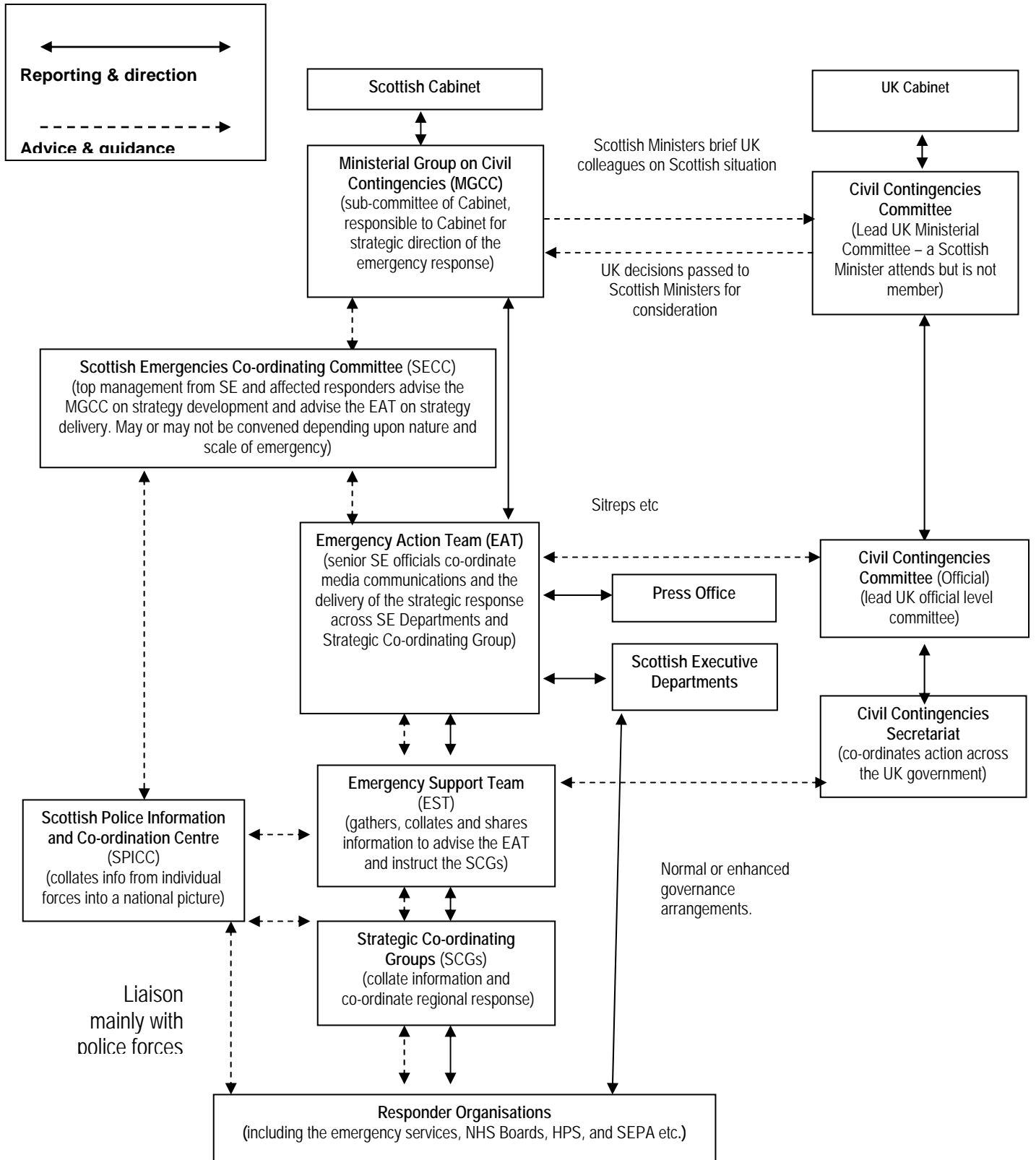
Cabinet Office Briefing Room (COBR)

COBR will be activated following direction from Senior Officials within the Department for Health. It will comprise groups of senior officials providing advice and information to the Civil Contingencies Committee. Links will be made with the Scottish Executive Emergency Room (SEER).

Scotland Office

When COBR is activated the Scotland Office will represent Scottish interests and be supported by Scottish Executive Officials.

Scottish Executive generic primary response structure for national emergencies



3.5 Scottish response structures

Ministerial Group on Civil Contingencies (MGCC)

MGCC will take the Ministerial lead for the response in Scotland on behalf of the Scottish Cabinet. Its responsibilities will include ensuring that Scottish Executive Departments and other organisations work to meet the overall objectives set by the Government. The MGCC will also take the lead on prioritising the allocation of scarce national resources and set the agenda for communicating with the public and media. This committee will be involved in regular dialogue with Ministerial colleagues and officials at UK level to maintain a coherent approach to the emergency response.

Scottish Emergencies Co-ordinating Committee (SECC)

SECC is the senior official committee involved in the Scottish Executive's emergency response. Its membership during a pandemic will consist of top level managers from affected Scottish Executive departments, and non-executive members drawn from the most senior officers in each of the main responding agencies (the emergency services, local authorities, NHS, Scottish Environment Protection Agency (SEPA), military). Its functions include advising the Government on how best to respond to the emergency; setting the strategic direction of the Scottish Executive's response and taking responsibility for long-term recovery issues at a national level.

Scottish Executive Emergency Room (SEER)

SEER will be activated following direction from Senior Officials within the Health and Justice Department. SEER encompasses all Scottish Executive Departments and acts as a focal point for co-ordination of the response. It performs its role through a number of integrated groups; such as the Emergency Action Team and the Emergency Support Team. It will analyse information received by the SE departments and the Strategic Co-ordinating Groups; provide advice to MGCC and SECC; oversee implementation of decisions taken by MGCC; and, ensure co-ordination of Scottish Executive activity. SEER will also feed information on the Scottish response to the UK Government via COBR.

Scottish Executive Emergency Action Team

Scottish Executive Emergency Action Team is a team of senior Scottish Executive officials who are responsible for ensuring that the emergency response is well co-ordinated and effective. They will provide advice to the MGCC and the SECC on options for handling the consequences of the emergency. They will also be responsible for overseeing implementation of decisions taken by the Government and the SECC.

Scottish Executive Emergency Support Team

The Scottish Executive Emergency Support Team is responsible for gathering, processing and sharing information about the emergency to help senior officials and the Government to make appropriate decisions. This information will be shared with co-ordinating committees across the UK to help inform the joint response.

Strategic Co-ordinating Groups (SCGs)

Strategic Co-ordinating groups will be mobilised to lead the local response. They will report on local issues direct to SEER.

Scottish Health Emergency Response Team (SHERT)

The Scottish Health Emergency Response Team will fulfil two functions:

- co-ordinate the SEHD input into the SE's overall emergency response, including the provision of the SEHD members of the SE emergency arrangements described above.
- provide additional support to the Department by acting as the "health emergency room". This will allow efficient co-ordination of the SEHD response, providing more detailed health information to SEHD senior management and the Minister for Health & Community Care.

SHERT will work in conjunction with the Emergency Support Team and Emergency Action Team.

4 PLANNING OUR RESPONSE

4.1 Introduction

The Scottish Executive and UK Government response is based on a set of key planning assumptions and modelling information about the scale and impact of an influenza pandemic, which is set out below. This is fundamental to our approach to planning for a pandemic across the UK. Local planning should also be based on these key assumptions so that all planning begins from a common approach and common understanding.

Of course, we will not know the exact nature and shape of a pandemic until the virus emerges, but we can make assumptions based on the best available evidence to assist our planning. Since these are estimates, planning must be flexible enough to allow adjustment once the characteristics of the virus are known. This must include the capacity to scale up or indeed scale down.

Scientific and modelling analysis will continue as the virus emerges and the pandemic progresses and this may help us to adjust our response as more information becomes available.

4.2 The WHO International Phases and UK alert levels

The World Health Organization (WHO) has defined phases in the evolution of a pandemic that allow a step by step escalation in planning and response proportionate to the risk from first emergence of a novel influenza virus. This global classification is used internationally. Once a pandemic is declared, action will depend on whether cases are identified in the UK and the extent of spread. For UK purposes, four additional alert levels have therefore been included within WHO Phase 6 consistent with those used for other communicable disease emergencies.

Inter-pandemic Period	
1	No new influenza virus subtypes detected in humans
2	Animal influenza virus subtype poses substantial risk
Pandemic Alert Period	
3	Human infection(s) with a new subtype, but no (or rare) person-to-person spread to a close contact
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
5	Large cluster(s) but person-to-person spread still localised, suggesting that the virus is becoming increasingly better adapted to humans
Pandemic Period	

6	Increased and sustained transmission in general population	UK alert level 1 Virus/cases only outside the UK 2 Virus isolated in the UK 3 Outbreak(s) in the UK 4 Widespread activity across UK
Post Pandemic Period		

Return to Inter-pandemic Period

4.3 Key planning assumptions

Origins of a pandemic

- A new pandemic will be caused by a new subtype of influenza A virus.
- The emergence of new influenza A viruses is highly probable.
- Although an influenza virus with potential to cause a pandemic could develop anywhere, it is most likely to emerge from the Far East.
- The virus may be a re-emerging previously-known human subtype that has not recently been in circulation, or a new virus - most likely of avian origin - emerging either through 'adaptation' to humans or through a process of genetic 're-assortment' between the genes of an animal and a human virus.
- The close proximity of humans to poultry and pigs in many parts of the world facilitates mingling of human and animal viruses and increases the risk that they may then exchange genetic material resulting in a new 're-assorted' human strain. The wide dissemination of the avian A/H5N1 virus in domestic poultry and water-fowl provides one seedbed for such re-assortment, but such viruses may also re-emerge from reservoirs in other animal species.
- From time to time, avian influenza viruses will infect people directly exposed to infected poultry but will not necessarily evolve into pandemic viruses.
- Whenever such a virus is detected following human infection, its potential to spread directly from person to person needs assessment.
- The pandemic potential of a new virus must remain under consideration until it can be determined whether person-to-person spread has occurred.

Timing and duration

- A future influenza pandemic could occur at any time (intervals between the most recent pandemics have varied from about 10 to 40 years with no recognisable pattern, the last being in 1968/9).
- A new virus may emerge at any time of the year.
- Initially pandemic influenza activity in the UK may last for three to five months, depending on the season, and there may be subsequent waves, weeks or months apart.

Geographical spread

- Although it may be theoretically possible to contain the initial spread of a pandemic virus originating in rural parts of the Far East, this is likely to be difficult in practice. It may also be difficult to document the early stages of spread accurately.
- Spread from an origin in the Far East is likely to follow the main routes of travel and trade.
- Spread from the source country to the UK through movement of people is likely to take around a month. Modern travel may result in even more rapid international spread.
- It is unlikely that we could prevent the virus getting into the UK except by closing all borders - even a 99.9% restriction of travel into the country can only be expected to delay importation of the virus by up to two months.
- From arrival in the UK it will take a further one to two weeks until sporadic cases and small clusters are occurring across the country.

Infectivity and mode of spread

- Influenza spreads through the respiratory route by droplets of infected respiratory secretions produced when an infected person talks, coughs or sneezes.
- It may also spread by hand/face contact after touching a person or surface contaminated with infectious respiratory droplets.
- Finer respiratory aerosols (which stay in the air for longer and are therefore more effective at spreading infection) may occur in some circumstances such as nebulisers, some dental procedures etc.
- People may be infectious between 24 and 48 hours before the onset of symptoms and are highly infectious for four to five days from the onset of symptoms (longer in children and those who are immunocompromised).
- Children have been shown to secrete virus for longer and at higher levels than adults.
- Some people can be infected without showing symptoms and may excrete the virus and therefore be able to pass on the infection.
- Incubation period is in the range of 1 to 4 days (typically 2-3).
- Without intervention, and with no significant immunity in the population, historical evidence suggests one person infects about 1.4 to 1.8 people on average (the R_0 or 'basic reproduction number'). This number is likely to be higher in closed communities such as prisons, residential homes and boarding schools.

The severity (clinical attack rate) of illness and deaths

- Pandemic flu is likely to be far more severe than normal seasonal flu with higher attack rates and case fatality rates and differences in age distribution and severity of illness

- Most people will be susceptible, but not all will become ill. Previous experience suggests that roughly equal numbers will be asymptomatic (infected but with no symptoms) as develop symptomatic infection (illness).
- All ages are likely to be affected, but children and otherwise fit adults could be at relatively greater risk, particularly if the elderly have some residual immunity from previous exposure to a similar virus earlier in their lifetime.
- Any age-specific differential attack rate will affect the overall impact. If working age adults are predominantly affected this will have a more serious impact on provision of services and business continuity, while illness in the very young and elderly is likely to present a greater burden on health and community services.
- Although potential for age-specific differences in clinical attack rate should be noted, they are impossible to predict and a uniform attack rate across all age groups is assumed for planning purposes.
- More severe illness may include severe prostration and rapidly fatal overwhelming viraemia, viral pneumonia or secondary complications.
- Up to 4% of those who are symptomatic may require hospital admission if sufficient capacity were available.
- In previous pandemics, the overall UK clinical attack rate has been between 25% to 35%, compared to the usual seasonal range of 5% to 15%. Cumulative clinical attack rates of up to 50% of the population in total are possible spread over one or more waves of around 15 weeks, each some weeks or months apart. Response plans should consider both the lower and upper ends of the attack rate.
- If they occur a second or subsequent waves could possibly be more severe than the first.
- Seasonal flu causes around 1200 deaths in Scotland annually. The UK case fatality rate for previous pandemics was of the order of 0.2 to 2% of those who became ill.
- To inform planning the following table shows the potential impact of a 25%, 35% and 50% clinical attack rate and overall case fatality rates of 0.4%,1%,1.5% and 2.5%.

Range of possible excess deaths based on various permutations of case fatality and clinical attack rates, based on Scotland and UK populations

Case fatality rate	Clinical attack rate					
	25%		35%		50%	
	Scotland	UK	Scotland	UK	Scotland	UK
0.40%	5,100	55,500	7,100	77,700	10,200	111,000
1.00%	12,700	150,000	17,800	210,000	25,400	300,000
1.50%	19,000	225,000	26,700	315,000	38,100	450,000
2.50%	31,700	375,000	44,400	525,000	63,700	750,000

4.4 UK planning presumptions

The following table outlines the UK's current planning presumptions for developing response plans and maintaining essential services during a

possible influenza pandemic. These presumptions are based on provisional decisions by Ministers and on-going planning across essential services. They will be revised regularly, reviewed when the nature of the virus is known and may be altered because of international actions or evolving advice from the World Health Organisation (WHO).

Area of Policy Response	Phase 4	Phase 5	Phase 6	
	Small cluster of cases with limited person to person transmission	Large cluster(s) of cases with person to person transmission.	UK alert level 1 cases outside UK	UK alert levels 2-4 cases in UK
Transport/ Travel				
International travel advice	In formulating travel advice, the Government will consider WHO advice. Consular staff will give advice to British Nationals as the situation develops and risks increase, to ensure their awareness that the travel advice may change soon, and should they wish to return to the UK, they should act quickly.			
	Advice against non-essential travel to affected areas	Advice against non-essential travel to affected areas	Advice against non-essential travel to areas where pandemic confirmed. In certain circumstances, the advice may be against all travel to an affected country or region – if law and order has broken down, and/or the health care is unable to treat British Nationals, and/or the British Embassy/consulate is closed; such advice would be subject to agreement between FCO, DfT, DH and CO and ministerial clearance.	
International travel restrictions	Based on the evidence currently available, the Government would not recommend or impose any other international travel restrictions			
Border closures	Based on expectation of limited public health benefit and considerable downsides from closure as well as implementation and enforcement difficulties, planning presumption is against closure of UK borders. Other countries may close their borders.			
Airport closures	No imposed closures in the UK, but airports may find they have operational difficulties in Phase 6 if staff are absent and/or if airports overseas have operational difficulties or close.			
Health screening	Based on available evidence, no entry or exit screening will be imposed in the UK. If recommended by WHO, or other countries impose requirements (such as a country requiring all incoming flights to undergo exit screening), the Government would consider screening on a case by case basis, bearing in mind the lack of evidence to support screening.			
Financial assistance to airlines / travel industry	No plans for Government assistance. Subject to extent of impact, the Government may consider at the time and/or during the recovery phase.			

Area of Policy Response	Phase 4	Phase 5	Phase 6	
	Small cluster of cases with limited person to person transmission	Large cluster(s) of cases with person to person transmission.	UK alert level 1 cases outside UK	UK alert levels 2-4 cases in UK
Domestic travel restrictions	Business as usual as far as possible			Subject to nature and spread of virus, the Government may advise against non-essential travel but not impose restrictions.
Hygiene measures on public transport	Public advice from the Scottish Executive Health Department and HPA will encourage general good hygiene practice in reducing spread of infectious diseases e.g. regular hand washing			Advice to keep using public transport whilst adopting basic hygiene measures and staggering journeys where possible. May also want to consider limiting non-essential travel.
International				
Repatriation of dead bodies	Normal arrangements will apply at airports to receive any dead British nationals who may be part of the early clusters. Family/insurance to meet costs.			Ports of entry may need to supplement reception arrangements. Family/insurance to meet costs.
Repatriation issues (live/well)	Subject to extent of disruption to air travel, British nationals may be stranded overseas at any Phase (although more likely at 5 and 6). Given the potential scale & numbers of countries involved, the Government is unlikely to arrange repatriation.			
Advice from embassies to British nationals overseas	Plan for Phase 6, including whether to stay or leave and local access to health care. British Nationals may wish to return to UK in Phases 4/5. Flights and/or consular support may be reduced in Phase 6.		Plan for arrival of the virus in host country, or, if already arrived, review local access to healthcare. Flights and/or consular support may be reduced.	
Medical assistance to British Nationals overseas	British nationals will be advised to plan for a potential pandemic including medical arrangements if not entitled to treatment from the host country			

Area of Policy Response	Phase 4 Small cluster of cases with limited person to person transmission	Phase 5 Large cluster(s) of cases with person to person transmission.	Phase 6 Increased and sustained transmission in general population (pandemic confirmed)	
			UK alert level 1 cases outside UK	UK alert levels 2-4 cases in UK
Government liaison with other countries	Foreign and Commonwealth Office (FCO) will lead on liaising with Governments in other countries to ensure full understanding of impacts and response measures during each phase.			
Essential services				
Health care	Normal service levels		NHS plans to care for large numbers of cases and will provide essential care	
Community Care	Normal service levels		Disruption expected from staff absence and ill carers, particularly at pandemic peak. Prioritisation of services required. Local co-ordination will be required to ensure appropriate step down care.	
Domestic travel/ public transport	Normal service levels		Business as usual as far as possible. Some disruption expected from staff absence particularly at the peak of the pandemic. Relaxation of working time regulations may be considered if required to maintain services.	
Essential repairs or maintenance of power lines, telecoms, gas	Normal service levels		Essential repairs will continue. Routine repairs may be curtailed by staff shortfalls - particularly at	

Area of Policy Response	Phase 4 Small cluster of cases with limited person to person transmission	Phase 5 Large cluster(s) of cases with person to person transmission.	Phase 6 Increased and sustained transmission in general population (pandemic confirmed)	
			UK alert level 1 cases outside UK	UK alert levels 2-4 cases in UK
pipelines and energy supply				peak of the pandemic.
Capacity of telecoms/ level of service	Normal service levels			Near normal service levels expected. Staffing shortfalls may result in a gradual increase in time taken to respond to customer calls and routine repairs. ¹
Availability of fuel	Normal service levels			Fuel supplies expected to be maintained. May be occasional local shortages if peak absences coincide with technical or weather-related supply difficulties.
Maintenance in the energy, telecoms and fuel sectors	Maintenance programs as normal			Routine programmes may be disrupted if peak absences coincide with technical or weather-related supply difficulties.
Provision of water and sewerage services	Normal service levels			Near normal levels. Essential repairs to maintain water and sewerage pipework, but

¹ Many organisations are planning to increase home working in the event of a flu pandemic. The telecommunications sector is considering what impact this might have. An increase in applications for internet access, coupled with illness and absenteeism among telecommunications staff, may lead to it taking longer than usual for telecommunications companies to respond to these requests. Where individuals already have the facilities required for home working, these should continue to function as normal subject to the overall level of demand, which clearly could fluctuate significantly because of shifting traffic patterns and the consequent impact on network capacity. Employers anticipating increased home working will need to have provided additional 'ports' into their networks without which employees will find it difficult to log in, even though the network may not be congested.

Area of Policy Response	Phase 4 Small cluster of cases with limited person to person transmission	Phase 5 Large cluster(s) of cases with person to person transmission.	Phase 6 Increased and sustained transmission in general population (pandemic confirmed)	
			UK alert level 1 cases outside UK	UK alert levels 2-4 cases in UK
				non-essential work may be curtailed.
Food / supplies	Normal service levels			Near-normal service levels, but may be reduced choice and localised short-term disruption to availability due to staff absences.
Finance – cash circulation, banking and payment systems	Normal service levels			Near-normal service levels, but may be some disruption due to staff absence at peak.
Post Office	Normal service levels			May be some disruption due to staff absence at peak of the pandemic, but daily deliveries and collections will be sustained as far as possible
Provision of local services e.g. refuse collection	Normal service levels			Subject to staff absences particularly at peak of the pandemic, there may be some short-lived disruption to essential services such as refuse collection.
Education/social mixing				

Area of Policy Response	Phase 4	Phase 5	Phase 6	
	Small cluster of cases with limited person to person transmission	Large cluster(s) of cases with person to person transmission.	UK alert level 1 cases outside UK	UK alert levels 2-4 cases in UK
Schools, nurseries and group childcare settings	Business as usual		Subject to impact of the virus, the Executive may recommend that Strategic Co-ordinating Groups (and Local Authorities) close schools and child-care settings to children, when the first clinical cases are confirmed locally and remain closed until pandemic is over. ²	
Further and Higher Education	Business as usual		No plans to advise further education establishments to close. Decision for each institution based on a risk assessment and its situation.	
Advice on social gatherings, such as attending UK sporting, arts events and conferences	Business as usual		Business as usual, as far as possible, subject to sensible basic hygiene precautions including robust advice to their customers that they should stay at home if they are ill or have flu-like symptoms. If schools and child-care facilities are shut to reduce spread of the virus, children should not mix with other children and adults for the duration of closures. In early stages of Phase 6, the Government may advise against international events held in the UK if delegates/ teams/	

² See [Planning for a Human Flu Pandemic - Guidance for Schools, Childcare and Children's Services in Scotland](#)

Area of Policy Response	Phase 4	Phase 5	Phase 6	
	Small cluster of cases with limited person to person transmission	Large cluster(s) of cases with person to person transmission.	Increased and sustained transmission in general population (pandemic confirmed)	
			UK alert level 1 cases outside UK	UK alert levels 2-4 cases in UK
			performers expected from affected countries	
Advice on use of public places	Public advice from the Scottish Executive and HPS will encourage good hygiene practices in reducing the spread of the disease eg regular hand washing		Business as usual as far as possible. The public will need to apply sensible hygiene precautions.	
Broadcasting				
Public service broadcasts	Business as usual			Business as usual, as far as practicable. May be some re-adjustment of services.
Benefits				
Sickness absence policy, including statutory sick pay	Business as usual			Guidance regarding Statutory Sick Pay (SSP) will be issued by HMRC at time of pandemic. Most employers will be paying Occupational Sick Pay (OSP) that must be at least as generous as SSP. Rules for controlling payments are for employers to determine.
Benefits payments	Business as usual			Business as usual, as far as practicable.
Pharmaceutical and other interventions				
Antiviral Medicines			Antivirals given preferably within 12 hours (but up to 48hrs) is the main medical countermeasure and will be used mainly for treatment. National stockpile allows for treatment of some 25% of population. Initially all patients symptomatic for less than	

Area of Policy Response	Phase 4 Small cluster of cases with limited person to person transmission	Phase 5 Large cluster(s) of cases with person to person transmission.	Phase 6 Increased and sustained transmission in general population (pandemic confirmed)	
			UK alert level 1 cases outside UK	UK alert levels 2-4 cases in UK
			48 hrs will be given antivirals unless contraindicated. Consumption will be monitored and prioritisation introduced only if that becomes necessary.	
Access to antivirals	Normal supply may remain available for seasonal influenza cases at Phase 4 and 5. Limited amounts of the national stockpile are predistributed to Health Boards currently (5% to mainland boards and 10% to the islands). Main stock would be distributed to NHS Boards at Phases 5 or 6 but not made available until UK alert level 2.		Antiviral may be used initially to treat cases and for containment. When infection is widespread for treatment only following telephone based assessment/ authorisation and collection from distribution points by friends/ relatives	
Face masks	Advice provided to public and business regarding Government policy. Specific infection control guidance provided for a number of sectors.		Protection advised for health workers and others in close/regular contact with infectious patients or considered at occupational risk	
Antibiotics	SEHD will seek to enhance stocks		For secondary infections/ complications as per guidelines	
Pre-pandemic vaccines	270,000 doses of H5N1 vaccine has been ordered for healthcare workers. Final decisions will be made on the timing of inoculations.		May offer limited protection if used as a pre-pandemic vaccine prior to cases in the UK, depending on match with pandemic virus but stocks are limited	
Pandemic – specific vaccine	A specific vaccine can only be produced once the pandemic virus has been isolated and the vaccine developed and manufactured (4-6 months).		The UK will secure sufficient vaccine for the entire population as soon as that is available. Likely to be at least 4-6 months i.e. well after the first wave strikes the UK. Delivery schedule would make prioritisation inevitable.	

Area of Policy Response	Phase 4	Phase 5	Phase 6	
	Small cluster of cases with limited person to person transmission	Large cluster(s) of cases with person to person transmission.	Increased and sustained transmission in general population (pandemic confirmed)	UK alert level 1 cases outside UK
Other consumables and essential medicines	SEHD will seek to enhance stocks and supply of those essential medicines for which there is likely to be a greater demand.		Implement changes to medicines legislation or regulations where necessary, to ensure ease of access.	
Communications				
Isolation of cases/ stay at home.	Possible implications for returning travellers with symptoms and their contacts in Phases 4, 5 and UK alert level 1 of Phase 6 i.e. isolation of confirmed cases and voluntary quarantine at home of suspect cases and/or their close contacts .		Those who believe they are ill will be asked to stay at home in voluntary isolation. Voluntary home isolation may be recommended for close contacts at early stages to contain/slow the spread.	
Health messages to public	Significant increase in public information at Phase 4 – proportionate to levels of risk. Different communication products such as leaflets, door drops used during Phases 4 & 5 emphasising basic hygiene measures and re-assuring the public. Regional/local communications to be consistent with national messages		Main messages to include: stay at home if ill, basic hygiene, how to obtain help and antivirals. Other areas may include advice on use of face masks and other Health and Safety advice on issues such as air-conditioning in the workplace. Messages to be consistent.	
Information to public.	WHO updates on location(s) and areas affected and advice will be reflected in overseas travel advice. A national door drop and advertising campaign will take place in Phase 5 alerting the public to the heightened risk, emphasising the need for personal preparation and socially responsible behaviour. A public information film will demonstrate how to slow the spread of the virus and a dedicated action line will be available. Information materials will also be available through primary care, pharmacies and on the Scottish Executive website.		WHO will provide Department of Health (DH) with regular updates on countries affected. DH will maintain liaison and cascade.	The Scottish Executive will report to DH the numbers ill. DH will provide these on a regional basis to CCC. This may be made available to the public via DH, Scottish Executive and/or Health Protection Agencies websites & media briefings.

Area of Policy Response	Phase 4	Phase 5	Phase 6	
		Small cluster of cases with limited person to person transmission	Large cluster(s) of cases with person to person transmission.	Increased and sustained transmission in general population (pandemic confirmed)
			UK alert level 1 cases outside UK	UK alert levels 2-4 cases in UK
			A second wave of advertising will run in Phase 6 providing basic facts and advice on the measures people can take to help slow the spread. The dedicated information line will continue to operate and an updated public information film made	
Excess deaths				
Managing excess deaths	Planning will continue in preparation for the arrival of the pandemic in Scotland and consequent additional deaths expected to occur (scale will be dependent upon nature of the virus).		Planning is underway to minimise delays to the death certification and registration processes. Further measures are being considered for the reasonable worst case scenario (63,700 deaths)	
Response and co-ordination				
Response, planning and coordination of response across central and local government	The Ministerial Group on Civil Contingencies (MGCC) will meet as required to agree early policy decisions in Scotland and to urge completion of planning. Strategic Coordinating Groups will meet as required to promulgate policy decisions/advice and maintain overview of response.		The Justice Department will assume responsibility for coordination across the Scottish Executive. The MGCC will meet regularly to maintain an overview of the impacts on Scotland, agree policy and allocate resources. Strategic Coordinating Groups will meet regularly to maintain overview of regional impacts, identify resource issues and promulgate policy and information to the public	
Civil Contingencies Act 2004	Emergency regulations may be used if it is necessary and proportionate to do so and if the legal safeguards in the Act are met. The scope and content of emergency regulations will be dependent on circumstances at the time.			
Liaison with business community and Financial Authorities	Government would liaise and share information with business community and financial authorities through established stakeholder groups. At local level, business community and financial authorities would work with the Strategic Co-ordinating Groups (SGCs)			

4.5 Research and development

Research and development into animal and human influenza viruses has made - and continues to make - an important contribution to shaping and informing pandemic preparedness planning and remains particularly vital to improving understanding of the health and wider impacts of any new virus, which by definition are difficult to predict.

Pandemic influenza research is coordinated across UK government departments, including the Research Councils. The government actively supports national and international programmes of work in this area, encourages the exchange of information and experiences at all levels and contributes to efforts to support those countries whose plans and preparations are less developed. The UK participates in World Health Organization (WHO), World Organisation for Animal Health (OIE) and European Union (EU) research programmes and jointly leads the influenza pandemic work stream of the G8 countries. It also hosts one of the four WHO Collaborating Centres for Influenza at the National Institute for Medical Research. That institute receives viruses for detailed virological analysis and its laboratories - with those of the National Institute for Biological Standards and Control and the National Influenza Reference Laboratory at the Health Protection Agency. All Scottish virus laboratories are closely linked to the HPA National Influenza Reference Laboratory and send specimens here for detailed analysis. Industry and governments are also devoting considerable research efforts into developing pharmaceutical countermeasures and finding ways of reducing the time taken for testing and production.

Epidemiological models help us to understand how the disease might spread and the likely effectiveness of countermeasures, whilst operational models look at how we might best implement those countermeasures. Where possible, assumptions for models derive from data from previous pandemics but where that is not available information about known influenza viruses provides a source for estimates. UK modellers are amongst the world leaders in this work. Health Protection Scotland in liaison with the Statistical team in Applied Mathematics (STAMS) Strathclyde University work closely with colleagues across the UK in the development of such models for use by the NHS in Scotland.

Continuing to improve the evidence base - and to apply the results of research and modelling to the development of plans - is of critical importance to the UK's strategic and operational approach to an influenza pandemic. As knowledge and information are constantly advancing regular reviews and revisions of plans at all levels are essential. To ensure that the best scientific advice is fed into policy, the Department of Health is advised by a Pandemic Influenza Scientific Advisory Group (to which SEHD & HPS contribute), whose meeting minutes are published on the DH website together with a regularly updated summary of the current position on mathematical modelling.

Further information on research and modelling is available from www.dh.gov.uk/pandemicflu and www.hps.scot.nhs.uk/

5 INTER-PANDEMIC AND PANDEMIC ALERT PERIODS: THE NEED FOR EARLY DETECTION AND ALERT

5.1 International collaboration to give early warning

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 by:

- sharing information and research
- rapid identification and alert
- 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 and
- learning from each other.

Scotland will participate as the UK continues to develop and strengthen its international networks, working with the World Health Organization, the European Community and other bilateral and multinational groups. In particular, Scotland will work within a UK framework in which the UK will:

- work to improve WHO and EU influenza surveillance
- support a 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)

WHO has defined phases in the evolution of a pandemic that allow a stepwise escalation in planning and response proportionate to the risk from the first emergence of a novel influenza virus (see table in section 4.2). This global classification is used internationally.

5.2 National arrangements for early detection and alert

During the inter-pandemic and pandemic alert periods, clinicians, and the public, need to remain vigilant in order to identify individuals with a possibly unusual influenza (or other respiratory virus) infection – whether arising in the UK or imported. This must be supported by the laboratory capacity and capability to identify a new virus promptly. Close collaboration is also required with animal health surveillance, to assess the risks of a new mammal or bird influenza virus crossing species.

Clinical recognition - Health Protection Scotland (HPS)

In liaison with the Health Protection Agency, Health Protection Scotland maintains WHO phase-specific algorithms on its website for the investigation, management and reporting of those patients for whom clinicians and virologists should maintain heightened awareness as being more likely to acquire or import novel influenza viruses. These would normally include patients with respiratory illness 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 unusual outbreaks of respiratory disease in, for example, a healthcare setting. Decisions on whether, and how, to investigate such patients should be taken in consultation with the local NHS Board Health Protection Teams (who will normally discuss with an expert in the HPS). As alert levels increase, SE in liaison with HPS will reinforce the need for heightened awareness and provide relevant information to health professionals and the public.

Laboratory diagnosis

The UK has a network of regional laboratories capable of providing a specialist diagnostic service for Influenza A, influenza B and the most likely pandemic influenza subtype (currently H5). Any new or unusual virus identified in Scotland is sent to the National Influenza Reference Laboratory at the Health Protection Agency Centre for Infections, Colindale, for detailed characterisation. The Centre 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, the devolved administrations and their respective Health Protection organisations if a new influenza virus from a human infection is confirmed

Capacity and capability

Should it be required, HPS will be able to draw on the expertise, resources and containment facilities at the HPA Centre for Emergency Preparedness and Response at Porton Down, including the Special Pathogens Reference Unit on a UK wide basis.

Liaison with veterinary laboratories

Through its existing links with HPA CfI and the HPA National Influenza Reference Laboratory, HPS will be updated regarding developments at the Veterinary Laboratory Agency, including over laboratory diagnostic methods on a UK wide basis.

Domestic preparation

Domestic preparations in Scotland in the inter-pandemic and pandemic alert periods should particularly focus on developing surge capacity in health and community care, preparing measures to ensure wider business continuity and

to maintain essential services and supplies in a pandemic scenario. Health priorities include the management of seasonal influenza, participating in UK wide arrangements to facilitate the 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 throughout this period are critical to the robustness and resilience of Scotland's response.

5.3 The Inter-Pandemic Alert Period – WHO Phases 1 and 2

The inter-pandemic years provide opportunities to improve knowledge, refine policies, build capacity and prepare the population for the likely emergence of an influenza pandemic. Efforts will also focus on contributing to multinational 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 avian or bird viruses played a significant role in each of the influenza pandemics that occurred in the last century and that it is highly probable that the next pandemic will emerge from an animal reservoir. Expanding and improving co-ordination and co-operation between the organisations responsible for human and animal health is therefore an important objective. Through the Department for International Affairs (DfID) and Department for the Environment, Food and Rural Affairs (Defra), the UK government works with international agencies to support a range of veterinary and social strategies – particularly improved animal husbandry, veterinary control and education - in potential source countries and to strengthen veterinary and human health services related to the control of avian flu. It also supports 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.

Individuals should keep themselves informed, adopt good hygiene measures and ensure that they are routinely vaccinated for seasonal flu and pneumonia if they have been identified as being in a high risk group.

5.4 The Pandemic Alert Period – WHO Phases 3-5

The World Health Organization will continue to inform its Member States of any change in alert phase. 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, as outlined above, before phase 4 and be fully prepared to initiate and implement response actions at 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 the WHO and governments to limit or control the spread of infection
- maintaining international liaison
- providing advice and information to UK citizens or travellers 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
- reviewing possible opportunities for vaccine development
- securing access to vaccine supplies and other pharmaceuticals and non-consumable supplies as they become available
- providing information that builds public awareness and understanding
- reviewing all response arrangements.

Individuals should listen to Government advice, adopt good hygiene measures and ensure that they are routinely vaccinated for seasonal flu and pneumonia if they have been identified as being in a high risk group.

At phase 4 all organisations in Scotland should review business/service continuity arrangements, consider initiating measures to enhance and preserve essential supplies and finalise plans for pre-distribution of any stockpiled items. Expert groups should 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 on self 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 be able to provide assistance and support during the pandemic.

Individuals should listen to Government advice, adopt good hygiene measures and ensure that they are routinely vaccinated for seasonal flu and pneumonia if they have been identified as being in a high risk group. They should consider how they and their families might prepare for events such as school closures, shortages and travel constraints. This could include considering support from and to friends and neighbours. Steps should be taken to ensure continuing care for any existing health conditions and supplies kept of normal home remedies.

At phase 5 response plans must be ready for instant implementation and activated when required. National and local co-ordination and communication arrangements should be activated, the influenza hotline established and arrangements for the development and supply of a specific vaccine reviewed.

Health departments 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.

Individuals should listen carefully to public announcements with advice and instructions. They should familiarise themselves with local arrangements for accessing health and community care support and antivirals. Advertising campaigns and a door to door leaflet drop will be implemented with messages emphasising that people should maintain essential activities as far as possible and explaining how services will operate and how they should be accessed. Symptomatic patients should stay at home and seek assistance via the national influenza hotline. They should be prepared to describe symptoms, give basic personal details and carefully note and follow clinical advice and instructions.

5.5 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 South East Asia at source providing 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, the effectiveness of local planning and response in parts of the world where such systems are not well developed. Although that continues to improve, there can be little certainty that a containment policy would succeed, but even if it fails to contain the outbreak completely, it might delay spread by about a month giving others more time to prepare.

Should the virus originate in the UK, then rapid detection, isolating and treating sufferers, applying stringent containment measures and the use of antiviral prophylaxis for all 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 not considered likely to succeed due to the large number of seed cases expected.

6 THE PANDEMIC AND POST-PANDEMIC PERIOD

6.1 Declaring a pandemic

The WHO will inform the UK Government of any change in alert levels, usually after international consultation. The UK Government will communicate this information, together with an assessment of risk to the UK, to the Scottish Executive. The Scottish Executive will inform the relevant responders and stakeholders in Scotland. The Civil Contingencies Committee (again with Scottish Ministers represented) will be convened at this stage, if not already convened at Phase 5 and the relevant committees will be convened in Scotland as appropriate.

6.2 International phase 6 - UK alert levels 1 to 4

The Scottish response during an influenza pandemic has six major elements:

- monitoring its emergence, spread and the impact/effectiveness of interventions
- slowing and limiting the spread of disease
- ensuring those who are affected get appropriate treatment and care
- maintaining business/service continuity and social order
- dealing with large numbers of deaths and
- ensuring that all involved in the response, including the public, are consistently well-informed.

UK Alert level 1 (no cases in the UK)

Planning: detection and alert

The response at this stage will be an extension of activity at Phase 5, but with the certainty that the UK will be affected. This level could last between 2-4 weeks, during which heightened public concern, suspected cases and false alarms should be anticipated before the virus actually reaches the UK. Organisations therefore need to be prepared for that demand and ensure that it does not detract from steps to finalise preparations for the arrival of the pandemic.

Public Information

Public information messages will acknowledge concerns whilst preparing the public for the imminent arrival of the pandemic, provide advice on the response measures and encourage those who are well to adopt sensible precautions but continue to attend for work and undertake other essential activities.

UK Alert level 2 (sporadic cases in the UK)

This level is anticipated to last about two weeks, until cases are occurring in all major centres of population in Scotland.

Planning

Public and private sector organisations need to focus on essential activities, implementing pre-planned measures to maintain core service/business continuity and adjusting activity levels to cope with additional demand and allow for potential disruption.

Public health response

As suspected cases occur in the UK, public health priorities will be to:

- promptly investigate cases and contacts to confirm or refute the diagnosis at the earliest possible time
- provide appropriate care
- apply measures to control/slow spread of infection
- collect sufficient epidemiological and virological information to refine projections and inform public health and clinical management policies. (The HPA will maintain a central database with information collation coordinated across all UK Health Protection Organisations on the first 100-200 cases for this purpose).

Early Cases

In the very early stages of the arrival of a pandemic in the UK, the mitigation strategies employed are likely to be focused differently with the aim of trying to contain the virus for a short period of time and slow its spread. This strategy would only be employed for the first tranche of cases. As the virus spreads, which is inevitable, wider and longer term mitigation strategies as described in this chapter would be employed.

An early cases strategy, based on short term containment of the virus, is likely to cover the following key areas:

- Adequate port health arrangements to ensure we can deal with suspected symptomatic passengers arriving at points of entry to the UK – airports and ports in Scotland
- Adequate surveillance arrangements to recognise the arrival of the virus and track its early spread and virology
- Arrangements to track and treat close contacts of suspected influenza cases
- Prophylactic use of antiviral drugs for suspected cases and their close contacts
- Advice on infection control for early cases
- Operational guidance for NHS Boards, GPs and other frontline staff.

Further work is being undertaken on port health and surveillance/tracking of close contacts. Further guidance will be published in due course.

Surveillance Arrangements

The monitoring requirements during a pandemic will fulfil 2 functions:-

- to track the spread of the virus, inform appropriate clinical action and assess success of interventions
- to inform decision makers and planners at both national and local level on the level of impact on services and the most appropriate use of resources.

Not only will the information flow into the Department, arrangements will be made to feed back to NHS Boards on the latest position locally, regionally and nationally.

In the early stages of a pandemic, NHS Boards will be required to liaise very closely with Health Protection Scotland in identifying and monitoring the first few hundred cases of the emerging virus. This will involve detailed information on individual patients being monitored and follow up of their contacts.

As time moves on and we begin to deal with a more widespread outbreak, monitoring will still be required but will become more generic and less intensive. System Watch will provide details of activity within the acute sector as well as monitoring NHS24 call volumes, ambulance service activity and the numbers of deaths recorded through GRO Scotland. Primary Care data will be fed through HPS and combined with the System Watch data to provide a clear picture of pressure and activity in the system. As far as possible this data will be automatically extracted and sent to HPS for processing, reducing pressure on frontline staff to duplicate effort in collecting data. There will still exist a form that will need to be submitted during a pandemic that will briefly describe any pressures or concerns not readily identifiable from the systems data. However, this will be a short form and easily completed.

While the immediate use of this information will be for Scotland, the information will also be passed to Department of Health through the Pandemic Influenza Portal, so that a UK perspective can be maintained and ensure that the relevant issues are taken up at Cabinet Office.

Public information

Anyone who suspects influenza-like symptoms will be advised to stay at home, inform a friend if necessary and contact the national telephone helpline for advice. Otherwise, the overall aim will be to maintain normal services and social/economic activities as far as that is possible. Personal and respiratory

hygiene messages will be reinforced ahead of an escalation to UK Alert level 3.

UK Alert level 3 (outbreaks occurring in the UK)

Planning

By the time outbreaks are occurring in centres of population, preparatory steps should have been completed. National and local response measures should be implemented proportionately as the pandemic impacts. National priorities will include:

- reviewing/revising the response strategy
- coordinating the implementation of response measures
- monitoring the initial adequacy and effectiveness of measures
- securing vaccine supply
- maintaining public communications.

Health and public health response

As the pandemic becomes established, health priorities will include:

- ensuring patients have access to appropriate assessment, treatment and care, including rapid access to antiviral medicines for those with symptoms compatible with pandemic influenza
- adapting health and community care services to ensure the maximum amount of surge capacity is available in primary and secondary care in anticipation of additional demand
- ensuring infection control recommendations are put into practice in all healthcare settings
- engaging with staff and implementing staffing contingency plans – including necessary training.

Public information

In addition to reinforcing previous public messages and providing advice and general information, local information and advice on service provision, any school closures, restrictions or other countermeasures should be available.

UK Alert level 4 (widespread pandemic activity in the UK)

It is anticipated that activity will rise to a peak across the UK about 7 weeks from the first recognition of cases, following the pattern described. Initially all organisations should monitor the impact on service/business against planned expectations in order to modify responses appropriately if necessary.

Overall planning and co-ordination

National priorities are to:

- monitor spread/impact (including deaths), refine projections, review response effectiveness, adapt strategies and tactics accordingly.
- maintain essential services/supplies and critical infrastructure
- minimise social disruption
- identify unexpected impacts or problems

Many services are likely to be under increased pressure, particularly from staff absences and possibly from disruption of supplies. Some – including health and community care organisations and funeral directors/ burial services - will experience rapidly escalating demand as the pandemic evolves.

Health and public health response

Health priorities include:

- surveillance – All UK Health Protection Organisations will have moved from detailed to aggregate reporting of cases by geographic region together with assessment of the efficacy of antivirals (and, if relevant, vaccine), monitoring of the cause and antimicrobial susceptibility of bacterial complications, and reviewing the clinical effectiveness of the response
- monitoring antiviral consumption against expected use and adapting policies accordingly
- monitoring and responding to pressures on health and community care services, maximising the effective use of the capacity available, supplementing staffing, maintaining essential care for those who are suffering from other emergencies or illness, conserving essential supplies and maintaining services
- vaccine development and supply

6.3 Post Pandemic Period

End of the first wave: preparing for subsequent waves

A 'single wave' pandemic profile with a sharp peak provides the most prudent basis for planning as that would put a greater strain on services than a lower level but more sustained wave or the 'first wave' of a multi-wave pandemic. However, second or subsequent waves have occurred in previous pandemics, weeks or months after the first. While the first priority at the end of the first wave will be to develop recovery plans and gradually restore supplies, services and activities depleted or curtailed during the pandemic, plans must assume that some regrouping may be necessary in anticipation of a future wave. In this respect, national priorities should be to:

- assess the overall attack rate during the first wave, in order to assess the susceptible population and construct models of a second wave
- continue to monitor the virus for genetic variations which might affect the degree of protection afforded by previous infection or vaccination, and thus vaccine formulation

- continue to monitor antiviral susceptibility of the virus
- review the efficacy of all interventions to inform future policies
- review antiviral and other pharmaceutical needs/supplies

Health plans should assume that heightened monitoring and surveillance will be required for some time beyond the first wave and that all plans require review and revision in the light of lessons learnt. In particular, the likelihood of ongoing constraints on supplies and services and continuing pressures on health and community services should be taken into account. Updated information on the epidemiology of the virus, effectiveness of treatment, availability of countermeasures and lessons learnt from the first wave will help inform and shape the response measures that plans in all sectors should recognise may need to be maintained or implemented to respond to second or subsequent waves. In addition, health plans may be required for targeted or mass vaccination programmes in this period.

Second and subsequent waves

Second or subsequent waves may be more or less severe than the first: UK Alert levels 1-4 will come into play again, informed by epidemiological and mathematical modelling following the first wave. SEHD will issue guidance to inform health plans following review of the first wave and the availability of countermeasures.

The recovery phase

As the impact of the pandemic subsides **and** it is considered that there is no threat of further waves occurring, the UK will move into the recovery phase. Although the objective is to return to pre-pandemic levels of functioning as soon as possible, the pace of recovery will depend on the residual impact of the pandemic, on-going demands, backlogs, staff and organisational fatigue and continuing supply difficulties in most organisations. Therefore, a gradual return to normality should be anticipated and expectations shaped accordingly. Plans at all levels should recognise the potential need to prioritise the restoration of services and to phase the return to normal in a managed and sustainable way.

Health services are likely to experience persistent secondary effects for some time with increased demand for continuing care from:

- patients whose existing illnesses has been exacerbated by influenza
- those who may continue to suffer potential medium or long term health complications (e.g. the encephalitis that followed the 1918 pandemic)
- a backlog of work resulting from the postponement of treatment for less urgent conditions.

The reintroduction of performance targets and normal care standards also needs to recognise that many staff will have been working under acute pressure for prolonged periods and are likely to require rest and continuing support. Facilities and essential supplies may also be depleted, re-supply

difficulties might persist and critical physical assets are likely to be in need of backlog maintenance, refurbishment or replacement therefore impact assessments are required.

Other sectors and services are likely to face similar problems and may also experience difficulties associated with income loss, changes in competitive position, loss of customer base, lack of raw materials, the potential need for plant start up etc.

7 MITIGATING THE IMPACT

7.1 Introduction

Although a pandemic could potentially have a serious impact in the UK in terms of illness and deaths and the consequent impact on the provision of services, we are far better placed to handle the consequences of a pandemic now than we have been in the past. This is as a result of a number of factors – better health and nutrition standards amongst the population, improved health and community care services, better communication links and advanced technology and scientific research which will allow us to respond rapidly to treat the virus. In previous pandemics, poorer general standards of health and nutrition were a factor in the extent of illness and deaths caused.

Added to this, the Scottish Executive and UK Government response to a pandemic is based on a number of strategies which are designed to mitigate the impact of a pandemic.

Due to the uncertain nature of a pandemic and the heavy demands it will place on available resources, a flexible strategy which combines a number of measures will be used. This strategy includes:

- the use of medicines – both vaccines and anti-viral drugs;
- infection control;
- social distancing; and
- school closures

Although medicines may provide some protection from the more serious effects of the pandemic, we recognise that their use must go hand in hand with other measures which are equally important.

Final decisions about the application of all or some of these measures will be made by the Scottish Executive and UK Government as information about the nature of the pandemic emerges. This will be reflected in the messages which are given to the public and the media through the UK and national communications strategies.

7.2 Travel Restrictions

International travel

International travel is increasingly central to the way we live today and we are dependent on it at both a personal and a business level. Disruptions to travel can have widespread consequences. However, it is the ease and frequency of international travel which may also speed the spread of a pandemic.

As a major destination and international travel hub, the UK is particularly vulnerable to the importation of infectious diseases. Although the imposition of restrictions on travel to and from affected areas has made an important

contribution to the control of some infectious diseases in the past, influenza is most infectious immediately after the onset of symptoms and has a short incubation period.

Modelling and evidence from previous outbreaks of infectious diseases suggest that no practical level of travel restriction is likely to allow a country to avoid a pandemic altogether. The imposition of restrictions on all travel to the UK would only be likely to delay arrival of the virus by one or two weeks if 90% effective and by some two months if 99.9% effective. Preventing those with symptoms travelling by using a system of exit screening would only be likely to delay the spread of infection by one to two weeks. Conducting additional entry screening for travellers arriving in the UK would have no additional advantage.

The possible limited health benefits from imposing international travel restrictions or border closures have to be weighed against their practicality, proportionality and potential effectiveness and wider social and economic consequences. We would also, of course, take account of any new advice or developments from the World Health Organization, European Community or other governments

However, both the Scottish Executive and the UK Government recognise that there is a need to review and potentially strengthen our existing arrangements for port health. Health Protection Scotland is currently engaged in a review of port health arrangements in Scotland. Port and airport operators, carriers and those authorities with specific responsibility for port health arrangements should also be reviewing the robustness of their own arrangements

The planning presumption should be that the UK Government is unlikely to recommend or impose international travel restrictions, border closures or entry/exit screening unilaterally. The Government would monitor the development of the pandemic and may advise against unnecessary travel. Advice to British nationals in – or intending to travel to- affected areas would be available from the Foreign and Commonwealth Office and from Health Protection Scotland.

Port Health Arrangements

At present NHS Boards and Local Authorities have responsibility for Port Health at designated ports in the United Kingdom. The response to a potential communicable disease risk at a port is usually the responsibility of the local NHS board who will provide a designated medical officer (DMO) to lead the response supported by medical and environmental staff from NHS Boards and Local Authorities, respectively. The regulations that define the powers of the health authorities are *The Public Health (Aircraft) (Scotland) regulations 1971* and *The Public Health (Ships) (Scotland) regulations 1971*. This response is dependent of notification of a risk by the commander of the aircraft or the master of a vessel. A risk may also be notified by officers of HM Customs & Excise, HM Immigration Service (UKIS) or by Medical Inspectors (MIs) called in by officer of UKIS where necessary. Both the above

mentioned regulations give powers of detention and detention of vessels, aircraft and persons with additional measures for diseases covered by the *International Health Regulations 1969*; namely plague, cholera, yellow fever and small pox.

The International Health Regulations have recently been revised (2005) and are to be implemented by WHO member countries, of which the United Kingdom is one, over the next few years. Changes in these regulations will naturally affect the regulations under which the port health is guided. In addition, the implementation of the International Health Regulation affords an opportunity to review Port Health and Medical inspection (under the *Immigration Act 1971*) to find out whether it is fit-for-purpose. This review is currently ongoing and is considering such issues as communication, guidance, skill mix and facilities. In particular is important that the DMOs, MIs, as well as UKIS, HM Customs & Excise, and Local Authorities are informed of risks as they arise. In addition it will also be important to involve the British Airports Authority (BAA), who will be involved in providing additional facilities and services, and in the case of shipping the Maritime & Coastguard Agency who have additional powers with respect to shipping, as well as the relevant English and UK authorities who are currently defining their own guidance and legislation.

National Travel

Modelling suggests that internal travel restrictions would have little positive impact on the total number infected by influenza over the entire course of a pandemic. Even a 60% reduction in all travel – including commuting to work – would only result in a small flattening of the profile of the pandemic across the country - reducing the national peak incidence by 5-10% and lengthening its period by a week - but also exacerbating the economic impact, increasing social disruption and adding to business/service continuity problems.

On balance, the planning presumption should be that the Government is unlikely to impose any restrictions on internal travel unless it becomes necessary to do so for public health reasons in which case it is likely to be on an advisory basis. The public will be advised to minimise non-essential (leisure/social) travel as a personal precautionary measure but to continue using public transport for essential journeys, adopting personal hygiene measures and staggering journeys where possible.

7.3 Medicines

Pre pandemic vaccination

Pre-first wave immunisation with an influenza vaccine, related but not specific to the pandemic strain might offer some limited, but nonetheless useful, cross protection. If a suitable vaccine were available but in limited supply, it could be used to provide partial protection for health and other staff likely to be frequently exposed to symptomatic patients. The UK has very limited stocks of A/H5N1 vaccine that might be used in this way should a pandemic virus

emerge from this source. Immunisation with pre-pandemic vaccine could also provide partial protection for others crucial to the maintenance of essential services. It could possibly also help reduce hospitalisations and deaths in vulnerable groups. However this would require larger stocks of such a vaccine than are currently held. Decisions on use would follow assessments of the likely degree of cross-protection afforded (if any) and risk/benefits as the pandemic alert phases change. In the meantime, response plans should assume that arrangements for limited pre-pandemic vaccination for healthcare workers and possibly for other targeted groups, if further supplies are available, might be necessary.

More widespread immunisation with a pre-pandemic vaccine could have a substantial effect, but would require still larger stocks of such a vaccine and is not currently part of the UK Health Departments' plans. Anticipating a suitable vaccine strain also has the inherent risk of it being ineffective against the ultimate pandemic strain. The Department of Health working with SEHD and other UK Health Departments continues to monitor the evolution of viral strains and options for pre-pandemic vaccination. It will inform planners of any policy changes.

Pandemic specific vaccination

Vaccination is widely used in the UK to offer protection against the seasonal influenza strains most likely to be circulating that particular year. As a pandemic will result from the emergence of a new or modified strain, these routine vaccines are unlikely to offer protection. It is not possible to develop a matching vaccine for a matching strain until the emerging influenza strain can be identified and the UK Government is working actively with the international community, pharmaceutical industry and EMAE to speed the development, testing and licensing of vaccines and secure the earliest possible supply. However, it may take four to six months before an effective vaccine is available and considerably longer before it can be manufactured in sufficient quantities for the entire population given that international demand will be high. Realistically, it is therefore unlikely that a specific vaccine will contribute much to dealing with the initial wave of a pandemic - unless its evolution, or the effectiveness of early control measures, result in a significantly slower developing pandemic than anticipated.

For planning purposes, the presumption should be that a vaccination campaign with a specific pandemic vaccine before or during the first pandemic wave is unlikely, but may contribute to reducing the impact of subsequent waves if they occur.

Anti-viral medicines

The targeted and effective use of antiviral medicines is an important countermeasure and the UK has established a stockpile of oseltamivir (Tamiflu) sufficient to treat 25% of the population. Oseltamivir is a neuraminidase inhibitor which works by preventing the influenza virus from reproducing and leaving the host cell. When used to treat seasonal influenza,

antiviral medicines reduce the length of symptoms (by around a day) and usually their severity, as long as they are started within two days of the onset of symptoms. It is impossible to predict whether antiviral medicines will be equally effective against a new or modified pandemic virus, but reasonable to anticipate a similar effect and associated substantial reductions in severe morbidity.

Although a number of alternative strategies are being evaluated, scientific advice confirms that prompt treatment of all symptomatic patients is currently the most effective use of the antiviral stocks available. The existing UK stockpile allows for a single course of treatment of all symptomatic patients at clinical attack rates of up to 25% and arrangements to make those rapidly available are a critical part of the health response. Operational plans should initially aim to make antiviral medicines available to all patients who have been symptomatic for less than 48 hours, preferably within 12 to 24 hours from reporting symptoms indicative of influenza.

The prompt use of antiviral medicines will benefit individual patients and may also produce public health benefits by decreasing the overall clinical attack rate, shortening the period that individuals are able to shed virus and thus able to pass on the infection to others. Although there is considerable uncertainty over the level of reduction possible, one model suggests a relative lowering of the attack rate by up to one third over the course of a pandemic.

Health protection agencies will implement measures to monitor the susceptibility of the virus to antiviral medicines, assess their effectiveness in reducing complications and deaths and inform policy decisions. The Medicines and Healthcare Products Regulatory Agency (MHRA) will identify the incidence and patterns of any adverse reactions.

It is also possible to use antiviral medicines as a preventive measure (prophylaxis) to protect against infection. Although some prophylactic use may help contain spread from initial cases and thus slow the development of the pandemic, protecting significant numbers for its entire duration would consume large numbers of treatment courses and still leave those treated susceptible to infection as soon as they stopped taking the medicine. Therefore, apart from attempts to contain initial spread, general prophylaxis is not regarded as an effective or practical response strategy at this stage. An alternative may be 'household prophylaxis' which provides 'post-exposure' prophylaxis to immediate contacts at the same time as treating a symptomatic patient on the grounds that some of the contacts may already be incubating the infection. This could mitigate and delay the progress of a pandemic – particularly as part of a combination of measures such as school closures. However, such a strategy would consume significantly greater stocks of antiviral medicines than currently available in the UK. Its practicalities will be reviewed should the supply position change.

Antibiotics and essential pharmaceutical supplies

Demand for essential medicines and over the counter remedies is likely to be high in a pandemic and re-supply may be uncertain. The Department of Health is working with the pharmaceutical sector to enhance stocks and increase the resilience of the supply chain. Clinical guidance on prescribing and use during the pre pandemic and pandemic periods will be issued and changes to medicines legislation and related regulations implemented to ensure adequate patient access.

Social distancing

Whilst it might be possible to isolate initial cases and quarantine their immediate contacts, such an approach will become unsustainable after the first hundred or so cases. Geographic quarantining measures have been used in an attempt to isolate affected communities in the past, but are unlikely to be effective against pandemic influenza in the UK as infection is expected to affect all major population centres within one to two weeks of initial cases being identified.

Whilst those without symptoms will be encouraged to carry on as normal, symptomatic patients will be asked to stay at home or in their place of residence (voluntary home isolation and quarantine). If staying at home becomes impossible, for example because of the need to be assessed and treated for complications or transferred to hospital, symptomatic patients should wear a disposable face mask (ordinary surgical mask) to reduce transmission of infection.

Influenza is likely to spread rapidly in closed establishments such as prisons, residential homes and boarding schools where people are in close contact and may also be in higher risk groups. Such establishments may also be more vulnerable to higher levels of staff absenteeism, supply disruption or transport difficulties. As opportunities for closure, quarantine, isolation or social distancing may be limited, it is vital that resilient arrangements are developed in advance of an outbreak.

Infection control and personal protective equipment

Once efficient person-to-person transmission is established, preventing an influenza pandemic developing is unlikely to be possible as most people are likely to be exposed to the virus at some stage during normal activities. In order to protect others and reduce the spread of infection, anyone with influenza-like symptoms should stay at home, minimise social/family contact and go out only if absolutely necessary until symptoms have resolved. Those who are not symptomatic should continue normal activities and can reduce – but not eliminate – the risk of catching or spreading influenza by avoiding unnecessary close contact with others and adopting high standards of personal and respiratory hygiene.

Applying simple infection control measures and encouraging compliance with public health advice are likely to make an important contribution to the UK's

overall response. Simple measures will help individuals to protect themselves and others. The necessary measures include:

- covering the nose and mouth with a tissue when coughing or sneezing
- disposing of dirty tissues promptly and carefully – bagging and binning them
- washing hands frequently with soap and water to reduce the spread of the virus from the hands to the face, or to other people, particularly after blowing your nose or disposing of tissues
- making sure children follow this advice
- cleaning hard surfaces (e.g. kitchen worktops, door handles) frequently using a normal cleaning product
- avoiding crowded gatherings where possible, especially in enclosed spaces

Adopting such measures can help mitigate the overall health and wider impact of a pandemic by lowering the clinical attack rate and slowing its development thereby spreading peak demand and enabling services to respond more effectively.

The use of face masks and respirators

Facemasks and respirators (masks that incorporate a filter) provide a physical barrier against the influenza virus if of an appropriate type, worn correctly, changed frequently, removed properly, disposed of safely and used in combination with good universal hygiene behaviour. They can be used to help protect the facial mucosa by wearers who may for example be at occupational risk from close or frequent contact with symptomatic patients. Face masks may also be used by those who are symptomatic to avoid contaminating others if they have no choice but to leave their home. Disposable masks or respirators should generally only be worn once, for no longer than the time recommended by the manufacturer and then discarded in an appropriate receptacle.

Although the widely held perception is that wearing a facemask in public places may be beneficial, current evidence of benefit from widespread use by the public is not convincing and unless worn, handled and disposed of correctly, such masks may actually exacerbate the risk. Wearing masks at all times is not practical so decisions must take account of the degree of risk associated with particular occupations or activities and should be based on risk assessments carried out by the employer in occupational settings.

The planning presumption should be that the general wearing of facemasks by those who are not symptomatic will not be recommended whilst undertaking normal activities. Judgements in occupational settings will need to be based on a risk assessment. Guidance to employers is available via the HSE website:

www.hse.gov.uk/biosafety/diseases/pandemic.htm

Public gatherings

Large public gatherings and events are an important indicator of 'normality' and can help maintain public morale during a pandemic. Whilst close contact with others - especially in a confined space – accelerates the spread of an influenza virus, there is little direct evidence of the benefits or effects of cancelling such gatherings or events. Results similar to those for closing schools (see below) might be expected, albeit on a more limited scale if events are indoors. Individuals may benefit from reduced exposure by not attending such events but there would be very little benefit for the overall community. Reduction in travel to such events may also reduce the spread although the benefits of even major reductions in all travel are small.

These conclusions are consistent with the lack of important observable differences between the course of seasonal flu outbreaks in London - where there is considerable mixing on commuter trains and underground railways - and the course in other parts of the UK. Whilst evidence does not suggest a blanket ban on such events, individuals might well choose to avoid the potential infection risk from attending them and organisers to cancel to avoid any economic risks. Transport difficulties, public order, crowd safety or other similar considerations may also affect decisions on staging such events, which can only be taken by organisers and/or governing bodies and licensing authorities (where relevant) in the light of information and the circumstance at the time.

For planning purposes, the presumption should be that the Government is unlikely to recommend a blanket ban on public gatherings. However, informed judgements by the event organiser and/or governing body in conjunction with the regulatory authority may become necessary at the time. If international events are due to be held in the UK with participants from affected areas, the Government may recommend postponement.

Possible closure of schools, nurseries and group childcare settings

Influenza transmits readily wherever people are in close contact and is likely to spread particularly rapidly in schools. As children will have no residual immunity they could be amongst the groups worst affected and can be regarded as 'super-spreaders'. In the 1957 pandemic up to 50% of schoolchildren developed influenza and in residential schools attack rates reached 90%, often affecting the whole school within a fortnight.

Closing schools and nurseries to pupils as an adjunct to the antiviral treatment planned for a pandemic might reduce its peak impact by an additional 10% and the total number of clinical cases could also reduce by 10% compared to antiviral treatment alone. Most of this reduction would be in school age children, where the reduction in the number of clinical cases might be as high as 50%.

Closing all schools and nurseries in an affected area may offer the most practical option. While this would disrupt education and have a significant negative effect on services and businesses, particularly those highly dependent on working parents, such disadvantages would be outweighed by the children's lives saved. The same would apply to group childcare settings where groups of children (and often parents) mix. Though there is less evidence relating to this sector than to schools, the same principles would apply, and if schools were to close it would be logical to extend the closure to group childcare settings. This would nevertheless increase the impact of closures upon services and businesses where working parents are employed. Reducing mixing between children outside school or other childcare settings would also be necessary for maximum benefit and is likely to prove challenging during any extended closure.

The Scottish Executive has issued detailed guidance for schools, childcare and children's services in Scotland, which advised them to **plan both for schools, nurseries and group childcare settings staying open and for possible closure, for some or all of a pandemic**. Closure could either be very localised and brief - for example, a school with too few staff to operate safely - or more widespread and for a longer period if **national** public health advice confirms that this will reduce the spread of infection among children. The Executive would take national decisions on whether or not to advise closures based on an assessment of the emerging characteristics and impact as the pandemic develops. The trigger for local decisions by Strategic Co-ordination Groups on closure would be confirmation of initial cases in the area.

On balance, plans should be prepared on the basis that

- **some school, nursery and group childcare closures are likely to be necessary**
- **decisions on school, nursery and childcare closures can only be made in the light of emerging information as a pandemic develops**
- **schools, nurseries and childcare settings will only be advised to close if it is anticipated that this will produce significant health benefits**
- **if the Executive and Strategic Co-ordination Groups advise schools, nurseries and childcare settings to close to pupils, the initial closure would be reviewed after 2-3 weeks, after which the closure may be extended**
- **any advice to close schools and childcare settings would be communicated to them through the local authority, who would be advised by Strategic Co-ordinating Groups**
- **even if there is no general advice to schools and childcare settings in an area to close, some may need to do so because of staff shortages or local health and safety reasons.**

Planning for a Human Flu Pandemic - Guidance for Schools, Childcare and Children's Services in Scotland is available from

<http://www.scotland.gov.uk/Publications/2006/07/05121311/0>

8 THE HEALTH AND COMMUNITY CARE RESPONSE

Saving lives is at the heart of the UK and Scottish Executive's response strategy. There will be increased and sustained pressure on health and community care services during a pandemic. An effective well planned health and community care response is central to our planning and can help to save lives and reduce illness.

8.1 Aims

The health and community care aims are to reduce mortality and morbidity by:

- maintaining surveillance to detect the emergence of a novel virus strain or any illness attributable to it, monitor its spread and health impact, describe the illness and inform response
- providing prompt access to rapid and reliable diagnostic tests
- providing data to monitor the impact and effectiveness of interventions, adjusting our response to reflect emerging data
- reducing disease transmission and rates of illness by applying infection control measures and by encouraging the public and other sectors to do the same
- developing surge capacity to meet expected demand and making effective use of potentially scarce medical skills and resources
- reducing or ceasing non essential activity as demand increases but maintaining essential care
- assessing and treating all symptomatic patients promptly
- providing effective treatment for those suffering complications
- providing vaccination if and when suitable vaccines become available
- providing public advice, education and information

8.2 Key Principles underlying planning and response

Health and community care organisations should apply the following general principles to their planning and response:

- the overriding priority is to reduce illness and save lives
- where possible and practical arrangements should be based on strengthening and supplementing normal delivery mechanisms
- interventions will be applied to maximise health benefit, but may also be required to maintain essential services
- plans should be developed on an integrated multi-agency basis with risk pooling and cross cover between all organisations - seeking to mobilise the capacity and skills of all public and private sector health and care staff (including those who are retired), contractors and volunteers
- primary care plans should be based on taking care to the patient wherever possible

- initial telephone based assessment is likely to be necessary to meet demand at the peak
- primary care response strategies should focus the capacity and clinical skills available on assessing patients in groups at particular risk and treating those suffering complications or requiring other essential clinical care
- antiviral medicines should be available to patients who have been symptomatic for <48 hours within 12-24 hours of reporting symptoms
- response measures should maintain public confidence and ‘feel fair’
- treatment and admission criteria should be transparent and applied in a consistent and equitable way that maximises available capacity
- plans should recognise the need to respond to psychosocial issues and for sympathetic arrangements to manage illnesses and deaths

8.3 Key planning assumptions for health and community care planning

To allow sufficient time to finalise and implement operational response arrangements, SEHD will advise on the reduction of non-essential and elective NHS services and will suspend some performance targets at UK alert level 2. Organisations should use the following planning assumptions to ensure that response arrangements are resilient and robust, but must be prepared to modify plans should emerging information vary.

Severity of illness

- Up to 50% of the population may show clinical symptoms of influenza (clinical cases) over the entire period of a pandemic (planning range 25% to 50%)
- up to 25% may develop complications (planning range 10% to 25% of cases)
- Up to 2.5% of those who become symptomatic may die (planning range 0.4 to 2.5% of cases).
- Up to 22% of influenza cases can be expected during the ‘peak week’ of a pandemic wave.
- Up to 32% of symptomatic patients (including all symptomatic children under seven) will require assessment and treatment by a general medical practitioner or other health professional. (planning range 16% – 32% of cases)
- Up to 4% of those who are symptomatic may require hospital admission depending on available capacity (planning range 0.55% to 4.0% of cases). Average length of stay for those with complications may be 6 days (10 if in intensive care).

Health and community care demand

- A short epidemic would put greater strains on services than a lower level but more sustained one.

- Hospitalisations and deaths will depend upon the age profile affected, virulence and specific complications associated with the pandemic virus, but demand is likely to be greatest in children and the elderly.
- Total healthcare contacts for influenza-like illness could increase from around 90,000 during a 'normal' season to 2.7 million during a pandemic (at a 50% attack rate). Refined estimates of demand will depend upon early and continued surveillance data.
- New healthcare contacts for influenza-like illness can be expected to exceed 10,000 per 100,000 population per week at the peak period (at a 50% attack rate). Peak consultations during seasonal influenza periods in recent years have been 400-900 per 100,000 per week.
- Peak demand could be sustained for one to two weeks with local epidemic waves for 6-8 weeks.
- At present children of <23kg (<7 years of age) need assessment by a GP or suitable health professional as weight related antiviral medication must be prescribed, although alternative formulations are being investigated.
- Assuming a complication rate of 25%, an attack rate of 50% and under 7s needing to see a health professional, general practices can expect to see 3500 influenza patients per 100,000 population per week at the peak.
- 2000 per 100,000 population may require hospital admission – an increase of at least 50% on normal demand
- Demand for hospital admission can be expected to increase up to 440 new cases per 100,000 per week at the peak and is unlikely to be met from available acute hospital capacity
- Demand for critical care beds could rise to 110 per 100,000 per week at the peak and would exceed available capacity.
- An increase in the numbers suffering from influenza and its direct complications may be accompanied by other demand caused by anxiety and bereavement and service provision challenges exacerbated by depletion of the workforce and logistical difficulties.
- The following tables estimate anticipated cases, healthcare contacts, GP consultations, Emergency Department visits, hospital admissions and deaths based on a uniform attack rate across all age groups.

Expected healthcare demand **over the course** of a pandemic, for 25%, 35% and 50% clinical attack rates and the upper end of the range for all other planning assumptions

	25% Attack rate	35% Attack rate	50% Attack rate
	Per 100,000 population	Per 100,000 population	Per 100,000 population
Clinical cases	25,000	35,000	50,000
GP consultations	8,000	11,200	16,000
Hospital admissions	1,000	1,400	2,000
Deaths	625	875	1,250

Expected healthcare demand **during the peak** of a pandemic, for 25%, 35% and 50% clinical attack rates and the upper end of the range for all other planning assumptions

	25% Attack rate Per 100,000 population	35% Attack rate Per 100,000 population	50% Attack rate Per 100,000 population
Clinical cases	5,500	7,700	11,000
GP consultations	1,800	2,500	3,600
Hospital admissions	220	310	440
Deaths	140	200	280

Assumptions:

- All complications (@ 25% cases) and symptomatic children under the age of 7 (7% of the population) are consulted by a GP.
- Hospital admissions @ 4.0% of cases.
- Deaths @ 2.5% of cases.

8.4 Infection control

Specific guidance is available for hospitals, primary care and other settings but limiting the transmission of pandemic influenza requires the application of tried, tested and proportionate basic infection control measures such as:

- ensuring that the public and staff are well informed about and adhere to procedures for the prevention and transmission of influenza
- local risk assessments to inform decisions on control and protective measures as required by the Control of Substances Hazardous to Health Regulations 2002
- documenting proportionate procedures, operational protocols and checklists
- timely recognition of symptomatic patients
- segregating (isolating) any symptomatic patient and limiting external contact by voluntary quarantining measures if necessary
- clustering symptomatic patients in specific wards/areas
- providing personal protective equipment (PPE) if occupational risk assessments indicate that to be necessary and ensuring that staff are trained in its correct wear, limitations and use
- implementing enhanced cleaning routines to minimise the risk from contact with hard surfaces.

Further guidance on infection control measures for hospitals and primary care settings is available from

<http://www.scotland.gov.uk/Resource/Doc/924/0040727.pdf>

Face masks/respirators in care settings

Various types of face masks are available offering different levels of protection and meeting agreed European and/or international normative standards. WHO recommends the use of the equivalent of the European FFP2 standard disposable respirators (high protection face masks) and surgical masks by healthcare workers in a pandemic. In addition that symptomatic patients should themselves wear surgical masks to protect others if circumstances make it absolutely necessary for them to leave home. Standard UK Health and Safety Executive (HSE) guidance calls for higher specification FFP3 respirators for healthcare workers whenever respiratory protection is indicated, while recognising that this may not be sustainable in the special

circumstances of pandemic. The current UK Pandemic Influenza Infection Control Guidance recommends:

- wearing FFP3 standard disposable respirators should be worn when carrying out clinical procedures likely to generate aerosols of respiratory secretions from infected patients (e.g. dental drilling, intubation, aspiration) although they should avoid such procedures as far as that is possible
- use of fluid repellent surgical masks by carers who may be in close or frequent contact (within 1m) with symptomatic patients.

Other protective equipment

If close contact with a symptomatic patient is inevitable or highly likely, health and other carers should adopt sensible barrier precautions in addition to face masks. Disposable protective equipment such as aprons and gloves, provide a physical barrier and help avoid spreading contamination. The ocular inoculation is not regarded as a major transmission route but is biologically plausible and eye protection (preferably disposable) may be necessary when carrying out aerosol-generating procedures or if risk assessment indicates that this is necessary.

Further guidance for employers is available on the HSE website www.hse.gov.uk/biosafety/diseases/influenza.htm

Clinical Guidance

The British Thoracic Society, British Infection Society and Health Protection Agency have produced joint provisional guidelines for the clinical management of patients with an influenza-like illness during a pandemic. They describe the clinical features, assessment and treatment of adults and children in hospital and community settings. The guidelines are regularly reviewed and updated and may need to be varied to reflect capacity, shortages or constraints as the pandemic develops.

Guidance on the clinical management of patients with influenza-like symptoms during a pandemic is available from:

British Thoracic Society-

<http://www.brit-thoracic.org.uk/PandemicFlu.html>

SE Health Department –

<http://www.scotland.gov.uk/Topics/Health/health/AvianInfluenza/PandemicFlu>

Health Protection Scotland - <http://www.hps.scot.nhs.uk/resp/index.aspx>

8.5 Prioritisation of Services

National planning assumptions for healthcare demand and staff absence rates during a pandemic indicate that high demand for services and high levels of staff absence will converge over an extended period of time. In these

circumstances it is unrealistic to expect the NHS to maintain current levels of service over the course of an outbreak.

The capacity to deliver continuity of essential and emergency flu and non-flu services throughout an outbreak must be protected and preserved. To achieve this, the scaling-back, limiting or temporary cessation of other services in both primary and acute settings must be considered inevitable. The extent to which other services will be affected will only be determined when the actual characteristics of the emergent virus are known.

A strategy for service prioritisation is being developed by a Service Prioritisation work group. It is intended that the work of this group will lead to the development of a common understanding across services of what the priorities are and to assist a nationally consistent approach to the application and removal of service restrictions. Further guidance in this area will be published in due course.

8.6 NHS Performance Targets

Consistent with and subject to the work described above to be carried out by the Service Prioritisation work group, it is necessary to take a view on the status of NHS performance targets (and especially access targets relating to maximum waiting times for elective treatment) during a pandemic.

The existing range of key objectives for the NHS covers *Health Improvement, Efficiency, Access and Treatment (HEAT)*. Within these key ministerial objectives, key targets exist across a number of areas in the acute sector e.g.

- Waiting times for elective outpatient appointments, diagnosis and treatment
- Cancer and coronary care treatment
- Hip fracture surgery
- A&E waiting times

We propose to take the following approach:

- All elective targets and the A&E target should be suspended during a pandemic flu outbreak. The Department would continue to monitor Boards' performance to help identify "hot spots" in the care system and to ensure that the local, regional and national response to the pandemic was delivering appropriate care to patients.

- The following Scottish Executive HEAT targets will remain in place through a flu pandemic:
 - Access to cancer diagnosis and treatment following urgent referral
 - Access to specialist hip surgery following fracture
 - Access to cardiac intervention

However, Boards' performance against these targets would be interpreted in a pragmatic way in accordance with the circumstances faced by Boards and the priority attached to patients by the clinicians responsible for their care.

- A sensitive approach to the reinstatement of targets should be taken – over a suitable period of time to be discussed according to the circumstances immediately following the pandemic.
- These proposals are subject to the work to be carried out by the Association of Medical Directors on prioritising services and may be revised.

Trigger for suspension of targets

We propose that targets would be suspended at *Phase 6 Alert level 2* – the point at which the pandemic reaches the UK – as spread would be expected to be rapid to all areas of the UK at that point. Board Chief Executives would be notified by the Department that the targets specified were being temporarily suspended when this point was reached.

Further Work

Further guidance will be issued in due course on a wider range of targets. This may cover primary care, community care, NHS 24 and the Scottish Ambulance Service.

8.7 Workforce arrangements and personnel policies

Considerable pressure will be experienced by NHS and local authority staff during a pandemic. Part of this pressure will be caused by the likelihood that staff will be pushed hard by the demands of a pandemic and, at the same time, the availability of those staff will decline due to the spread of the virus and staff becoming ill.

Planning needs to take place both locally and nationally to deal with the consequences of this pressure.

A strategy is being developed centrally by a Workforce group and a full report will be available from that group in due course. The work undertaken centrally will aim to ensure that local policies can be fully and legally implemented and that any national legislative and policy barriers to local actions have been removed.

National action will encompass the following:

- Relevant legislative and contractual barriers to redeployment and the use of students and retired staff
- Professional constraints
- Working hours and pay and rewards
- Updating staff absence policies
- Altering arrangements for certification of sick leave (at UK level)
- Disclosure requirements
- Training for redeployment

This will facilitate local strategies which should focus on the following:

- Redeployment of staff and making use of skills in a flexible way to cover for absences
- Redeployment of staff from areas where work has been cancelled to priority areas
- Management of the flow of staff between the NHS and community care settings
- Considering the use locally of medical students and available retired staff and retaining registers of those available
- Considering the use of allied professions and non medical staff to perform medical duties
- Removing local contractual barriers
- Communicating the messages to staff in advance about redeployment
- Provision of local training

Further guidance will be published in due course.

8.8 Access to Care

Normal patient pathways and service delivery arrangements will need to be adapted in a pandemic as additional demand saturates or threatens to overwhelm available capacity, staffing or other resources. Alternative arrangements and strategies need to be developed to cope with likely numbers and implemented as demand increases:

- the introduction of a telephone-based initial assessment sift of all symptomatic flu patients and authorisation for antiviral collection or referral to general practice assessment by trained lay-operators following clinically approved algorithms
- the provision of a wider range of treatments by health professionals (e.g. nurses, paramedics, pharmacists, dentists) following agreed guidelines and using 'prescription only' medicines under agreed authorisations
- care in the community by GPs and community-based health teams of patients who under normal circumstances would be admitted to hospital

- treatment of patients in areas of a hospital not normally used for providing acute medical care by medical and nursing teams who do not normally manage such patients
- treatment of patients in private health facilities not normally used for acute medical care by medical and nursing teams who do not normally manage such patients

Delivering Care in a Community Setting

Most sufferers are likely to experience typical influenza symptoms that can be appropriately managed at home.

It is therefore vital to the health and community care response to ensure that there are effective arrangements, based on taking care to the patient, for a sustainable community based response that provides for:

- patient assessment,
- access to antiviral and other medicines,
- treatment of complications and access to hospital care if necessary

There is a recognised need to develop a common approach to the organisation and co-ordination of community based services across Scotland during a pandemic. SEHD has commissioned a multi-discipline group, led by the Royal College of General Practitioners Scotland to develop a framework and guidance for the delivery of an integrated community based response. It is intended that this guidance will be published in the final draft of this document.

Acute Care

Adults and children with uncomplicated influenza infection do not usually require hospital treatment, but those with worsening pre-existing medical conditions or suffering influenza-related complications may need referral.

The interface between acute and primary care is crucial and joint review of agreed appropriate protocols are needed in the planning and clinical phases. Symptomatic patients will be advised to stay at home, seek help by telephone and not to attend surgeries or health facilities unless by prior arrangement. Contingency arrangements should recognise, however, that self-referral is inevitable. The level of self-referral is likely to be significantly higher for certain patient groups e.g. infants, children and patients with chronic conditions. Breakdowns, loss of confidence or access difficulties in community provision will exacerbate this.

Existing hospital capacity may only meet 20% to 25% of the expected demand at the peak. Normally there are some 28,296 beds (including day beds) in use in Scotland, of which 17,523 are acute beds and 467 are for patients requiring HDU or ITU care. It may be possible to release almost 33% of the total acute bed capacity within 5-10 days of ceasing elective work.

Even with additional capacity, and the implementation of measures to improve utilisation and supplement availability, the level of additional demand, combined with increased staff absences and possible increases in length of stay, will make hospital overcrowding inevitable and capacity a major limiting factor. Other limiting factors such as shortages of medical supplies, limited availability of diagnostic support services, and potential disruption to the supply of blood/blood products are also likely to have an impact.

Proportionate admission thresholds based on clinical management guidelines will need to be agreed and progressively applied. Consistency and equity in their application is important in gaining public understanding and maintaining confidence. Common understanding and interpretation of those guidelines by health professionals at the primary, secondary and community care interfaces are particularly important.

Plans should focus on ways of supplementing and making the most effective use of the staffing and beds, with particular attention to factors that facilitate rapid discharge or step-down arrangements. Plans should also address establishing alternative care sites; utilising private hospital/clinic facilities; staffing; and other options for increasing capacity. Up to 25% of symptomatic patients who would warrant hospital admission (if sufficient capacity were available) may require high dependency or intensive care (HDU/ICU). Most will have influenza-related pneumonia or a severe exacerbation of underlying co-morbid illness. The indications for such transfer are no different when compared to non-influenza patients.

Acute sector plans should detail:

- staff protection (physical and mental health and personal safety aspects), infection control and security aspects for supplies and entry/exit controls.
- the core services and areas of operation which will continue during the pandemic
- arrangements for progressively winding down elective and non-essential activity before and during the pandemic phase
- for the clinical management and, if required, isolation and cohorting, for:
 - i) non-pandemic flu emergencies
 - ii) suspected or proven pandemic flu patients
 - iii) patients at special risk e.g. immunocompromised patients and those with chronic diseases
- the specific arrangement for adults and children in the clinical areas of :
 - i) Emergency Medicine departments
 - ii) Acute Medical and Admission Units
 - iii) HDU/ITU Units
 - iv) Care of the Elderly
- arrangements for discharge from hospital or to 'step-down' units
- the identification and training of redeployed staff
- arrangements to inform staff of clinical guidelines for patient management and to monitor and review the effectiveness of these arrangements.

Community Care

Effective arrangements developed jointly by health and community care agencies are critical to the relief of suffering and to achieving the wider public health aims of keeping symptomatic patients at home, caring for them in a community setting and reducing the demand on healthcare facilities. More than 110,000 people rely to varying extents on community care support provided by or through local authorities. Those services cover a wide range of needs such as care in residential/nursing homes, day centre provision, meals on wheels, home helps and personal assistant schemes. The 2001 census also indicated that over 60,000 people care for a relative or friend for between 20-49 hours per week - and almost 116,000 people for over 50 hours a week - in Scotland. Many of these 'informal' carers will be affected over the pandemic period and alternative care arrangements may be required.

Community care providers are in regular contact with individuals in the community who might be more vulnerable to, or more affected by, pandemic influenza. In addition to maintaining services for those who will continue to rely upon them, community care providers must also anticipate additional short-term and short notice demand from those unable to cope independently or whose normal care arrangements have been disrupted. Voluntary, private or independent sector organisations provide many of the services on contract and all forms of community care provision need intergration into local contingency plans. Key challenges include:

- sustaining services that provide essential lifelines, e.g. meals on wheels, provision of community equipment, community alarm services
- meeting the additional pressures on already overstretched local community care services and intermediate care services due to the additional pressures on acute hospital beds
- ensuring that the lines of communication exist to relay essential national, regional and local messages to the diverse range of community care services (statutory, voluntary, independent and private)
- additional pressures on caring time to support care home residents and people cared for at home
- sustaining people with complex disabilities who are currently supported with intensive care packages in the community
- providing emergency respite care for vulnerable people looked after at home by informal carers while their carer is ill
- maintaining a balance between appropriate safety and infection control measures and ensuring that the quality of life of vulnerable adults is maintained as far as possible.
- dealing with workforce and resource implications. This would include dealing with staff absences and redeployment to ensure adequate level of care services.

Role of NHS 24

NHS 24 will continue to play their important role in providing health advice and information through their normal telephone number, and via the NHS 24 Online website (<http://www.nhs24.com>).

Demand on NHS24 is likely to increase moderately in a pandemic. The primary focus of service continuity plans is the maintenance of core services in the face of high levels of staff absence.

It is also anticipated that there may be a further role for NHS24 in the development and support of local delivery arrangements for a UK national flu helpline. It is intended that further clarification of the role of NHS24 will be published in the final draft of this document.

Role of Scottish Ambulance Service

Demand on the Scottish Ambulance Service (SAS) is likely to increase significantly in a pandemic. The primary focus of service continuity plans is the maintenance of capacity to answer all emergency and urgent calls, although some prioritisation and changes in normal performance standards may become unavoidable. Plans should recognise the need to facilitate rapid discharge or transfer arrangements and explore opportunities to utilise any organisational and communication capacity available from the curtailment of non-essential activities to support the delivery of home care to influenza sufferers.

Pandemic specific pre-hospital patient assessment and treatment protocols should recognise that hospital capacity will be extremely limited; emphasising treatment at home and ensuring that only patients with life-threatening conditions are actually conveyed to emergency departments. Local response plans should also consider the extent to which the field assessment and treatment skills of ambulance staff could be utilised to support the wider delivery of home care.

Dentistry

Current infection control advice suggests that health professionals should avoid aerosol generating procedures on symptomatic patients as far as possible during a pandemic and must wear respirators and suitable protective equipment where that is not possible. Many dental procedures have the potential to generate aerosols and risk assessments will therefore be necessary. Local plans should ensure that emergency care remains available throughout a pandemic, but dental practitioners may find normal demand reduced because of limits on the procedures they are able to carry out on those with respiratory symptoms and patients themselves deferring treatment or facing travel difficulties. Opportunities to use the assessment and treatment skills of dental practitioners or other health professionals to support the wider delivery of health care in a pandemic should be explored in local planning.

8.9 Coping with stress and bereavement

In the lead up to a pandemic, many people are likely to feel anxious, apprehensive, and to have an understandably subjective perception of the degree of risk. As the pandemic develops, many people may feel fear for their own health and that of their family and friends, grief for loss of relatives or friends, a sense of social isolation or other potential causes of psychological distress. Whilst many are likely to be resilient enough to cope with little or no professional or specialist intervention, some people may need or may welcome additional support.

Local plans should consider how to provide that additional support. For example, Health Boards and community care services should consider how they can offer support both to their own staff and to patients and their families. This could include a range of measures such as:

- the important role of religious and community leaders
- self help material
- the role of specialist support services eg for mental health
- the role of voluntary organisations
- specialist counselling

Support should be made available both during and for some time following a pandemic.

8.10 Vaccination

A small group which is led by occupational health physicians is considering the best strategy to be followed locally to ensure that we are prepared for the provision of vaccination both pre pandemic and during a pandemic.

A flexible model will be developed which can be adapted to suit whatever situation we are facing and can be adjusted to deliver vaccines to priority groups, where these have been identified.

Further guidance will be published in due course.

9 MAINTAINING BUSINESS CONTINUITY – THE SCOTTISH WIDE RESPONSE

9.1 Aims

Contingency planning for a range of disruptive risks is a key business activity. Maintaining adequate staffing levels is also critical to every organisation's ability to maintain its essential functions. A major infectious disease outbreak such as an influenza pandemic will place considerable pressure on all organisations and most individuals. Although business continuity plans made for other disruptive challenges provide a solid base, contingency arrangements for an influenza pandemic need to recognise the unique nature of some of its characteristics, particularly its likely duration and the fact that higher levels of absenteeism are likely to be a major factor.

During a pandemic, the Executive's overall aim will be to encourage those who are well to carry on as normally as possible, whilst taking basic precautions to protect themselves from infection and to lessen the risk of spreading influenza to others. However, absenteeism is likely to be much higher than normal across all sectors, especially if the virus affects those of working age more than other groups. Uncertainty surrounding the impact of the pandemic virus will continue until it emerges, so plans to mitigate the effects of absenteeism need to be capable of coping with a range of potential levels.

As part of its role of co-ordinating the preparations for a possible flu pandemic, the Justice Department has issued advice to assist business continuity planning comprising 'Guidance on contingency planning for a possible influenza pandemic'; and 'Introductory advice to staff on planning for pandemic influenza' which are available from:

<http://www.sehd.scot.nhs.uk/pandemicflu/Pages/panflucontingencyV2Aug2006.htm>

and <http://www.sehd.scot.nhs.uk/pandemicflu/Pages/PanfluNews.htm>

9.2 Key assumptions

The following key assumptions, which are based on a uniform attack rate across all age groups, should assist in impact assessments and developing contingency plans. As the attack rate may not be uniform across all age groups plans need to retain flexibility to adapt as information emerges.

- Up to 50% of the workforce may require time off at some stage over the entire period of the pandemic with individuals absent for a period of seven to ten working days. Absenteeism should follow the pandemic profile with an expectation that it will build to a peak lasting for 2-3 weeks when between 15% and 20% of staff may be absent and then decline.

- Additional staff absences are likely to result from other illnesses, taking time off to provide care for dependents, family bereavement, other psychosocial impacts, fear of infection and/or practical difficulties in getting to work.
- The Executive may advise schools, nurseries and childcare settings in an area to close in order to reduce the spread of infection among children. Any such advice would probably be to close for a few – probably 2-3 – weeks, but closures may be extended if the pandemic remains in the area.
- Modelling suggests that small organisational units (5 to 15 staff) or small teams within larger organisational units are likely to suffer higher percentages of absenteeism – up to 30-35% over a two to three week peak period.

9.3 Dealing with Staff Absences

Each organisation needs to estimate the level of staff absence and its potential impact on its own activities in the period leading up to and during an influenza pandemic. The actual impact will depend to some extent on the composition of the workforce and the environments in which people work. In order to derive estimates for the total numbers likely to be absent, employers should consider the demographics of their work teams, including the percentage who have childcare or other family care responsibilities, 'normal' absenteeism levels and options for home or remote working.

Protection in an occupational setting

In a pandemic setting, employers still have a duty to provide a safe place of work for their workers and are required to maintain safe working systems and implement protective measures based on local risk assessments taking account of the Control of Substances Hazardous to Health Regulations 2002 as appropriate. The risk assessment should consider whether the employee's work activity increases the risk of exposure beyond that of community acquired exposure and if so, to implement control measures proportionate to this. Most of the general principles for infection control in hospitals and other settings (see section 8.4) can be equally effective if applied in the general workplace.

Jointly conducted risk assessments by employers and staff and documented procedures during the planning phase can help ensure that employees are well educated and informed. Joint risk assessments can also assist in identifying and exploring any subjective perceptions of risk, the opportunities for more flexible working arrangements and training requirements to help cover staff absences. Identifying those staff with co-morbid conditions or other factors that may put them at higher risk may also allow proportionate individual precautions.

Making temporary changes to working practices, e.g. to reduce close face-to-face contact, providing physical barriers to transmission, enhancing cleaning regimes, ensuring that the necessary protective equipment is available,

having hand washing, waste disposal and other hygiene facilities in place and actively promoting these and other similar measures, can help encourage and maintain attendance at work during the response phase.

Any employee who reports feeling unwell should be positively encouraged to stay at home and staff who develop influenza-like illness at work should be sent home for the period when they may be infectious to others (i.e. as soon as they are aware of the infection and until their symptoms resolve). Non-punitive personnel policies and reassurances should emphasise those aims. Follow-up contact with absent employees, the provision of occupational health advice and other similar measures indicated in HSE's existing guidance can help minimise other absences and encourage return to work as soon as possible. Making best use of recovered and now immune staff should also be an important aspect of planning

Further guidance for employers is available on the HSE website www.hse.gov.uk/biosafety/diseases/influenza.pdf

9.4 Dealing with a large number of deaths

The projected scale of excess deaths during a pandemic in Scotland could range from 5,100 to the reasonable worst case of 63,700. Local services are likely to be severely challenged, particularly at the upper end of the scale. Clearly business continuity will be the front line response. Similarly in terms of handling fatalities, the main emphasis of the local response will be to minimise the potential for delays to funerals, burials and cremations. At the same time planning must: recognise the need to handle the dead with dignity and respect; take account of differing faith, religious and cultural backgrounds; and, minimise distress to families.

Should the scale of deaths be at the upper end of the planning assumptions, local services will need to work differently. Business continuity planning should consider critical posts and the need for staff to work flexibly. As a consequence staff training will also be a critical consideration for local authorities and businesses.

Strategic Co-ordinating Groups (SCGs) in Scotland are responsible for producing local multi-agency plans and response options for managing excess deaths. This should be done in conjunction with the police, procurator fiscal, registrar, funeral industry, local authorities, health boards, community/faith leaders and family support groups. Planning by the SCGs should consider arrangements for additional mortuary capacity, internment arrangements and give due consideration to diverse faith, religious and ethnic requirements. The Scottish Executive Justice Department is also looking in to options for additional storage for the SCGs.

The Scottish Executive Justice Department has commissioned an audit of mortuary capacity which will look at options to provide additional storage within Scottish NHS Hospital mortuaries, in the event of mass fatalities occurring during a pandemic influenza outbreak. The additional storage will

be secure, hygienic and respectful and can be achieved by transforming existing, pre-identified areas such as autopsy rooms and/or viewing areas, into temporary body storage areas. The audit is due for completion by April 2007.

It is anticipated that body storage capacity in Scottish NHS hospital mortuaries could increase by over 100% following this audit and a tried and tested model for this plan already exists in Gartnavel General mortuary in Glasgow.

The Death Certification process

The death registration process involves completion by a medical practitioner of a *Medical Cause of Death Certificate (Form 11)*. The forms are prescribed and issued by GROS to registrars, hospitals, GPs etc. As part of the GROS pre-planning for a pandemic, GROS has increased stocks of Forms 11 in proportion to the GROS estimate of the likely *additional* deaths in Scotland.

The informant is required to attend a registration office within 8 days of the date of death to register the death. ***If necessary, as part of the GROS response to a pandemic, the Registrar General could grant a blanket extension to that deadline.*** Following registration of the death, the local registrar issues to the informant a certificate (Form 14) to confirm that the death has been registered. This enables the disposal of the body. While a burial may take place before registration of the death, the body may not be cremated before death registration and issue of the Form 14. GROS has prepared additional stocks of Forms 14.

A registrar is expected to report any sudden, suspicious, accidental, unexpected or unexplained death to the local Procurator Fiscal. In particular, the Procurator Fiscal will want to know from the registrar of any death where the circumstances or evidence suggest that the death may fall into one or more of the following categories:

- any death due to violent, suspicious or unexplained cause
- any death related to occupation, for example industrial disease or poisoning
- any death involving fault or neglect on the part of another
- any death as a result of abortion or attempted abortion
- possible or suspected suicide
- any death as a result of medical mishap, and any death where a complaint is received which suggests that medical treatment or the absence of treatment may have contributed to the death
- any death resulting from an accident
- any death arising out of the use of a vehicle including an aircraft, ship or train
- any death by drowning
- any death due to poisoning or suspected poisoning, including by prescription or non-prescription drugs, other substances, gas or solvent fumes

- any death by burning or scalding, or as a result of a fire or explosion
- any death due to a notifiable infectious disease, or food poisoning
- certain deaths of children - any death of a newborn child whose body is found, any sudden death in infancy, any death due to suffocation including overlaying, any death of a foster child
- any death in legal custody
- any death of a person of residence unknown, who died other than in a house
- any death at work, whether or not as a result of an accident
- any death where a doctor has been unable to certify a cause

There is a risk of delays in the management of fatalities if registrars were to refer to the Procurator Fiscal every death due to pandemic flu, as may be likely in the event of the 2 highlighted instances above. Accordingly, the Crown Office Procurator Fiscal Service (COPFS) in discussion with the medical profession, is setting in place a system to "fast-track" the completion by doctors of the Medical Cause of Death Certificate (Form 11) to indicate where the cause of death is ***pandemic flu*** or ***presumed pandemic flu***. The system is based upon a joint COPFS/SE Health Department letter to all doctors about certification of pandemic flu which gives examples of situations, outlines all circumstances that can be legitimately considered for certification and encourages and gives confidence to doctors to certify appropriately. In response, GROS will registrars to accept the cause of death as pandemic flu or presumed pandemic flu without reference back to their local Procurator Fiscal. This combination should reduce delays in the registration of deaths and the disposal of remains.

9.5 Business continuity/maintenance of UK's essential services

The government has recommended that the UK's essential services -including essential public services provided by local government and other sectors - should build on and review their generic business continuity arrangements to reflect the potentially large number of staff who might be absent during a pandemic and other key interdependencies. The overall aim is to maintain business as usual as far as practicable and at the very least to maintain core services and businesses activities for several weeks, particularly around the peak of UK epidemic when staff absences are likely to be at their highest.

Communications

The Telecommunications Industry Emergency Planning Forum (TI-EPF) is a tripartite meeting between industry, government and OfCom. The forum fosters the development and sharing of best practice within the sector and is taking forward preparations for a pandemic.

The sector is working towards maintaining a near normal service in the event of a pandemic. High levels of staff absence are likely to result in a gradual increase in the time taken to respond to customer calls and routine repairs but essential repairs will continue. The sector is considering the impact an

expected increase in home working is likely to have on service demand. An increase in applications for internet access, coupled with illness and absenteeism among telecommunications staff, may result in longer lead- and response times. Where individuals already have the facilities required for home working, these should continue to function as normal subject to the overall level of demand, which could fluctuate significantly because of shifting traffic patterns and the consequent impact on network capacity. Employers anticipating increased home working will need to have provided additional "ports" into their networks without which employees will find it difficult to log in, even though the network may not be congested.

There may be some disruption to postal services due to peak staff absences, although a wide range of postal operators should ensure that the market maintains priority delivery services. Any reduction to Royal Mail's services would be overseen in accordance with a list of Corporate Priorities agreed with the Regulator, focussing on those services involving high social responsibility (access to cash/benefits). Deliveries and collections would be maintained as far as possible with managed degradation.

Energy sector

The energy sector is planning to maintain supplies of gas and electricity at near normal service levels during a pandemic. Whilst routine maintenance is likely to be afforded lower priority if there are staffing shortfalls, essential repairs will continue to be carried out. Similarly, planning by fuel suppliers is aimed at maintaining near normal levels. In both there may be some service disruption if peak staff absences coincide with technical or weather-related supply difficulties leading to potentially longer periods of service loss than would be normally expected or possibly related to disruption to imports from main overseas suppliers.

The Executive regularly meets with the sector to discuss its preparations, exercise regime and any specific issues which have arisen. In November 2006, it arranged a sector workshop which involved both upstream and downstream companies and organisations to further improve understanding on the subject.

Financial sector

Pandemic planning in this sector is being led and coordinated by the Tripartite Authorities (HM Treasury, the Financial Services Authority (FSA) and the Bank of England) who share responsibility for maintaining financial stability in the UK. Planning – involving financial firms, infrastructure providers and overseas financial regulators - is advanced and has primarily focused on business continuity (i.e. maintaining core business activities while experiencing above-normal absenteeism levels) and provision of basic services, such as cash circulation, banking and payments systems.

In Scotland, the sector has created a group which regularly meets to discuss developments and progress. Towards the end of 2006, the Tripartite

Authorities completed a 6 week UK sector-wide exercise which tested arrangements.

Food sector

Major food retailers are factoring pandemic flu assumptions into their business continuity plans and testing and exercising arrangements. Joint planning for mutual assistance covers such aspects as staff pooling, mutual assistance to keep at least one store open in each area and the possibility of sharing transport resources. Overall the sector is working towards maintaining near-normal food retailing, although there may be some reduction in the choice of foods or short-term localised disruptions or closures of individual outlets due to staff availability.

The Executive hosts a stakeholder group which regularly meets with the sector to discuss its preparations and any specific issues which have arisen.

Transport sector

Transport operators aim to run as near normal services as possible during a pandemic and their plans provide for emergency timetables, redeploying staff and operating revised working (shift) patterns if required. Although the government is not planning to impose closure of transport hubs/facilities in the UK, all sectors may experience operational difficulties when the pandemic virus is circulating and staff absence levels are significantly higher than normal. The aviation sector may also experience difficulty if non UK airports or airlines have operational problems or stop operating.

Water sector

Scottish Water has identified the minimum staffing levels required to maintain essential water supply and sewerage operations and has factored in potential staff absences in a pandemic flu scenario. As many key operations are automated, Scottish Water is confident that it will have sufficient staff to sustain these essential operations during a flu pandemic. All UK water companies have generic contingency plans for continuity of essential water supplies and have worked with suppliers and contractors to check preparedness arrangements, particularly in critical areas such as chemical supplies for water treatment.

Emergency services

Business continuity planning is well developed in emergency services across Scotland and multi agency exercises have been conducted to test arrangements. Their general aim will be to maintain emergency provision at near normal levels and to support the wider response to a pandemic, although there are likely to be constraints caused by loss of key or retained staff. Some routine and non emergency functions could be affected by the need to redeploy and higher staff absence levels.

Judicial process

All of the agencies involved in the criminal justice system (Police, Crown Office and Procurator Fiscal Service, Scottish Courts Service, Judiciary, Scottish Prisons service) are working together through the Criminal Justice Liaison Group (CJLG) to develop plans for action during a flu pandemic. The overall aim is to minimise disruption to each element of the process although high levels of staff absences may lead to difficulties in maintaining normal activity.

Scottish Prisons

Prisoners in Scotland number over 7,000 at any one time, and 22,000 individuals over each year. They have high background levels of poor health, as do the families and communities from which they come. Many are held in overcrowded conditions. The net effects of these factors mean higher likely levels of infectivity - up to 90% attack rate over a pandemic; higher levels of complicating illness, stress and bereavement. Staff are the most important resource and the level of service within prison will be dependent on staff absence.

The Prison Service, in association with Justice Service partners, will take 3 key steps:

- Manage overcrowding and improve infection control;
- Continue to provide a public service in safety and health terms; and
- Maintain a health service to prisoners.

Specific measures include:

- aiming to create single occupancy cell accommodation for as much of the prison estate as possible;
- maintaining strategic stocks of vital supplies;
- securing vital services such as food, medicines and supplies, and utilities on a daily basis;
- allocating primary care resources to maintain an effective service; and
- ensuring that infection control is as effective as possible.

SPS will endeavour to secure entitlement to measures that protect health for prisoners, those who are patients, staff and visitors.

The Prison Service will maintain key links with:

- local Strategic Co-ordinating Groups, the Justice Services and Health Services;
- co-ordinate adjustments to the Justice system to reflect levels of illness amongst staff, and those who use the service; and
- enhance care in prison for those who have flu complications, and secure intensive treatment in NHS hospitals, for those who are most likely to benefit on an equal basis with other patients.

In as many respects as possible, measures to protect and care for prisoners' health will be proportionate and equivalent to other members of the population.

Financial Support

The Department for Work and Pensions (DWP) and HM Revenue and Customs (HMRC) provide and administer financial support to a range of customers, including children and their carers, people of working age, the disabled and their carers, and pensioners. DWP also supports customers in finding employment. During an influenza pandemic, DWP will aim to continue services that support people into work but give priority to maintaining financial support. Customer payments - which are largely automated - will continue to be paid. DWP and HMRC have robust business continuity plans in place to ensure that the administration and key services that support these payments can be maintained during a pandemic. Using existing legislation, a number of changes can be made to the way key services are delivered during a pandemic, to take account of priorities at that time. Suppliers that provide key services to DWP and HMRC, such as postal delivery or IT support, have their own business continuity plans in place to ensure these services can continue during an influenza pandemic.

Planning by Strategic Co-ordinating Groups (SCGs) and local authorities

SCGs and Local Authorities are focussing pandemic flu planning on the following main areas:

- business continuity
- preparing for the wider impacts of a pandemic in their areas
- social measures to reduce the risk to individuals of infection
- supporting the health and community care response
- reviewing capacity to handle excess deaths

Maintaining public order

Whilst the population usually responds in a calm and responsible way to any major disruptive challenge, an influenza pandemic is likely to cause public concern and anxiety, particularly if the virus causes high levels of illness and deaths and/or the communications strategy has limited success.

Under the worse case scenario, factors such as capacity pressures on health establishments, the need to prioritise medicines, the application of measures to control the spread of infection, possible shortages of basic necessities or short lived disruption to essential services could result in disturbances or threaten breakdowns in public order.

Preserving the rule of law, maintaining the democratic process and ensuring public safety will be important elements of Scotland's response. Engaging the

public in the development of policies, plans and choices, ensuring that expectations are realistic and that advice and information are readily available prior to and during a pandemic are key elements of planning and should assist in minimising the risk of civil disorder.

In the event of any civil disorder, the Scottish Executive would rely on existing legislation and normal enforcement measures as far as possible but may consider the need for additional powers should that become necessary.

Response plans should therefore, anticipate that operational or logistical assistance might be required to support health efforts to control the outbreak or treat patients or to respond to civil disorder. In this regard, it should be recognised that any request for police support is likely to be in a context of reduced police availability through illness and the need to service similar requests for policing support from other sectors.

10 COMMUNICATION AND PUBLIC ENGAGEMENT

10.1 Current perceptions and understandings

Preparing for, responding to and recovering from an influenza pandemic will depend significantly on co-operation between government, public authorities, business, non-governmental organisations, the voluntary sector and individuals. An effective two-way communication strategy that positively engages each of these key groups prior to and during a pandemic is therefore a major strand of the government's preparations and an emergency on this scale also needs national direction of public information from the outset. Timely advice and information will help prepare the population for the potential impact of a pandemic and will be critical to its subsequent management.

Research commissioned by the Department of Health suggested that the general level of awareness and understanding of influenza amongst health professionals and the public is very limited. Influenza itself is not generally regarded as a serious illness except by those within traditional 'at risk' groups and there is general confusion between antiviral medicines and vaccine, and their availability for treatment. 'Bird flu' is frequently confused with pandemic flu, making pandemic communications prone to misinterpretation and it is widely assumed that effective medical countermeasures will be available. Media information was perceived as sporadic, inconsistent and not associated with communications from government (even when government spokespeople are quoted).

10.2 Aims and objectives

The main aims of the UK government's communications and public engagement strategy are to:

- improve general awareness and understanding of influenza amongst the population and promote good hygiene and other general precautionary measures
- prepare the country for the probable emergence of a highly pathogenic influenza virus and what is being done to detect any such virus and prevent its spread
- achieve public support for national response and contingency measures
- explain the uncertainties and what can be done by government as a whole, the NHS, other organisations and individuals to reduce the impact of a pandemic and some of the constraints
- encourage discussion of pandemic response options, limitations and constraints in an inclusive and transparent way
- mobilise the population as partners at the response phase
- convey accurate, timely, consistent and credible advice and information to the public – including hard to reach groups - professions and business at the response and recovery stages
- provide advice for travellers and UK citizens overseas and foreign residents and visitors in the UK

- provide specific advice on response strategies and tactics as the actual characteristics and impact of an emerging virus are identified
- provide information on how assessment, healthcare and other support services should be accessed by symptomatic patients
- encourage the continuity of normal and essential activities as far as that is possible
- uphold the rule of law and democratic process
- promote individual and social responsibility
- address the needs of all groups.

During the Inter-pandemic Period, the main objectives are to provide accurate advice and information, encourage the adoption of high standards of personal hygiene and prepare the population for the emergence of an influenza pandemic and its potential impacts. During any period of increased alert and throughout the response phase, the objectives are to promote and reinforce individual and collective actions that reduce the spread of influenza and minimise its health and wider impact on the UK.

Key elements

The key elements of the government's communication and public engagement strategy are:

- encouraging prior public debate to explore the ethical, professional and practical implications of an influenza pandemic, condition public expectations and ensure that decisions are made in an inclusive and transparent way
- active media engagement to ensure that timely and accurate information and technical explanations are available to support informed reporting
- open access to various direct sources of accurate and current information such as telephone helplines and websites
- research and pre-testing to identify communication priorities and to ensure that messages are clear, effective and meet public needs
- multi-media public information campaigns delivered directly and/or through healthcare and service providers
- specialist advice and information for particular settings and sectors
- clinical information to support healthcare professionals in primary and secondary care
- rapid information sharing within and between all sectors.

10.3 Government News Co-ordination Centre and the Scottish Executive Emergency Room

The UK government's News Co-ordination Centre (NCC) is set up to manage the communications aspects of a crisis, major emergency or other disruptive challenge. In any period of increased alert and during a pandemic, the NCC will become operational in support of the Department of Health as the lead government department and will work to the policy direction of the Cabinet Office Briefing Room. A government media centre will also be established.

In Scotland, the Scottish Executive Emergency Room (SEER) will be established, and will coordinate information from UK and regional Scottish levels. This will include preparing briefings for Scottish Ministers, national situation reporting and acting as an information point for Scottish media inquiries.

Foreign nationals visiting or resident in the UK should maintain contact with their respective Embassies, which should have regular briefings, advice and information from relevant Government Departments.

10.4 Cascading Information

The Department of Health (DH) will inform the Cabinet Office, the Scottish Executive Health Department (SEHD), and Health Protection Agency should the World Health Organization declare a pandemic and provide updated threat assessments. The Cabinet Office will alert other government departments and work with DH to develop, update and circulate top line briefings via the News Co-ordination Centre. In Scotland, SEER will cascade information to NHS Boards and to other organisations via the eight regional Strategic Coordinating Groups. Communications of clinical information to Scotland's NHS Boards would be via CMO network.

10.5 Health communications

The communications plan for Scotland supports the UK Health Department's Influenza contingency plan and recognises that the Department of Health (England) has the overall UK lead and will be the primary source of health related messages and will work closely with all four Health Departments, the Cabinet Office, other government departments the HPA and HPS to deliver a nationally co-ordinated communications strategy.

Effective internal two-way communication will also be vital to an effective response in a pandemic and regional strategic Co-ordinating Groups will play a key part in linking to health services and will support and co-ordinate the activities of local NHS Boards in delivering locally tailored press notices, key fact sheets and identifying suitable spokespersons.

All mainstream information and campaign materials need to be accessible to the widest possible audience, including 'hard to reach' groups. Explanatory leaflets, a guide explaining pandemic flu and other informative material is already available on the Scottish Executive Avian & Pandemic Flu web pages (<http://www.scotland.gov.uk/Topics/Health/health/AvianInfluenza>) Information leaflets have been distributed to GP surgeries, pharmacists, and NHS 24 call centres and walk-in centres. Plans for a print and broadcast advertising campaign and a public information film have also been developed and will be held on standby. A national leaflet door drop will be activated at WHO phase 5.

Chief Medical Officers have an important professional leadership role in a pandemic. In conjunction with expert groups, professional bodies and health protection agencies, they will provide advice and information and may need to adapt initial guidance as the characteristics of the emerging influenza virus become more apparent or if capacity, pharmaceuticals or other supplies pressures make tactical changes necessary.

10.6 Telephone advice and access

A separate single number automated influenza action line is being planned in conjunction with the Department of Health (England) and the Central Office of Information (COI) for use in public information campaigns, to provide an information flyer ordering service and a daily situation update supplied by Cabinet Office or DH. Symptomatic callers will be automatically directed to the appropriate local health co-ordination centre for advice and assistance.

11 SUMMARY OF PHASE- BY- PHASE ACTIONS

The following tables summarise key actions in developing, maintaining and testing preparedness for Scotland's response to an influenza pandemic, working in a UK framework.

The inter-pandemic period phases 1 and 2

<p>Assessment of risk</p> <ul style="list-style-type: none"> ○ Seasonal influenza will be the major focus of attention ○ Although a new virus could first emerge in the UK this is unlikely – it is considered most likely to emerge in the Far East. This could happen at any time, but risk to the UK low. <p>Priorities:</p> <ul style="list-style-type: none"> ○ Improve knowledge, prevention and management of seasonal influenza, including vaccines and antiviral medicines ○ Maintain effective international surveillance (including animal/bird influenza surveillance) ○ Develop and maintain international and UK capability to identify a novel animal or human virus promptly ○ Develop and improve pandemic preparedness plans across all sectors ○ Maintain close liaison with animal health colleagues (especially Phase 2) ○ Maintain public engagement on seasonal influenza but start to prepare them for a possible pandemic ○ Take action to improve personal and respiratory hygiene 	
<p>Scottish Executive working in a UK Government framework</p>	<ul style="list-style-type: none"> ● Monitor international developments. ● Support multinational initiatives to address surveillance and prevention. ● Maintain and test international and national arrangements for collaboration, coordination and response.
<p>SEHD in collaboration with Department of Health</p>	<ul style="list-style-type: none"> ● Provide policy lead for management of seasonal influenza. ● Set policies, provide overall framework and monitor the development, testing and review of pandemic health plans. ● Maintain WHO/EU links and provide UK input at international level. Identify and support research/development priorities. (DH lead) ● Maintain liaison with vaccine manufacturers to optimise development and supply. (DH lead) ● Provide specialist advice and information. ● Liaise with SEERAD on animal/human health aspects and with FCO on travel advice.
<p>SEERAD in collaboration with Defra</p>	<ul style="list-style-type: none"> ● Maintain international developments and support multinational surveillance and prevention initiatives.(Defra lead) ● Maintain links with OIE (Defra lead) ● Implement relevant actions in response to avian influenza outbreaks in Scotland. ● Identify and support research and development priorities. ● Provide specialist advice. ● Link to SEHD and Defra.
<p>SE Departments</p>	<ul style="list-style-type: none"> ● Advise, encourage and test preparedness and business continuity planning across all sectors in Scotland.
<p>Health Protection</p>	<ul style="list-style-type: none"> ● Support SEHD. ● Support NHS Boards

Scotland	<ul style="list-style-type: none"> • Develop and maintain routine national influenza surveillance and reporting systems – including vaccine uptake in Scotland. • Maintain national arrangements for early detection and alert in Scotland • Liaise with HPA to provide Scottish data for overall UK picture as needed. • Contribute to WHO/EU surveillance activities (HPA Lead). • Support the development and testing of health response plans in Scotland.
NHS and Community Care	<ul style="list-style-type: none"> • Implement annual seasonal influenza vaccination programme • Respond to seasonal outbreaks/epidemics • Develop, maintain and test robust, resilient and integrated local response plans within national guidelines and in conjunction with partners. • Maintain virology services and laboratory arrangements and report results to HPS.

The Pandemic alert period (phases 3-5)

Phase 3

Assessment of risk

- The risk to the UK will vary widely according to circumstances, which will need to be taken into account during this phase
- A single, or even several sporadic, human case(s) of infection due to a novel virus (eg an avian influenza virus) outside the UK still represents a very small risk to the UK, especially if associated with an identified source (eg contact with sick poultry). Closer vigilance will be required if cases are associated with significant ongoing outbreaks of avian influenza in poultry, particularly if geographically close to the UK
- The risk of mutation or re-assortment to produce a virus more adapted to humans will need to be taken into account, but may be impossible to predict
- A single human case of influenza due to an avian or other novel virus within the UK requires full investigation, appropriate containment measures and a risk assessment

Priorities

- Maintain close liaison with international organisations such as WHO and OIE
- Assist with identification of the virus and its characteristics (NIMR)
- Assess pandemic preparedness and identify and implement actions needed to fill gaps/weaknesses
- Take action to improve personal and respiratory hygiene
- Develop communications strategy and prepare materials for all future phases

Main capabilities required

- Diagnostic capability for the new virus
- To recognise illness potentially due to a new strain in people in the UK, confirm it virologically and investigate the possible source

<p>Scottish Executive working in a UK Government framework</p>	<ul style="list-style-type: none"> • Monitor and review pandemic risk assessment. • Convene SECC(Flu) to address policy/preparedness issues in Scotland. • Review/test communication links and preparedness /coordination arrangements. • Brief and convene Ministerial level committee (MGCC) if required.
<p>SEHD in collaboration with Department of Health</p>	<ul style="list-style-type: none"> • Inform SEJD and NHS Scotland of change of phase and UK significance. • Liaise with SEERAD and relevant SE Departments over wider implications. Issue information/advice to travellers, public and health professionals in Scotland. • Provide information/briefings. • With DfID, HPA and HPS, consider need and options for Scotland to support WHO/international response. • Review options and development plans for a potential pandemic (or pre-pandemic) vaccine with NIBSC and manufacturers. (DH lead) • Refine intervention strategies for Phases 4, 5 and 6. Review pharmaceutical and other supply needs in Scotland. • Review operational guidance for NHSScotland, community services and others. • Begin to prepare the public for the possibility of an influenza pandemic. • Prepare information materials for future phases. • Launch online communications

	<ul style="list-style-type: none"> • Review preparedness plans for future phases. • If within Scotland, confirm with HPS, HPA , DH and report to WHO and EU (via EWRS)
SE Departments	<ul style="list-style-type: none"> • Work with key stakeholders to review pandemic preparedness. • FCO : issue information/advice to travellers/UK nationals abroad in consultation with DH and SEHD. • DfID: consider need for assistance abroad.
Health Protection Scotland	<ul style="list-style-type: none"> • Monitor international situation and advise SEHD on Scottish health risk. • Liaise with virology labs providing serological investigations as required • Provide guidance on management of suspected UK cases and contacts, support NHS response, maintain database and review/revise/test pandemic plans.
NHS and Community Care	<ul style="list-style-type: none"> • Ensure arrangements in place to identify, investigate, report and manage any suspected case of infection with a novel virus. • Review/revise/test pandemic plans. • Maintain diagnostic capability and provide serological investigations as required.
Phase 4	
<p>Assessment of risk</p> <ul style="list-style-type: none"> ○ Small clusters in people outside the UK are still likely to present only a small risk to the UK; the risk increases if there are many cases, there is no identifiable epidemiological link between clusters, there are strong travel links to the UK or cases are in a geographically close country. ○ Risk of further cases increases if they are associated with widespread, ongoing avian outbreaks, especially if control measures late or inadequate ○ The longer such outbreaks continue, the greater the concern <p>Priorities</p> <ul style="list-style-type: none"> ○ Assist with identification of the virus and its characteristics ○ Assist international investigation ○ If associated with avian/animal influenza, close liaison with animal health colleagues ○ Review pandemic plans, including business continuity arrangements ○ Review effectiveness of antiviral medicines ○ Assess potential candidate vaccine strains <p>Main capabilities required</p> <ul style="list-style-type: none"> ○ If in the UK: ability to identify epidemiologically linked human cases of influenza which might indicate person-to-person spread 	
Scottish Executive working in a UK Government framework	<ul style="list-style-type: none"> • Review risk assessment, informed by Health Departments. • Continue to review and refine policies and pandemic management arrangements at official and Ministerial levels, including business continuity plans.
SEHD in collaboration with Department of	<ul style="list-style-type: none"> • Notify SEJD and NHS Scotland of change in Phases. • Advise on Scottish public health risk and ensure rapid reassessment if circumstances change. • Liaise with SEERAD over implications for farming/poultry

Health	<p>industry.</p> <ul style="list-style-type: none"> • Provide information /advice to Scottish travellers and residents abroad in conjunction with FCO. • Advise health professionals on identification, management and reporting of any UK case. • Update and distribute public information more widely. • Review plans for storage, distribution and access to antiviral medicines in Scotland. • Liaise with NIBSC and vaccine manufacturers. (DH lead) • Ensure NHS operational plans are in place. Review patient management protocols. Reports to WHO and the EU.
SE Departments	<ul style="list-style-type: none"> • Work with key stakeholders to support preparedness planning in Scotland. • FCO: issue information/advice to travellers/UK nationals abroad, in consultation with DH and SEHD. • DfID: consider need for assistance abroad
Health Protection Scotland	<ul style="list-style-type: none"> • Closely monitor international situation – including emerging epidemiological and treatment outcome data and advise SEHD on risk to UK public health. • Produce update reports as agreed with SEHD. • Liaise with SEHD over advice to travellers and link with HPA and SE press offices. • Liaise with NHS laboratories • Heighten surveillance for imported cases/clusters of infection, particularly in communities with travel contact with sites of confirmed infection clusters. • Amend algorithms for managing suspected/confirmed cases, including for use at ports. • Support local NHS investigation and management of incidents/clusters. • Work with WHO to enhance surveillance, fully investigate, develop case definitions and consider seroprevalence studies if origin in the UK.
NHS and Community Care	<ul style="list-style-type: none"> • Ensure arrangements in place to identify, investigate and manage cases/clusters following HPS guidance • Refine pandemic response plans. • Continue to test plans for phases 5 and 6, in conjunction with local stakeholders. • Maintain diagnostic capability and capacity for new strain, including antiviral susceptibility testing. • Fully characterise any viruses from Scottish cases and maintain database.
<p>Phase 5</p> <p>Assessment of risk</p> <ul style="list-style-type: none"> ○ Risk to UK significantly increased: plans must assume progression to Phase 6. If not, arrangements can be stood down/ maintained as precaution <p>Priorities</p> <ul style="list-style-type: none"> ○ Put all pandemic preparedness and operational response arrangements on standby for implementation ○ Vaccine development ○ Review of antiviral supply ○ International coordination of actions 	

Main capabilities required	
<ul style="list-style-type: none"> ○ To monitor clinical and virological spread, using emerging data to reassess planning assumptions (acknowledging that virus is still not a pandemic virus and may further evolve) 	
Scottish Executive working in a UK Government framework	<ul style="list-style-type: none"> • Review risk assessment for Scotland and put in place cross-Government emergency management structures and procedures, with DH as lead Department, including cross-Government communications strategy and co-ordination.
SEHD in collaboration with Department of Health	<ul style="list-style-type: none"> • Notify change in Phase and implications for the Scotland. • Assess and advise on public health risk. • Initiate arrangements for regular close liaison with HPS. • Finalise health coordination and communications structure. • Activate Health Department Emergency Operations rooms. • Set up daily situation reporting to Cabinet Office. • Alert NIPC and convene as necessary (by most efficient means) to review available information and advise on the response. • Alert Scientific Advisory Group and convene as necessary to review and advise on emerging evidence. • Review vaccine availability and supply. Implement plans for any pre-pandemic vaccination. • With FCO issue information/advice for UK travellers and residents abroad. Issue information and advice to the health service, including any updates to operational plans. • Activate automated helpline. • Implement public communications strategy, including regular media briefings and a national pandemic leaflet door drop. • Finalise research proposals for implementation during a pandemic.
SE Departments	<ul style="list-style-type: none"> • Activate business continuity plans, work with key stakeholders to support their response and maintain critical national infrastructure • FCO: in consultation with DH and SEHD, issue information/advice to travellers/UK nationals abroad, including arrangements for UK residents abroad. • DfID: consider need for assistance abroad.
Health Protection Scotland	<ul style="list-style-type: none"> • Monitor international situation, using emerging epidemiological and other information to review pandemic models. • Collaborate with international organisations to assess the epidemiology of the disease and efficiency of transmission. • Ensure communications are integrated nationally with Health Departments and locally with NHS and other partners. • Increase awareness to enhance case detection and identification of entry of the virus into the UK at the earliest possible time. • Establish routine for collecting, collating and analysing data and reporting to central Government. • Provide interpretation of surveillance data to avoid spurious reporting of outbreaks. • Provide scientific and professional public health advice to Health Departments.

	<ul style="list-style-type: none"> • Maintain heightened surveillance and database of UK cases. • Maintain diagnostic and management algorithms and advise on management of suspected cases. • Support local investigation and management of cases/ outbreaks. • Support NHS in implementing any vaccination programme. • Establish plan to send appropriate specimens for antiviral susceptibility to HPA CfI
NHS and Community Care	<ul style="list-style-type: none"> • Ensure plans in place to identify, investigate, manage and report suspect cases in the UK, according to Health Protection Agencies protocols and pandemic operational plans 'ready to go'. • Prepare to implement a national or targeted vaccination programme, if instructed by Health Departments. • Review diagnostic capability and capacity for new virus, and roll out diagnostic tests/reagents as required. • Develop plan to implement serological tests for assessment of susceptibility and immunity to new virus, when supplied with these by HPA CfI.
Phase 6 and UK alert levels 1-4	
<p>Assessment of risk</p> <ul style="list-style-type: none"> ○ UK Alert level 1 may last as little as 2 weeks from declaration of the onset of the pandemic ○ From onset of Alert level 2, it may take 2-4 weeks for the virus to become widely established and 7-9 weeks for activity to reach a peak ○ Once Alert level 3 has been reached, there will be intense pressure on health and all other services locally for at least 6-8 weeks ○ A specific pandemic influenza vaccine is unlikely to be available during the first wave <p>Priorities</p> <ul style="list-style-type: none"> ○ Reduce the impact of a pandemic in the UK ○ At alert level 2, surveillance and containment of cases ○ At alert levels 3 and 4, the full strategic response: <ul style="list-style-type: none"> - use public health measures to reduce transmission/cases - provide treatment and care - maintain health and other essential services - reduce social disruption - provide up to date information and advice to maintain public confidence and morale - monitor impact on organisations and services against expectations and modify if necessary ○ Vaccine development - implementation of immunisation strategy when vaccine available <p>Main capabilities required</p> <ul style="list-style-type: none"> ○ Surveillance adapted to inform treatment and planning ○ Interventions to reduce the impact ○ Health and community care capacity to treat and care for patients ○ Civil emergency response capability ○ Effective communications strategy 	
UK alert level 1 (actions in addition to phase 5 above)	
Scottish	<ul style="list-style-type: none"> • Continue cross-Government management.

Executive working in a UK Government framework	<ul style="list-style-type: none"> • Activate Government News Co-ordination Centre to ensure co-ordinated media handling/response
SEHD in collaboration with Department of Health	<ul style="list-style-type: none"> • Confirm declaration of pandemic and advise on implications for Scotland • Provide public health advice. • Complete organisational arrangements for day-to-day coordination of health response, including re-deployment of staff. • Maintain daily 'battle rhythm' for reporting between HPS, SEHD, DH and COBR and provision of press briefings. • Establish public telephone help-lines. • Activate full public information campaign to prepare public for arrival of pandemic. • Prepare NHS for management of initial cases and for imminent need to move to essential care only. • With HPA/NHS/Academia, prepare to implement prepared pandemic research protocols. (DH lead)
SE Departments	<ul style="list-style-type: none"> • Inform stakeholders to implement pandemic plans.
Health Protection Scotland	<ul style="list-style-type: none"> • Finalise algorithms for management and reporting of initial Scottish • Establish official level daily teleconferences with relevant NHS board, Health Protection staff and Scottish Executive health protection staff. • Enhance surveillance in groups likely to be exposed to infection. • Prepare to implement research protocols (see above).
NHS and Community Care	<ul style="list-style-type: none"> • Ensure arrangements in place for identification, investigation, management and reporting of first UK cases. • Prepare for imminent implementation of pandemic plans, and move to essential care only. • Communicate on issues of local service provision and treatment
<ul style="list-style-type: none"> • UK alert level 2 	
Scottish Executive working in a UK Government framework	<ul style="list-style-type: none"> • Fully activate government arrangements for managing and coordinating national response.
SEHD in collaboration with Department of Health	<ul style="list-style-type: none"> • Update information to health professionals. • Instruct NHS to move to essential care only and to activate pandemic plans. • Monitor/support implementation. • Provide press briefings, and adapt public communications in response to new information and people's concerns.

SE Departments	<ul style="list-style-type: none"> • Monitor activation of response and business continuity plans. Initiate monitoring/reporting arrangements.
Health Protection Scotland	<ul style="list-style-type: none"> • Notify CMO of suspected/confirmed cases and agree change in UK alert level. • Ensure first 100-200 cases reported and entered in avian influenza database, including outcome of treatment. • Liaise with HPA CfI regarding their production of detailed antigenic and genetic characterisation of all novel Scottish influenza viruses and compare them with those from across UK and other countries. • Produce daily international and UK situation reports to Health Departments, to fit with battle rhythm. • Use emerging epidemiological and other data to refine modelling projections and inform policy.
NHS and Community Care	<ul style="list-style-type: none"> • Manage initial cases and contacts as advised. • Cooperate with HPS to investigate, report and treat the first 100-200 cases. • Liaise with SEHD over public communications about suspected/confirmed cases. • Activate pandemic preparedness plans and prepare to restrict hospital admissions to meet the expected increased demand for hospital beds • Support CHP's co-ordination of antiviral distribution arrangements. Monitor research projects.
UK alert levels 3 and 4	
Scottish Executive working in UK Government framework	<ul style="list-style-type: none"> • Manage and coordinate cross government response. • Develop national response strategy. • Assess impact on services, critical infrastructure etc. • Consider whether and if to invoke emergency powers.
SEHD in collaboration with Department of Health	<ul style="list-style-type: none"> • Notify escalating UK Alert level and implications. Lead cross government response. • Coordinate NHS response. • Maintain daily assessments of spread, and impact on health and health services. • Review planning assumptions in light of emerging information. • Review response policies in the light of changing assumptions. • Review clinical management guidelines in light of emerging information. • Monitor antiviral and other pharmaceutical usage and address logistical/supply problems. • Monitor adverse reactions to antivirals (MHRA). • Review antiviral policies in light of usage and supply. • Provide regular media briefings. • Continue public information campaign, using all media. Continue to monitor vaccine development/supply/policy options. • Monitor research.

Scottish Executive Departments	<ul style="list-style-type: none"> • Monitor maintenance of critical supplies/services and impacts on national infrastructure
Health Protection Scotland	<ul style="list-style-type: none"> • Change surveillance to reporting of aggregate data to agreed protocols. • Assess efficacy of interventions. • Monitor effectiveness of antivirals. • Collate information on bacteria causing complications (community and hospital) If appropriate, monitor vaccine uptake
NHS and Community Care	<ul style="list-style-type: none"> • Adapt response according to capacity. • Maintain local public information on health access, local policies (eg school closures) • Report to Health Department on preparedness and prepare daily situation reports on the NHS in its area.

End of First Pandemic Wave

<p>Assessment of risk</p> <ul style="list-style-type: none"> • This phase is assumed to refer to the end of the first pandemic wave in the UK • Pandemic virus may still be circulating both in the UK and internationally • A further wave may occur weeks or months later <p>Priorities</p> <ul style="list-style-type: none"> • Prepare systems and services for any next wave(s) • Review all aspects of the response and regroup in light of the first wave experience • Continue surveillance • Review vaccination options <p>Main capabilities required</p> <ul style="list-style-type: none"> • Ability to pick up re-emergence (clinical illness and laboratory confirmation) • Ability to respond to a second or subsequent wave 	
<p>Actions</p>	
Scottish Executive working in a UK Government framework	<ul style="list-style-type: none"> • Monitor international developments. • Develop and implement recovery plans.
SEHD in collaboration with Department of Health	<ul style="list-style-type: none"> • Prepare report. • Continue to monitor Scottish situation. • Develop recovery plans, for Health Departments and NHS. • Review policies for second wave – or subsequent seasonal influenza - due to the pandemic strain – in light of experience and resources. • Review antiviral/other pharmaceutical needs/supplies. • Review vaccine suitability/supply/options.
SE Departments	<ul style="list-style-type: none"> • Develop and monitor recovery plans, and prepare for possible subsequent waves.
Health Protection Scotland	<ul style="list-style-type: none"> • Continue heightened surveillance. • Monitor virus for significant antigenic variations. • Monitor antiviral susceptibility.

	<ul style="list-style-type: none"> • Assess attack rate during the pandemic and current population susceptibility. • Continue to assess efficacy of interventions during the pandemic.
NHS and Community Care	<ul style="list-style-type: none"> • Develop and implement recovery programme, assuming that further waves – or bad seasonal influenza – possible. • Prepare to implement vaccination strategies on instruction from Health Departments.

Second or Later Waves

Assessment of risk

- Pandemic virus may still be circulating internationally
- UK alert levels 1-4 may be relevant
- Pandemic virus may have evolved
- Impact may be less or even greater than first phase
- Response may be affected by level of recovery achieved following first wave

Priorities

- Maintaining vigilance
- Monitoring and early detection of any second wave in the UK
- Providing an effective response

Post Pandemic – The Recovery Period

Assessment of risk

- This or a similar virus likely to remain in circulation
- It may take months or even several years for some national services to recover to normality
- Many people are likely to suffer on-going health problems
- Backlog demand for health care is likely
- Long term effects associated with virus may be possible
- Personnel, plant and supplies likely to be exhausted

Priorities

- Implementation of measures aimed at a prioritised, gradual and sustainable return towards normality
- Managing public and other expectations accordingly
- Provision for continuing care and treatment backlog requirements
- Staff support, re-supply, refurbishment/backlog maintenance
- Analysis of response
- Assessment, evaluation and revision of contingency arrangements in light of lessons learnt.

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LIST OF ABBREVIATIONS AND TERMS USED

ABBREVIATIONS

ACDP	Advisory Committee on Dangerous Pathogens
A/H5 N1	A highly pathogenic avian influenza virus
BIS	British Infection Society
BTS	British Thoracic Society
CCA	Civil Contingencies Act 2004
CCC	Civil Contingencies Committee
CCO	Civil Contingencies Committee Officials
CPHM	Consultant in Public Health Medicine
CCS	Civil Contingencies Secretariat
Cfi	HPA Centre for Infections
CMO	Chief Medical Officer(s)
COBR	Cabinet Office Briefing Room
COI	Central Office of Information
COSHH 2002	Control of Substances Hazardous to Health (Regulations) 2002
DAs	Devolved Administration(s)
DCLG	Department for Communities and Local Government
Defra	Department of Environment, Food and Rural Affairs
DfES	Department for Education and Skills
DFID	Department for International Development
DPH	Director of Public Health
EC	European Commission
ECDC	European Centre for Disease Prevention and Control
EISS	European Influenza Surveillance Scheme
EMEA	European Agency for Evaluation of Medicinal Products
EU	European Union
EWRS	Early Warning and Response System (of European network)
FAO	United Nations Food and Agriculture Organisation
FCO	Foreign and Commonwealth Office
FDA	Food and Drug Administration (US)
FFP	International normative standard for respirators
FSA	Financial Services Authority
GDP	Gross Domestic Product
GHSAG	Global Health Security Action Group
GP	General Medical Practitioner
HB	Local Health Board
HDU	High Dependency Unit in acute hospitals
HPA	Health Protection Agency
HPAI	High Pathogenic Avian Influenza
HPS	Health Protection Scotland
HSE	Health and Safety Executive
ICT	Infection Control Team
ICU	Intensive Care Unit
IHRs	International Health Regulations (2005)
ITU	Intensive Therapy Unit

LA	Local Authority
LGD	Local Government Departments
LPAI	Low Pathogenic Avian Influenza
LRF (s)	Local Resilience Forum(s)
MISC	Ministerial Committee
MRC	Medical Research Council
MS	Member States
NCC	Government News Co-ordination Centre
NCL	National Collaborating Laboratories
NEPNI	National Expert Panel on New and Emerging Infections
NHS	National Health Service
NHS Direct	
NHS Direct Wales	National Health Service telephone helplines
NHS 24 (Scotland)	
NIBSC	National Institute for Biological Standards and Control
NIMR	National Institute for Medical Research
NIRL	National Influenza Reference Laboratory
OGDs	Other Government Departments
OIE	World Organisation for Animal Health
PPE	Personal Protective Equipment
Ro	Basic Reproduction Number
SAG	Scientific Advisory Group
SARS	Severe Acute Respiratory Syndrome
SE	Scottish Executive
SEERAD	Scottish Executive Environment & Rural Affairs Department
SEHD	Scottish Executive Health Department
SEJD	Scottish Executive Justice Department
SITREP	Situation Report
UK	United Kingdom
UKNIPC	United Kingdom National Influenza Pandemic Committee
US	United States of America
VLA	Veterinary Laboratories Agency
WHO	World Health Organisation

DEFINITION OF TERMS

Antiviral medicine	Type of medicine used to treat influenza
Attack rate	Cumulative incidence rate of people infected observed for limited periods under special circumstances, such as during an epidemic
Asymptomatic	Infected but no symptoms
Case fatality rate	Proportion of individuals contracting a disease who die from it
Clinical attack rate	The cumulative incidence rate of people showing symptoms
Containment	Measures to limit the spread of infection and restrict an outbreak to the affected area(s)
Countermeasures	Measures to counter the effect of the illness/infection
Epidemic	A disease attacking or affecting many individuals in a community or a population simultaneously
Epidemiology	The study of the patterns, causes and control of disease in groups of people
Epidemiological Models	Consideration of how the disease will spread and the effectiveness of countermeasures
Exit/entry Screening	Surveillance to detect individuals who develop signs of illness (influenza) whilst exiting or entering the country
Hand hygiene	Hand washing with soap and water to remove dirt and germs or use of alcohol based products containing an emollient that do not require the use of water
Infectivity	The potential for a given micro-organism to cause an infection i.e. the ability of the organism to enter, survive and multiply in people/ the proportion of exposures to infection that result in disease
Isolation	Separation of individuals infected with a communicable disease from those who are not in order to prevent further spread
Modelling(risk)	Mapping out a range of possible risks to suggest which responses are robust over the range of uncertainty

'Operational' models	The mechanics of how countermeasures can be implemented
Outbreak	Sudden appearance, or increase, of a disease in a specific geographic area or population. An epidemic limited to localised increase in the incidence of disease, e.g. in a village, town, or closed institution; a cluster of cases of an infectious disease
Pandemic	A worldwide epidemic when a new or novel strain of influenza virus emerges to which people have little or no immunity, which develops the ability to infect and be passed between humans
Pathogenic	The ability to cause disease
Prophylaxis	Prevention of disease or of a process that can lead to disease. With respect to pandemic influenza this specifically refers to the administration of antiviral or other medicines or vaccines to healthy individuals to prevent influenza
Quarantine	Separation of those who have been exposed to a communicable infection but are not yet ill from others who have not been exposed to the infection in order to prevent further spread
Re-assortment	The fragmentation and reassembly of the genetic material of two similar viruses infecting the same cell to produce a new virus strain
Respirator	A face mask incorporating a filter. In this document it implies a particulate respirator, usually of a disposable type and often used in hospital to protect against inhaling infectious agents. Particulate respirators are 'air-purifying respirators' because they clean particles out of the air as one breathes
Segregation	Separation from others (in this case influenza cases from non influenza cases)
Social distancing	Infection control strategies that reduce the duration and/or the intimacy of social contacts and thereby limit the transmission of influenza
Surge capacity	The ability to expand provision beyond normal capacity to meet transient increases in demand, e.g. to provide care or services above usual capacity, or to

	expand manufacturing capacity to meet increased demand
Surgical mask	Disposable face masks that provide a physical barrier but no filtration
Surveillance	Close and continuous observation or testing. Monitoring health and disease in a population by collecting and using health data
Symptomatic	Showing symptoms/indications of disease or illness
Transmission	Process of the spread of a disease through a population.
Treatment course	A course of medicines prescribed as treatment (not prophylaxis) for a person infected
Viraemia	Refers to the existence of viruses or viral particles in the bloodstream
Virulence	The ability of a micro-organism to cause disease
Wave	The period during which an outbreak or epidemic occurs either within a community or aggregated across a larger geographical area. The disease wave includes the time during which the disease occurrence increase rapidly, peaks, and declines back towards baseline.