

PANDEMIC FLU



A Scottish framework for
responding to an influenza pandemic

October 2007

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FOREWORD

The possibility of a worldwide influenza pandemic presents us with unique and difficult challenges if we are to save lives and keep our society running. Planning and preparing now is vital to lessen the impact.

We will all 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.

The Scottish Government has been working very hard to meet these challenges both across Scotland and as part of the wider UK planning. To assist and support organisations in their planning, this document sets out the Scottish Government'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.

A draft version of this document was issued for comment in March 2007 and we would like to thank all those who responded. The comments were considered carefully as part of the revision process.

We recognise the uncertainties associated with pandemic influenza are a considerable challenge to planners and require response arrangements to be flexible. We will continue to develop our understanding of the threat and will review and update the framework as further information becomes available.



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1 INTRODUCTION

Influenza pandemics are natural phenomena which have occurred three times in the last century. Their severity has ranged from something similar to seasonal influenza to a major threat, with many millions of people worldwide becoming ill and a proportion of these dying. No country can expect to escape the impact of a pandemic entirely, and when it arrives most people are likely to be exposed to an increased risk of catching the virus at some point. 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 framework sets out the Scottish Government's approach.

1.1 Why do we need a framework?

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

- developments in scientific advice;
- developments in our national and local planning;
- developments in our communications plans;
- experience gained from UK and Scottish wide pandemic influenza 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 framework is primarily about saving lives and reducing the impact on individuals, communities and our society that a pandemic will have. It 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 framework 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 framework for?

This framework is intended primarily for those responsible for developing policies and strategies or coordinating, managing, maintaining or testing contingency arrangements for responding to an influenza pandemic. 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 framework 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, planning has been developed on a cross-government basis 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, communications, ethics and scientific advice. We all recognise very clearly that, since an influenza 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 framework, our planning assumptions are based on 3 attack rates: 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.

1.3.1 Key Changes

Since the publication of the 2005 contingency plan, there have been a number of UK policy developments which are reflected in this revised Scottish Framework.

The estimates given for GP consultations and hospitalisations have increased from the 2005 plan. 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.

The requirement for all symptomatic children under the age of seven to be assessed by a GP has changed. A GP assessment is now only required for children under the age of three.

1.4 The Scottish Framework

A draft version of the Scottish Framework was issued for comment in March 2007. This version has been revised in response to comments received during that time and in line with policy changes which have been agreed at a UK level.

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. It sets out

the conclusions of some of the national planning work which is taking place across all sectors.

The majority of emergency preparedness work in Scotland is conducted at a local level, and carried forward by Strategic Co-ordinating Groups which comprise key local responders in each of Scotland's eight police force areas. There is also a range of work underway at a national level to support these local planning arrangements. This includes work within key areas such as energy & utilities, transport, telecommunications, education and community care sectors.

The health and community care response is central to this planning work and within health and community care services, the framework sets out the range of planning activities which the Scottish Government is taking forward in partnership with the NHS and others. Those planning activities are based on a programme of work led by the Scottish Government Health Directorates which seeks to provide assurance of our preparedness in two key areas – within the Health Directorates themselves and also within health and community care services. Additionally, good communications are required to promote confidence in government and NHS Scotland both during preparations for and during an outbreak so the framework also seeks to ensure that our communication arrangements promote stakeholder and public confidence.

This is achieved through national work on certain key policy areas such as the national influenza line and public communications and by providing specific guidance to support local planning where appropriate. Current workstreams include service and patient prioritisation, healthcare in a community setting, human resources and vaccination. Whilst the conclusions of some of these areas of work are reflected in the framework, others are ongoing and more information will be available in due course.

Further details about the Scottish Government's pandemic influenza planning activities can be found at:

www.scotland.gov.uk/pandemicflu

2 STRATEGIC APPROACH

2.1 Aim

This framework sets out the strategic approach of the Scottish Government 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 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.

2.1.1 Scope

This framework relates specifically to preparations for dealing with an influenza pandemic. It does not deal with avian influenza. Section 3.3, which looks at the background to pandemic influenza, explains the links between the two.

2.2 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.

In planning and preparing for an influenza pandemic, 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
- support international efforts to prevent and detect its emergence and prevent, slow or limit its spread

- minimise the potential health, social and economic impact
- 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 the possibility of significant numbers of additional deaths
- support the continuity of essential services and protect critical national infrastructure as far as possible
- support the continuation of everyday activities as far as practicable
- 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

Achieving these strategic objectives will require the development, maintenance, testing and, when necessary, implementation of operational response arrangements.

For those planning their operational response to a pandemic, your aims should be to have response arrangements that are:

- able to respond promptly to any changes in alert levels
- developed on an integrated basis, combining local flexibility with national consistency and equity
- capable of implementation in a flexible, phased and proportionate way based on the best available scientific evidence
- based on existing services, systems and processes wherever possible, augmenting and complementing them as necessary to meet the unique challenges of a pandemic
- understood by and acceptable to service providers and the general public
- adaptable to the threats, to the extent that this is practicable, without compromising their effectiveness for pandemic influenza
- implemented in advance of a pandemic, if this action has significant potential to mitigate the effects of a pandemic and, where possible, other threats or hazards
- designed to promote the earliest possible return to normality

Although the intention will be to maintain normal services for as long as, and as far as, that is possible, the unique nature of the challenges presented by a pandemic and their likely duration will inevitably require the curtailment of some services and activities to limit the spread of infection, allow the diversion of resources or protect those who are particularly vulnerable.

Minimising the impact and securing the gradual resumption of services at the earliest possible opportunity are key planning aims. However, it is recognised that the impact on the provision of healthcare in particular is likely to last well beyond the pandemic itself.

2.3 Scientific advice to underpin policy and operational plans

2.3.1 Scientific Advisory Group

To ensure that the best scientific advice is fed into policy and the development of operational plans the Department of Health (DH), the Scottish Government Health Directorates and other UK Health Departments are advised by the Pandemic Influenza Scientific Advisory Group (SAG). The SAG meeting minutes 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 is essential.

2.3.2 UK National Influenza Pandemic Committee

The Chief Medical Officers of all 4 UK Health Departments/Directorates 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 SAG and other UK expert advisory committees, such as the Advisory Committee on Dangerous Pathogens, National Expert Panel on New and Emerging Infections and Joint Committee on Vaccination and Immunisation, also inform and support the work of UKNIPC.

2.4 Legal framework

2.4.1 International

WHO adopted new International Health Regulations (IHRs) in 2005. These place a duty on states that are parties to the IHRs to notify WHO of any event – irrespective of cause – occurring in their territory that may constitute a public health emergency of international concern. Annex 2 of the IHRs is designed to assist states in deciding whether to notify WHO of an event and makes clear

that any case of 'human influenza caused by a new subtype' must be notified. The IHRs also set out core requirements for surveillance and response.

The IHRs came into force on 15 June 2007 and the World Health Assembly passed a resolution in May 2006 urging states to implement those provisions deemed relevant to pandemic influenza early. 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 WHO's alert and response activities.

Article 4 of Decision 2119/98/EC of the European Parliament requires member states to inform the European 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.

2.4.2 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 generally rest with the Local Authority, on advice from the local NHS Board's designated medical officer.

Key provisions include:

- powers to seek orders from a sheriff requiring a person to be medically examined or 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
- powers available at ports to require actions to be taken by, and impose obligations on masters, pilots and other persons on board vessels and aircraft on arrival to Scotland in order 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.

2.5 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. These will impact on the freedom, health and, in some cases, survival prospects 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 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 proportionate and fair.

The UK Committee on Ethical Aspects of Pandemic Influenza was set up to advise on the ethical issues in health and community care and in public health arising from an influenza pandemic, and has developed an ethical framework to inform the development and implementation of health and community 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 Scottish Government website:

www.scotland.gov.uk/pandemicflu

3 BACKGROUND TO PANDEMIC INFLUENZA

3.1 Seasonal influenza

Influenza is an acute infectious viral illness that spreads rapidly from person to person when in close contact. It is characterised by the sudden onset of fever, chills, headache, muscle pain, severe prostration and usually cough – with or without a sore throat – or other respiratory symptoms. The acute symptoms generally last for about a week, although full recovery may take longer. In most years, seasonal influenza occurs in the UK predominantly during a six- to eight-week period in winter and affects some 5% to 15% of the population.

There are three broad types of influenza virus – A, B and C. Influenza A viruses cause most winter epidemics (and pandemics) and can affect a wide range of animal species as well as humans. They have a remarkable ability to adapt and change – which is what keeps them in circulation – and the resulting viruses can have widely differing impacts. Influenza B viruses only infect people. They circulate most winters but generally cause less severe illness and smaller outbreaks, particularly amongst children. Influenza C viruses are amongst the many causes of the common cold.

About half of those who become infected have no symptoms and are therefore not even aware of the infection. For the majority of the other half, 'seasonal' influenza is an unpleasant but self-limiting and not life-endangering illness. However, in some it may be more severe, or complicated by secondary bacterial infections such as bronchitis or pneumonia. The very young, elderly people and those with underlying diseases such as heart or chest disease are particularly at risk of serious illness. Without interventions, those in high-risk groups can suffer significant ill health, and a small percentage of those affected die. In Scotland, there are around 2,000 "excess winter deaths" each year. There is a clear link between "excess winter deaths" and the level of influenza activity¹. The cornerstone of reducing the impact of seasonal influenza is selective annual vaccination, with an appropriately formulated vaccine, of those groups most at risk of serious illness, complications and death.

More information on seasonal influenza is available from the Department of Health's immunisation information website at: www.immunisation.nhs.uk

3.2 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. This is through two routes, *direct* and *indirect*:

¹ Excess Winter Deaths, 2006, General Register Office for Scotland, www.gro-scotland.gov.uk/statistics/publications-and-data/excess-winter-deaths/index.html

- **Direct:** via droplets expelled from infected individuals (during talking, sneezing and coughing), which land on the mucous membranes where they enter the body and cause disease.
- **Indirect:** via hands touching contaminated surfaces or equipment and then touching the nose, mouth or eyes.

Experimental studies suggest that influenza viruses may survive for some time on various surfaces, surviving longer on hard non-porous surfaces than on soft porous materials. Studies have also shown that careful hand hygiene, commercially available alcohol-based hand disinfectant (i.e. alcohol hand gel) and domestic cleaning products can easily deactivate the virus.

The incubation period (the time from exposure to first symptoms) is in a range of one to four days, typically two to three. Without intervention – or significant immunity in the population – historical evidence suggests that one person infects about two others on average and that influenza spreads particularly rapidly in closed communities such as schools or residential homes. People are most infectious soon after they develop symptoms, though they can continue to shed virus for usually up to five days after the onset of symptoms (seven days in children).

It is sometimes stated that patients are infectious shortly before they develop symptoms; however, the evidence for this is limited. Spread from a person before they develop symptoms has rarely been recorded, though experimental studies have shown that some people start shedding low doses of virus in the 24 hours before symptoms occur. Some people can be infected without showing symptoms and, as they may shed the virus, be able to pass on the infection.

3.3 An influenza pandemic

Pandemic influenza occurs when an influenza A virus subtype emerges or re-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
- 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, the Middle East or Africa are widely considered to be the most likely potential source. It would initially spread to cause outbreaks and epidemics within the country of origin and its immediate neighbours before spreading globally to cause a pandemic. The conditions that allow a

new virus to develop 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 a pandemic occurring, although timing and impact are impossible to predict.

More information on influenza viruses, the illness they can cause and the impact of past pandemics can be found at: www.scotland.gov.uk/pandemicflu

3.4 Avian influenza

Avian influenza ('bird flu') is an infectious disease of birds caused by influenza A viruses that spread mainly through contact with contaminated faeces (droppings) but also via respiratory secretions. Although they do not readily infect species other than birds and pigs, scientists believe that human-adapted avian viruses were the most likely origin of the last three human influenza pandemics.

The highly pathogenic A/H5N1 avian influenza virus – which is extremely contagious and rapidly fatal in domestic poultry species – has prompted particular concerns in recent years. There has been rapid spread within and from the Far East, with incursions into Europe and Africa caused by movement of infected poultry and poultry products, and possibly via migratory birds. Whilst the virus has also infected humans, such infections have only been recognised in a small proportion of those who have been exposed to infected birds. To date there has only been limited evidence of person-to-person transmission and, even where that has occurred, it has been with difficulty and has not been sustained.

A growing reservoir of infection in birds, combined with transmission to more people over time, increases the opportunities for the A/H5N1 virus either to adapt to give it greater affinity to humans or to exchange genes with a human influenza virus to produce a completely novel virus capable of spreading easily between people and causing a pandemic. However, the likelihood of and time span required for such mutations are not possible to predict.

Experts agree that A/H5N1 is not necessarily the most likely virus to develop pandemic potential. However, due to the potential severity of a pandemic originating from an H5N1 virus, this possibility cannot be discounted. For planning purposes, it is important to be aware of the many other avian viruses that are endemic in birds and have the potential to infect humans.

Further information on the human and animal health aspects of avian influenza - including contingency arrangements for responding to an avian influenza outbreak in Scotland - is available from the Scottish Government web-site at: www.scotland.gov.uk/birdflu

Information is also available from the following organisations: Health Protection Scotland (www.hps.scot.nhs.uk), the World Health Organisation (www.who.int/csr/en) and the World Organisation of Animal Health (www.oie.int)

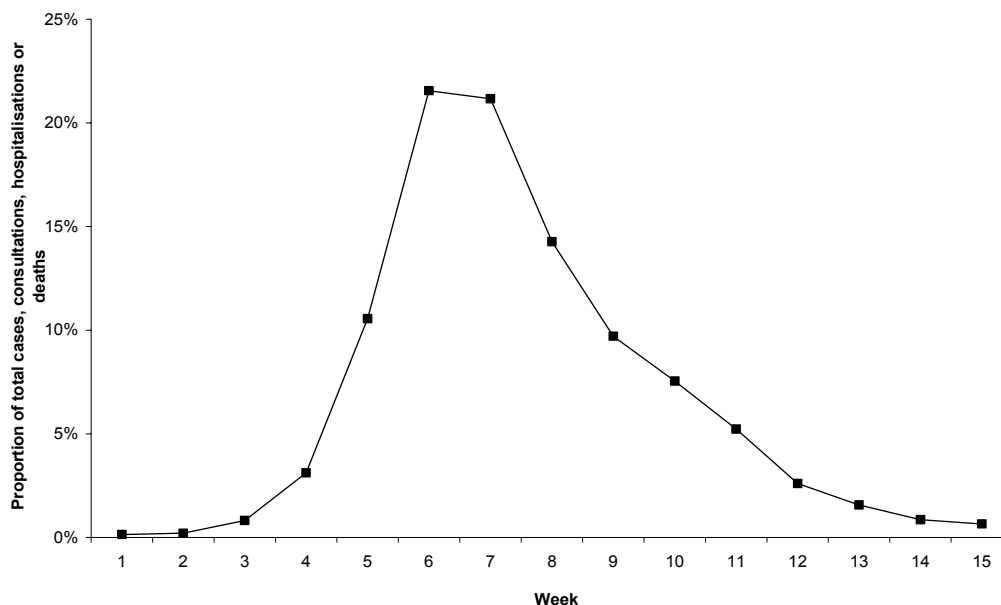
3.5 What an influenza pandemic might look like

Past pandemics have varied in scale, severity and consequence although 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 occurred and the speed of spread, all of which influenced their overall impact. Although little information is available on earlier pandemics, the three that occurred in the twentieth century are well documented. The most severe (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 (often referred to as Asian and Hong Kong flu respectively) 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 between them.

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 another two to four weeks. 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 wave 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 (Figure 1). This is intended to show the fastest overall national progression of a pandemic from the time it becomes the dominant respiratory disease. Local epidemics might be over more quickly (6-8 weeks) with a proportionately higher peak.

Figure 1 - 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.

3.6 Predicting the health and wider impact

It is impossible to predict the exact nature, timing or impact of any future pandemic because the root cause will be the circulation of a new strain of influenza virus and such viruses differ in their attributes and effects. 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.

Despite their variability, previous pandemics provide a valuable source of planning information and experience, but much has changed since the last in 1968. An increased proportion of elderly people in the population, improved healthcare opportunities and expectations, the growing emergence of antimicrobial resistance amongst the bacteria that may cause secondary infections following influenza, reduced 'surge' capacity in most healthcare systems and various pharmaceutical advances are some examples of factors that limit the reliability of data from past pandemics as predictors of future impact.

Mathematical modelling provides an adjunct to previous experience to help inform both strategic and operational planning for a future pandemic. The models enable current circumstances and the likely impact and effectiveness of interventions to inform plans. However, models are only as good as the data fed into them and the assumptions made in their design. In the case of new influenza viruses, there is little data and a wide range of plausible assumptions can be made. The main role of modelling in advance of a pandemic is to map out the range of possible risks and to investigate which responses are robust over the range of uncertainties. It is therefore important to emphasise that all impact predictions are estimates – not forecasts – made to manage the risks of a pandemic, and that the actual shape and impact may turn out to be very different. Impact predictions will therefore be compared against emerging data as the pandemic develops.

When influenza pandemics occur, many millions of people around the world can become ill and a proportion die from the disease itself or from 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 (that is deaths that would not have happened over the same period of time had a pandemic not taken place) 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, significant threats to the continuity of essential services, lower production levels, shortages and distribution difficulties. Individual organisations may also suffer from 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 staff absence. Staffing is therefore the critical element in business/service continuity plans.

High levels of public and political concern, general 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 must form a key part of the management strategy.

Given the lack of relevant information, assessments of impact on the overall economy are necessarily simplistic and can only be illustrative. One such illustrative assessment suggests that illness-related absence from work by 25% of employees over the course of a pandemic (only half of what may be expected in a widespread pandemic) could reduce the UK's gross domestic product (GDP) by between £3bn and £7bn for the year. Additional premature deaths could cause a further reduction of between £1bn and £7bn depending on whether case fatality rates are low or high and whether earnings or gross output are used in the calculation. Overall therefore, an influenza pandemic might be expected to reduce current year GDP by some 0.75%. In the longer term, the impact of premature deaths could reduce future lifetime earnings by between £21bn and £26bn at a low case fatality rate and by between £145bn and £172bn at a high case fatality rate; estimating this impact depends critically on assumptions about the age range affected and about future economic trends.

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

While the Scottish Government also has a Civil Emergencies website at: www.scotland.gov.uk/Topics/Justice/emergencies, which gives guidance on emergency planning arrangements across Scotland.

4 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.

4.1 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). WHO 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 was established in 2005 as an agency of the European Commission (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.

4.2 UK planning structures

4.2.1 MISC32 Cabinet Committee

A Ministerial Committee (MISC 32) on pandemic influenza 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 Scottish Ministers.

4.2.2 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 Government officials attend this group.

4.2.3 Scientific Groups

As detailed in section 2.3, 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. Scottish Government officials attend these groups.

4.2.4 Committee on Ethical Aspects of Pandemic Influenza

As detailed in section 2.5, 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.

4.2.5 Programme Management Board

Department of Health (DH) in England have set up new structures for their pandemic influenza planning. At the centre is the Programme Management Board 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 an influenza pandemic. DH has also set up a number of working groups to consider specific issues such as healthcare, community care and surveillance. Scottish Government officials attend these groups as observers to ensure consistency and communication with health pandemic influenza planning in England, Wales and Northern Ireland.

4.3 Scottish planning structures

The Scottish Government Fire and Civil Contingencies Division has overall responsibility for planning the pandemic influenza response in Scotland. Planning in the NHS and community care sector is lead by the Scottish Government Health Directorates through the Health and Community Care Pandemic Influenza Steering Group.

4.3.1 Cabinet Sub-Committee on Civil Contingencies

Scottish pandemic influenza planning is overseen by the Cabinet Sub-Committee on Civil Contingencies (SEER² - CSC) which keeps under review the Government's policies for managing the consequences of major disruptive incidents in Scotland.

4.3.2 Scottish Emergencies Co-ordinating Committee

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

² SEER – Scottish Executive Emergency Room

4.3.3 Health and Community Care Pandemic Influenza Steering Group

The Health and Community Care Pandemic Influenza Steering Group was established by Scottish Government Health Directorates 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 is accountable to the Cabinet Secretary for Health and Wellbeing for progress. It is a partnership between the Scottish Government and the health and community care services with a wide membership including NHS Boards, National Services Scotland and Health Protection Scotland.

4.3.4 Strategic Co-ordinating Groups

Under the terms of the Civil Contingencies Act, Strategic Co-ordinating Groups (SCGs) were established in each of the eight Scottish Police Force areas. They comprise Category 1 and 2 responders and representatives of relevant local organisations. SCGs are required to ensure the effective management of a multi-agency response to an emergency in their area by promoting sound partnership working, developing a unified emergency management framework and ensuring that all partners are prepared for joint response to any emergency at any time. The SCG is normally chaired by the area Chief Constable or Local Authority Chief Executive.

4.4 UK response structures

4.4.1 Civil Contingencies Committee

The Civil Contingencies Committee (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. Scottish Ministers and officials will participate in meetings of the CCC, and/or its official counterpart CCC (Officials), as appropriate.

4.4.2 Department for Health - Lead Government Department

DH will be responsible for the overall government response and will be supported by the Cabinet Office Briefing Room.

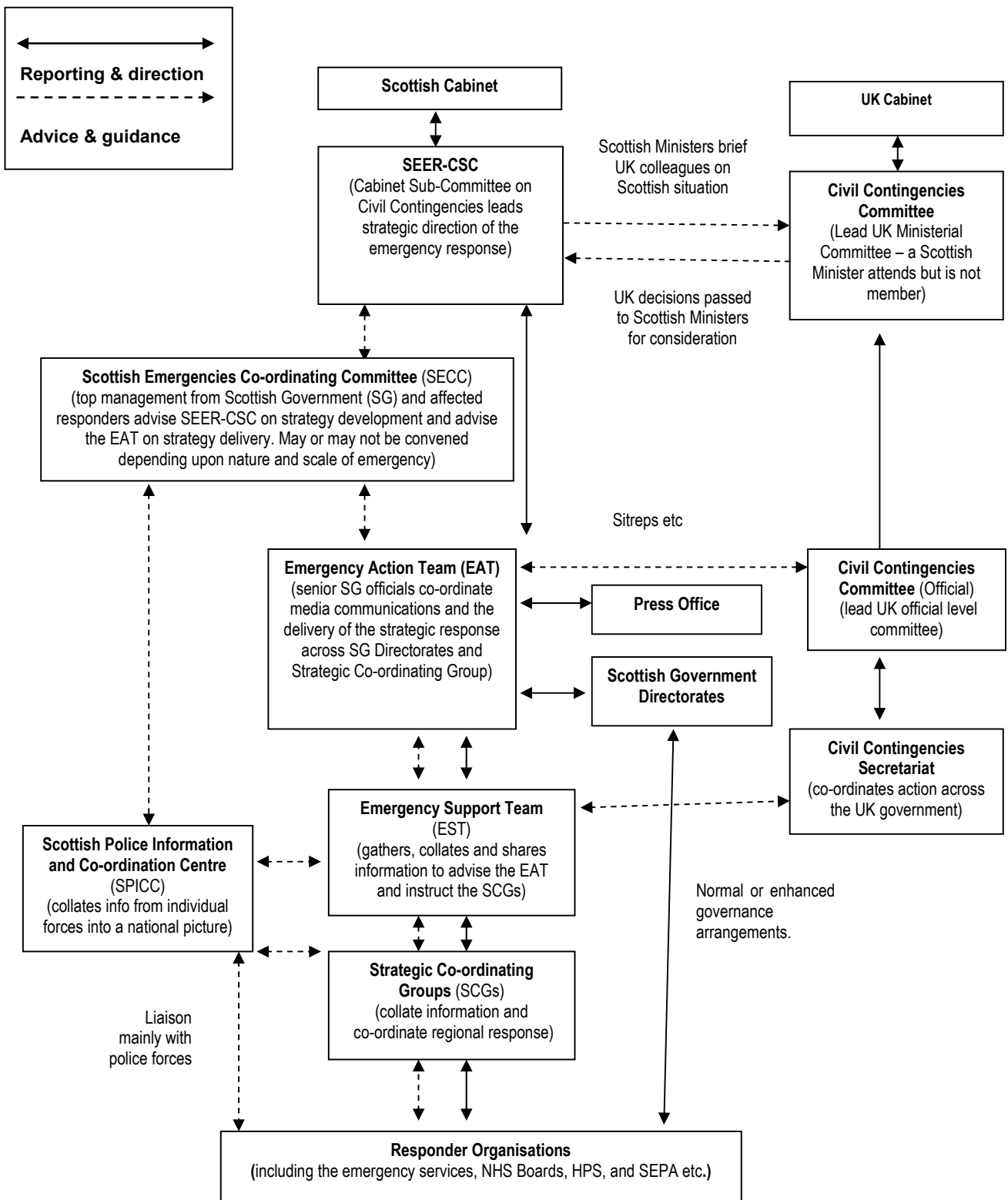
4.4.3 Cabinet Office Briefing Room

The Cabinet Office Briefing Room (COBR) will be activated following direction from senior officials within DH. It will comprise groups of senior officials providing advice and information to the CCC. Links will be made with the Scottish Executive Emergency Room.

4.4.4 Scotland Office

When COBR is activated, the Scotland Office will also support Scottish interests and will liaise with officials in the Scottish Executive Emergency Room.

Figure 2 - Scottish Government generic primary response structure for national emergencies



4.5 Scottish response structures

4.5.1 Cabinet Sub-Committee on Civil Contingencies

SEER-CSC will take the Ministerial lead for the response in Scotland on behalf of the Scottish Cabinet. Its responsibilities will include ensuring that Scottish Government directorates and where appropriate, other organisations, work to meet the overall objectives set by the UK Government. SEER-CSC will also take the lead on prioritising the allocation of limited national resources and set the strategy 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.

4.5.2 Scottish Emergencies Co-ordinating Committee

SECC is the senior multi-agency committee involved in the Scottish Government's emergency response. Its membership during a pandemic will consist of senior civil servants from relevant Scottish Government directorates, 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, military, etc). Its functions include advising the Government on how best to respond to the emergency; setting the strategic direction of the Scottish Government's response and taking responsibility for long-term recovery issues at a national level.

4.5.3 Scottish Executive Emergency Room

SEER will be activated following direction from senior officials within the Health and Justice Directorates. SEER encompasses the corporate Scottish Government emergency response and acts as a focal point for the co-ordination of government response activity. 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 from the Scottish Government directorates and the Strategic Co-ordinating Groups; provide advice to SEER-CSC and SECC; oversee implementation of decisions taken by the UK Government; and, ensure overall co-ordination of Scottish Government activity. SEER will also liaise with COBR as required for both UK and Scottish interests.

4.5.4 Emergency Action Team

The Emergency Action Team (EAT) comprises senior Scottish Government officials who are responsible for ensuring that the emergency response is effective, co-ordinated and timely. They will provide advice to Scottish Ministers, colleagues and to 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.

4.5.5 Emergency Support Team

The Emergency Support Team (EST) directly supports emergency response activity in the SEER. EST is directly responsible for gathering, processing and sharing information about the emergency to advise the Government and stakeholders of key aspects requiring attention. This information will be shared with co-ordinating committees across the UK in order to support both national and local decision making processes.

4.5.6 Strategic Co-ordinating Groups

SCGs will be convened to coordinate the local response. They will provide information to SEER on local issues and through SEER, will liaise with the Government on national issues.

4.5.7 Scottish Health Emergency Response Team

The Scottish Health Emergency Response Team (SHERT) will:

- co-ordinate the Health Directorates' input into the Scottish Government's overall emergency response. This includes providing Health representation for the Scottish Government's emergency arrangements described above
- provide additional support to the Health Directorates by acting as the "health emergency room". This will allow efficient co-ordination of the Health Directorates' response, providing more detailed health information to senior officials and to the Cabinet Secretary for Health and Wellbeing and the Minister for Public Health.

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

5 PLANNING OUR RESPONSE

5.1 Introduction

The Scottish Government 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 us to adjust our response 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. Our response will be adjusted as more information becomes available.

5.2 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 (see table 1). 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 the spread. For UK purposes, four additional alert levels have been included within WHO Phase 6. These are consistent with those used for other communicable disease emergencies.

Table 1 - WHO influenza pandemic phases

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	<p>Increased and sustained transmission in general population</p> <p>UK alert level</p> <p>1 Virus/cases only outside the UK</p> <p>2 Virus isolated in the UK</p> <p>3 Outbreak(s) in the UK</p> <p>4 Widespread activity across UK</p>
Post Pandemic Period	
Return to Inter-pandemic Period	

5.3 Key planning assumptions

5.3.1 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 South East Asia, the Middle East or Africa.
- 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, pigs and domestic animals in many parts of the world facilitates mingling of human and animal viruses. This 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 or animals but will not necessarily evolve into pandemic viruses.
- When 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.

5.3.2 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.

5.3.3 Geographical spread

- Although it may be theoretically possible to contain the initial spread of a pandemic virus originating in rural parts of Asia, the Middle East or Africa; this is likely to be difficult in practice. It may also be difficult to document the early stages of spread accurately.
- Spread from the country of origin is likely to follow the main routes of travel and trade.
- Increasing use of routes where surveillance is not as well developed may result in the failure to document the early stages of a virus' spread.
- Spread from the source country to the UK through movement of people is likely to take two to four weeks. 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 - modelling suggests that 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.

5.3.4 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 (nose, mouth or eyes) 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 during the use of 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 two other 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 or boarding schools.

5.3.5 The severity (clinical attack rate) of illness and deaths

- Pandemic influenza is likely to be far more severe than normal seasonal influenza 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 direct impact on provision of services and business continuity, while illness in the very young and elderly is likely to have an indirect impact and will 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 is 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.
- Subsequent waves, if they occur, could possibly be more severe than the first.
- The UK case fatality rate for previous pandemics was of the order of 0.2 to 2% of those who became ill.
- The current avian A/H5N1 virus has raised concerns as a potential origin of a pandemic virus. Although it is not necessarily the most likely virus to lead to a pandemic, we must be concerned because of its potential severity.
- The reported mortality for humans infected with this avian virus is currently over 50%. However, this is primarily an avian virus with its own specific characteristics and treatment has often been delayed.
- Diverse views regarding the link between virulence and ability to transmit between humans have been published, although a majority of scientists currently believe virulence to be independent from transmission ability.
- The likelihood of the current (avian) H5N1, or any other virus, developing pandemic potential cannot be quantified. In the face of these uncertainties, most experts agree that accepting the evidence from previous influenza pandemics suggesting a maximum case fatality of 2.5% is a reasonable worst case scenario for planning purposes.
- 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%.

Table 2 - 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

5.4 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 WHO.

Table 3 - UK planning presumptions

Area of policy response	WHO phase 4	WHO phase 5	WHO 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 the UK.	UK alert levels 2–4 Outbreaks in the UK.
Transport/travel				
Foreign and Commonwealth Office (FCO) travel advice for other countries	FCO travel advice will take as its starting point the advice issued by WHO at each stage of a developing pandemic. British missions overseas will consider a full range of options for informing British nationals of the developing situation and its associated risks. This will include ensuring that British nationals continue to monitor FCO travel advice. From WHO phase 4, the FCO will recommend that British nationals in affected and neighbouring countries consider returning to the UK.			
	Advice against non-essential travel to affected and neighbouring countries.			
	If the situation in a country is judged severe enough to significantly affect British nationals (eg the healthcare system is unable to treat them or there has been a breakdown in law and order), a decision may be made to advise against all travel. Where possible, travellers will be given a timeframe for moving from advising against all but essential travel to advising against all travel, based on the predicted spread of the pandemic. Such a decision would be subject to agreement between the FCO, the Department for Transport and the Department of Health and would be subject to Ministerial clearance.			
International travel restrictions/ Border closures	The possible health benefits that may accrue from international travel restrictions or border closures need to be considered in the context of the practicality, proportionality and potential effectiveness of imposing them, and balanced against the wider social and economic consequences. Given the complexity of this issue, the Government will keep under review the evidence on the benefits and disadvantages of various approaches.			

Airport closures	No imposed closures in the UK (subject to the above) but airports may find they have operational difficulties in phase 6 if staff are absent and/or if airports or carriers 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 if other countries impose requirements (such as requiring outgoing flights to undergo exit screening), the Government will consider screening on a case-by-case basis, bearing in mind the lack of evidence to support it.	
Financial assistance to airlines/travel industry	No plans for government assistance. Subject to the extent of impacts, the Government may consider assistance at the time and/or during the recovery phase.	
Domestic travel restrictions	Business as usual.	Subject to the nature and spread of virus, the Government may advise against non-essential travel but will not impose restrictions.
Hygiene measures on public transport	Public advice from the Scottish Government Health Directorates and Health Protection Scotland (HPS) will encourage general good hygiene practice in reducing the spread of infectious diseases, e.g. regular hand washing.	Advice to keep using public transport whilst adopting good hygiene measures and staggering journeys where possible.
International		
Repatriation issues	Subject to the extent of disruption to air travel, British nationals may be stranded overseas at any phase (although this is more likely at phases 5 and 6). Given the potential scale and number of countries involved, the Government is unlikely to arrange repatriation. The FCO already advises British nationals, through its avian influenza fact sheet on its website and its missions overseas, that the Government will not be in a position to offer repatriation.	
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.	Repatriation may be difficult due to circumstances in other countries and possible flight disruption. Ports of entry will continue to provide normal arrangements for as long and as far as that is practical. Family/insurance to meet costs.

Advice from British missions to British nationals overseas	Plan for phase 6, including whether to stay or leave and local access to healthcare. Advise British nationals to consider returning to the UK at phases 4/5 in affected or neighbouring countries.	Plan for arrival of the virus in host country or, if it has 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 arranging for their own medical care and discussing with their healthcare provider whether they will have access to antiviral treatment during a pandemic. The FCO is already advising British nationals, through the avian influenza fact sheet on its website and through its missions overseas, that British diplomatic missions cannot provide medical treatment or antiviral drugs.	
Government liaison with other countries	The FCO will lead on liaison with governments in other countries to ensure full understanding of impacts and response measures during each phase.	
Assistance to foreign nationals in the UK	The current policy will apply during a pandemic, i.e. no assistance apart from emergency healthcare. For public health reasons, visitors who develop influenza symptoms whilst in the UK will be given emergency treatment with antiviral medicines if necessary.	
Essential services		
Healthcare	Normal service levels.	Disruption expected from staff absence and ill carers, particularly at pandemic peak. The NHS plans to care for large numbers of cases and will only 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 for as long and as far as that is possible. Some disruption expected at the peak of a pandemic.

		Relaxation of regulations on drivers' hours may be considered if required to maintain services.
Essential repairs or maintenance of power lines, telecommunications, gas pipelines and energy supply	Normal service levels.	Essential repairs will continue. Routine repairs may be curtailed by staff shortfalls, particularly at the peak of the pandemic.
Capacity of telecommunications/ level of service	Normal service levels.	Near-normal service levels expected. Staff shortfalls may result in a gradual increase in time taken to respond to customer calls and routine repairs. Organisations planning to increase home working should discuss plans with their service provider at an early stage (see section 10.5.1).
Availability of fuel	Normal service levels.	Fuel supplies expected to be maintained. May be occasional short-lived local shortages if peak absences coincide with technical or weather-related supply difficulties.
Maintenance in the energy, telecommunications and fuel sectors	Maintenance programmes 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 service levels. Essential repairs to maintain

		water/sewerage pipe-work. Non-essential work may be curtailed.
Food/supplies	Normal service levels.	Near-normal service levels; 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 there may be some disruption to customer-facing services due to staff absence at peak. Demand for cash in circulation will be met, but there may be some short-lived disruption if bank branches are closed and cash machines take longer to restock.
Postal services	Normal service levels.	May be some disruption due to staff absence at the 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 the peak, there may be some short-lived disruption to essential services such as refuse collection.
Education/social mixing		
School and early years/ childcare setting closures	Business as usual.	Subject to the impact of the pandemic, the Scottish Government may

		recommend that schools and early years childcare settings close to children when the first clinical cases are confirmed in the SCG area and that they remain closed until the local epidemic is over.
Further and higher education	Business as usual.	No plans to advise further/higher education establishments to close. Each institution to decide how it operates based on a risk assessment and its situation.
Advice on social gatherings, such as attending UK sporting or arts events and conferences	Business as usual.	Business as usual for as long and as far as that is possible, subject to good hygiene precautions including robust advice to customers that they should stay at home if they are ill or have influenza-like symptoms. If schools and early years childcare facilities are advised to close to children, information will be made available to parents and carers to enable them to assess the risks of infection linked with out of school activities so that they can act appropriately to protect children. In the early stages of phase 6, the Government may advise against holding international events

		in the UK if delegates, teams or performers are expected from affected countries.
Advice on use of public places	Public health advice from the Scottish Government Health Directorates and HPS will encourage general good hygiene practice to reduce the spread of infectious diseases, e.g. regular hand washing.	Business as usual for as long and as far as that is possible. The public will need to take good hygiene precautions.

Broadcasting		
Public service broadcasts	Business as usual.	Business as usual, for as long and as far as that is possible. May be some readjustment of services.
Benefits		
Sickness absence policy, including statutory sick pay	Business as usual.	Business as usual for as long and as far as that is possible. Advice may be issued as pandemic develops.
Benefits payments	Business as usual.	Business as usual, for as long and as far as that is possible.
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 48 hrs will be given antivirals unless contraindicated. Consumption will be monitored and prioritisation introduced only if that becomes necessary.
Access to antiviral medicines	Normal supply may remain available for seasonal influenza cases at Phase 4 and 5. Limited amounts of the national stockpile have been pre-distributed to NHS Boards (5% to mainland Boards and 10% to the islands). Main stock would be distributed to NHS Boards at Phases 5 or	Antivirals may be used initially to treat cases and for containment. When infection is

	6 but not made available until UK alert level 2.	widespread for treatment only following telephone based assessment/ authorisation and collection from distribution points by friends/ relatives
Personal Protective Equipment (PPE)	Advice to public and business regarding government policy (face masks necessary for healthcare workers dealing with suspect cases or others at particular risk). Occupational risk assessments in other settings should be conducted jointly with staff. General wearing of face masks in public places by those who do not have influenza symptoms will not be recommended and the Government will not supply facemasks for that purpose.	Protection advised for health workers and should be considered for others in close/regular contact with infectious patients or at occupational risk.
Antibiotics	Scottish Government will seek to enhance stocks	Administered for secondary infection complications as per guidelines.
Pre-pandemic vaccines	270,000 doses of H5N1 vaccine have been purchased 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 has been developed and manufactured (four to six months).	The UK will secure sufficient vaccine to protect the population as soon as it is available (likely to be at least four to six months, i.e. well after the first wave strikes the UK). Delivery of supplies would make clinical prioritisation inevitable.
Other consumables and essential medicines	The Scottish Government 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.
The Government will consider the relaxation of medicines and NHS regulations where necessary to ensure ease and speed of access.		
Communications		
Isolation of cases/stay at home if ill	Possible implications for returning travellers with symptoms and their contacts, 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 also be recommended for close contacts at early stages to

		contain/slow the spread.	
Health messages to the public	Increase in public information at phase 4 – proportionate to levels of risk. Different communication products such as leaflets and door drops, will be used during phases 4 and 5, emphasising good hygiene measures and reassuring the public. Regional/local communications to be consistent with national messages.	Main messages to include: stay at home if ill; adopt good hygiene practices; and how to obtain help and antiviral medicines. Other messages may include information on face masks and health and safety advice on issues such as air conditioning in the workplace. Messages must be consistent.	
Information to the public	WHO advice and updates on location(s) and areas affected will be reflected in FCO 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 the national flu line service (see 9.8.5) will be available. Information materials will also be available through primary care, pharmacies and on the Scottish Government website.	WHO will provide the Department of Health (DH) with regular updates on countries affected. DH will cascade to other government departments, Devolved Administrations and the NHS.	The Scottish Government will report the numbers ill on a regional basis to the Civil Contingencies Committee. This information may be made available via the national flu line service, websites and media briefings.
		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 will be made.	
Excess deaths			
Managing excess deaths	Planning will continue in preparation for the arrival of the pandemic in the UK and the consequent additional deaths expected to occur (scale will be dependent upon the nature of the virus).	Planning is under way to minimise delays in burials or cremations. Further measures are being considered for the reasonable worst case scenario.	
Response and coordination			
Response, planning and coordination across central and local government	The Cabinet Sub-Committee on Civil Contingencies (SEER- CSC) will meet as required to agree early policy decisions in Scotland and to urge completion of planning. Strategic Coordinating Groups (SCGs) will meet as required to promulgate policy decisions/advice and maintain	The Justice and Communities Directorates will assume responsibility for coordination across the Scottish Government. SEER-CSC will meet regularly to maintain an overview of the impacts on Scotland, agree policy and allocate resources. SCGs will meet regularly to maintain overview of	

	overview of response.	regional impacts, identify resource issues and promulgate policy and information to the public.
Civil Contingencies Act 2004	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.	
Liaison with the business community	The Government will liaise and share information with the business community through established stakeholder groups. At local level, the business community will work with the SCGs.	
Support from the Armed Services	As with guidance for other major emergencies, planners should not assume that military support will be available. Such assistance might be available in exceptional circumstances if life and property are in immediate danger, but planning for an influenza pandemic should take into account that support may not be available if local units are deployed on operations, that they may not have personnel available with either the skill or equipment to undertake specialist tasks and that military personnel will themselves be vulnerable to the illness.	

5.5 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. Behavioural science is also important to our understanding of how people are likely to react.

UK pandemic influenza research is coordinated across Government Departments and research councils by the Pandemic Influenza Research Funders Coordination Group. 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 WHO, World Organisation for Animal Health and European Union 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 – together with those of the National Institute for Biological Standards and Control and the National Influenza Reference Laboratory (NIRL) at the Health Protection Agency – work closely together. All Scottish virus laboratories are closely linked to the NIRL and send specimens there 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. HPS, in liaison with the Statistical Team in Applied Mathematics at Strathclyde University, work closely with colleagues across the UK in the development of such models for use by the NHS in Scotland. Further information on research and modelling is available from: www.hps.scot.nhs.uk and www.dh.gov.uk/pandemicflu.

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

6.1 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 (WHO), the European Union (EU) and other bilateral and multinational groups. In particular, Scotland will work within a UK framework where 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

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 1 in section 5.2). This global classification is used internationally.

6.2 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.

6.2.1 Clinical recognition - Health Protection Scotland

In liaison with the Health Protection Agency (HPA), Health Protection Scotland (HPS) 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 HPS). As alert levels increase, the Scottish Government in liaison with HPS will reinforce the need for heightened awareness and provide relevant information to health professionals and the public.

6.2.2 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 HPA 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 (DH), if a new influenza virus from a human infection is confirmed. DH will then inform the Scottish Government and HPS.

6.2.3 Capacity and capability

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

6.2.4 Liaison with veterinary laboratories

Through its existing links with HPA Centre for Infections 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.

6.2.5 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.

6.3 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 Development and Department for the Environment, Food and Rural Affairs, 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 influenza. 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 influenza and pneumonia if they have been identified as being in a high risk group.

6.4 Pandemic Alert Period - WHO Phases 3-5

WHO 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 influenza and pneumonia if they have been identified as being in a high risk group.

6.4.1 Phase 4

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 influenza 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.

6.4.2 Phase 5

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 information line 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.

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

7 PANDEMIC AND POST-PANDEMIC PERIOD

7.1 Declaring a pandemic

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 Government. The Scottish Government 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.

7.2 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.

7.2.1 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 and preparations, but continue to attend work and undertake other essential activities.

7.2.2 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 Health Directorates, arrangements will be made to feed back to NHS Boards and their local planning partners 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 HPS 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 General Register Office of 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 from health systems, 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 is ill and suspect they may have influenza-like symptoms will be advised to stay at home, contact the national influenza line and inform a relative or friend to collect their antiviral medicine if necessary. Otherwise, the overall aim will be to maintain normal services and social and economic activities for as long as, and as far as, that is possible. Personal and respiratory hygiene messages will be reinforced ahead of an escalation to UK alert level 3.

7.2.3 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.

7.2.4 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.

7.3 Post-pandemic period

7.3.1 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 population-wide vaccination programmes in this period.

7.3.2 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. The Health Directorates will issue guidance to inform health plans following review of the first wave and the availability of countermeasures.

7.3.3 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 have 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.

8 MITIGATING THE IMPACT

The demands and uncertainties associated with an influenza pandemic require flexible plans based on a combination of strategies to develop an effective and sustainable response. Medical or pharmaceutical countermeasures, combined with public health and personal infection control initiatives, and the possible application of measures to reduce social mixing, form the basis of the UK's mitigation strategy. The Government will need to make final decisions and issue advice on the application of additional measures or the scaling back of applied measures - as the exact nature or impact of the emerging strain of influenza virus becomes evident. Public support and compliance with infection control and other measures will be critical to the success of that strategy.

8.1 International travel restrictions and screening

International travel is increasingly central to world commercial, economic and recreational activity, and significant or lengthy interruptions have a range of disruptive effects. The movement of people is also a significant determinant of the speed of spread of infectious diseases, and as a major destination and international travel hub, the UK is particularly vulnerable. 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, 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. However, modelling does suggest that the imposition of restrictions on all travel to the UK is likely to delay the arrival of the virus by one or two weeks if measures were 90% effective, and by some two months if 99.9% effective.

The possible health benefits that may accrue from international travel restrictions or border closures need to be considered in the context of the practicality, proportionality and potential effectiveness of imposing them, and balanced against their wider social and economic consequences. Given the complexity of this issue, the Government will keep under review the evidence on the benefits and disadvantages of various approaches.

The UK also needs to strengthen port health vigilance and develop capacity to implement any recommendations or restrictions, including entry or exit screening, that may be issued by the World Health Organization (WHO), the European Union (EU) or other governments. As an integral part of their preparation, port and airport operators, carriers and those authorities with specific responsibility for port health should therefore review their arrangements for screening individuals with suspected illness on arrival, protecting their staff and rapidly implementing wider entry or exit control measures if required.

Health Protection Scotland is currently engaged in a review of port health arrangements in Scotland.

Advice to British nationals intending to travel to, or in, affected countries would be available from the Foreign and Commonwealth Office (FCO) and on government and Health Protection Agency (HPA) websites

8.1.1 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 which will provide a designated medical officer (DMO) to lead the response supported by medical and environmental staff from NHS Boards and Local Authorities, respectively³. This response is dependent on 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 Revenue and Customs (HMRC), Border and Immigration Agency (BIA) or by Medical Inspectors (MIs) called in by an officer of BIA where necessary. The public health regulations give powers of detention and detention of vessels, aircraft and persons with additional measures for diseases covered by the *International Health Regulations 1969*.

The International Health Regulations (IHRs) were revised in 2005 and are being 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 IHRs affords an opportunity to review both Port Health and Medical inspection (under the *Immigration Act 1971*) to find out whether they are 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 BIA, HMRC, and Local Authorities are informed of risks as they arise. In addition it will also be important to involve the British Airports Authority and other port operators, who will be involved in providing additional facilities and services, and the Maritime and 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. Any guidance developed on the wider issues concerning port health will be developed on a UK basis with input from all relevant parties.

8.2 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, protection. Currently, the UK has very limited stocks of an A/H5N1 vaccine purchased specifically for the protection of healthcare workers. Pre-pandemic

³ 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*.

vaccination would be initiated based on national and international expert advice and delivery would primarily be the responsibility of employers.

Given sufficient additional stocks, a suitable vaccine could be used to provide partial protection for other workers likely to be frequently exposed to symptomatic patients or key staff crucial to the maintenance of essential services. Pre-pandemic vaccination of those most likely to spread the disease or suffer complications could also help reduce hospitalisations and deaths in vulnerable groups. Decisions on use would need to follow assessments of the likely degree of cross-protection afforded (if any) and balance of risks against benefits as the pandemic alert phases change.

More widespread immunisation with a pre-pandemic vaccine could have a substantial effect, but this would require large stocks of such a vaccine and is not currently part of the Scottish or UK Governments' plans. Anticipating a suitable vaccine strain also has the inherent risk of it being ineffective against the ultimate pandemic strain. The Department of Health will continue to monitor the evolution of viral strains and options for pre-pandemic vaccination and the Scottish Government will inform planners of any policy changes. In the meantime, response plans should assume that arrangements for limited pre-pandemic vaccination of targeted groups might become necessary.

Guidance for local responders on the delivery of pre-pandemic vaccine for healthcare workers is being prepared and will be available in due course.

8.3 Isolation, voluntary quarantine and 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 few hundred or so cases. Geographic quarantining measures ('cordons sanitaires') 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) whilst ill. If, in exceptional situations, staying at home becomes impossible, for example because of the need to be transferred to hospital, symptomatic patients should wear a disposable face 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 where they may also be in higher-risk groups. Such establishments may also be more vulnerable to higher levels of staff absence, 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.

8.4 Antiviral medicines

Although the targeted and effective use of antiviral medicines or other definitive pharmaceutical interventions is an important countermeasure, they may be in limited supply. 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 start to be taken within two days of the onset of symptoms. Whilst it is impossible to predict whether antiviral medicines will be equally effective against a new or modified pandemic virus, it is reasonable to anticipate a similar effect and associated substantial reductions in severe morbidity.

The UK has established national stockpiles of oseltamivir (Tamiflu) – a neuraminidase inhibitor that works by preventing the influenza virus from reproducing and leaving the host cell. The existing stockpiles allow for the treatment of all symptomatic patients at clinical attack rates of up to 25% and arrangements to make it rapidly available are a critical part of the health response.

Although a number of alternative strategies are also being evaluated, scientific advice confirms that prompt treatment of all symptomatic patients is currently the most effective use of the antiviral stocks available. Higher clinical attack rates would require prioritisation of use but 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 and not later than 24 hours from reporting symptoms indicative of influenza.

Adult treatment courses are stored as pre-packed capsules, but children weighing 23kg and under (about seven years old) require a weight-related dose of oseltamivir. Some of the stock is therefore in powder form for reconstitution into a suspension. Unless the child is obviously over or under weight, the dose is determined by age as a proxy:

AGE	INDICATION	DOSAGE
Under 1 year	Oseltamivir is not licensed for use in this age group	Any decision to use requires expert clinical judgement, with dose according to weight
1-2 years	Body weight up to and including 15kg	30mg 12-hourly for five days
3-6 years	Body weight over 15kg and up to 23kg	45mg 12-hourly for five days
7+ years	Body weight 24kg and above	75mg 12-hourly for five days

Pre-identified licensed hospital pharmacy manufacturing units will be notified to manufacture the solution when the pandemic is declared, and other options for developing alternative formulations are being examined.

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.

The HPA 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 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 of people 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 currently regarded as an effective or practical response strategy.

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 when combined with measures such as school closures. However, such a strategy would consume significantly greater stocks of antiviral medicines and mean that some people would need multiple treatment courses initially to prevent and then possibly treat infection. The potential effects of countermeasure strategies on resistance to antiviral medicines also requires further investigation and the Scottish Government will continue to review the supply and optimal use of pharmaceutical countermeasures.

8.5 Infection control and personal hygiene

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 their normal activities. In order to protect others and reduce the spread of infection, anyone ill 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 for as long and as far as that is possible and can reduce – but not eliminate – the risk of catching or spreading influenza by avoiding unnecessary close contact with others and routinely adopting high standards of personal and respiratory hygiene.

Applying standard 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:

- staying at home when ill
- 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 warm water to reduce the spread of the virus from the hands to the face (nose, mouth and eyes), or to other people, particularly after blowing the nose or disposing of tissues
- making sure that children follow this advice
- cleaning frequently touched hard surfaces (e.g. kitchen worktops, door handles) regularly using normal cleaning products
- avoiding crowded gatherings where possible, especially in enclosed spaces
- if suffering with influenza symptoms, wearing a disposable face mask to protect others should it become absolutely essential to go out.

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.

8.6 The use of face masks and respirators

Although the perception that wearing a face mask in public places may be beneficial is widely held, there is little actual evidence of proportionate benefit from widespread use. The Government will not therefore be stockpiling face masks for general use. If individuals who are not symptomatic choose to purchase and wear face masks in public places, they should be worn properly and disposed of safely to reduce infection spread. Wearing masks at all times is not practical; so decisions in occupational settings must take account of the degree of risk associated with particular occupations or activities and be based on joint risk assessments carried out by employers and staff representatives.

Surgical face masks or respirators (masks that incorporate a filter) provide a physical barrier against the influenza virus provided that they are of an appropriate type, are worn correctly, changed frequently, removed properly, disposed of safely and used in combination with good universal hygiene behaviour. Face masks can be used to help protect those who may, for example, be at occupational risk from close or frequent contact with symptomatic patients and by those who are symptomatic to avoid contaminating others if they have no choice but to leave their home. However,

significant communication, supply, logistic and training aspects will need to be addressed. 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 further clarification and guidance on the use of face masks may become available in due course, the planning presumptions should be that anyone who is ill with influenza-like symptoms will be advised to stay at home. The general wearing of face masks in public places by those who do not have influenza symptoms will not be recommended and the Government will not supply facemasks for that purpose. Judgements on respiratory protection in specific occupational or other settings will need to be based on joint risk assessments. Guidance to employers is available via the Health and Safety Executive website at www.hse.gov.uk/biosafety/diseases/influenza.htm

8.7 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.

These conclusions are consistent with the lack of important observable differences between the course of seasonal influenza outbreaks in London – where there is considerable mixing on commuter trains and underground railways – and their course in other parts of the UK.

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 as the pandemic develops for public health reasons in which case it is likely to be on an advisory basis. The public may be advised to minimise non-essential (leisure/social) travel as a personal precautionary measure but should continue using public transport for essential journeys, adopting personal hygiene measures and staggering journeys where possible.

8.8 Public gatherings

Large public gatherings or crowded events where people may be in close proximity are an important indicator of normality and can help maintain public morale during a pandemic. Whilst close contact with others – especially in a crowded 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. Individuals may benefit from reduced exposure by not attending such events, but there would be very little benefit to the overall community. Reduction in travel to such events may also reduce spread, although the benefits of even major reductions in all travel are small.

Although evidence does not support a blanket ban on such events, individuals may decide not to attend them, parents might well choose to avoid the potential infection risk to children and organisers might decide to cancel to avoid any economic risks. If schools and early years childcare facilities are advised to close to children (see 8.9), information will be made available to parents and carers to enable them to assess the risks of infection associated with different out of school activities so that they can act appropriately to protect children.

Transport difficulties, public order, crowd safety or other similar considerations may also affect decisions on staging such events. Organisers and/or governing bodies and licensing authorities (where relevant) might therefore decide to cancel to minimise difficulties or avoid economic or other risks. Decisions can only be taken in the light of information and the circumstances at the time.

For planning purposes, the presumption should be that the Scottish 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.

8.9 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 'super spreaders'. In the 1957 pandemic, up to 50% of schoolchildren developed influenza and, in some residential schools, attack rates reached up to 90%, often affecting the whole school within a fortnight.

Closing schools 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 with 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%.

Advising all schools in an affected area to close may offer the most practical option. Whilst this would disrupt education and have a significant negative effect on services and businesses, particularly those highly dependent on working parents, these disadvantages would be outweighed by the children's lives saved. The same would apply to group early years/childcare settings where groups of children and parents often mix. Though there is less evidence relating to this sector than to schools, the same principles would apply. If schools were advised to close, it would be logical to extend that advice to all group early years/childcare settings though this would increase the impact of closures upon services and businesses where working parents are employed. Reducing mixing between children outside school or other group early years/childcare settings may also be necessary for maximum

benefit, though the impact would depend on the nature of that mixing. The Scottish Government would issue guidance on this as the pandemic develops.

The Scottish Government 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. The Scottish Government 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-ordinating Groups (SCGs) on closure would be confirmation of initial cases in the area. The SCGs will be in regular contact with the Scottish Government and will be the first to receive advice on school closures. The SCG will then pass this advice to Local Authorities who will take the decision to close schools and early years/child care settings.

Schools involved in School College partnerships should not send pupils to college when the school is closed due to a pandemic.

On balance, plans should be prepared on the basis that:

- some school and group early years/childcare closures are likely
- decisions on whether to advise schools and group early years/childcare settings to close can only be made in the light of emerging information as a pandemic develops
- schools and early years/childcare settings will be advised to close only if it is anticipated that this will produce significant health benefits
- if the Scottish Government advises schools and group early years/childcare settings to close to pupils, the initial advice is likely to be to close for a few – probably two to three – weeks, after which the position would be reviewed, but the closure may be extended beyond this period
- any advice to close schools and group early years/childcare settings would be communicated to them through SCGs and Local Authorities
- even if there is no general advice to schools and early years/childcare settings in an area to close, some may decide 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:

www.scotland.gov.uk/Publications/2006/07/05121311/0

8.10 Pandemic specific vaccination

Vaccination is widely used in the UK to offer protection against the seasonal influenza strains most likely to be circulating in 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 and it will not be possible to develop a matching vaccine until the emerging influenza strain has been identified.

The Government has finalised advanced supply contracts with manufacturers to make sufficient supplies of a matching vaccine available as soon as it is developed and is also working actively with the international community and pharmaceutical industry to speed development, testing and licensing. However, it may take four to six months before a matching vaccine is available and evaluated for safety, 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 matching 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. However, it could be an important tool in preventing further cases, particularly if a second wave occurs.

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

Guidance for local responders on the delivery of pandemic specific vaccination is being prepared and will be available in due course.

9 THE HEALTH AND COMMUNITY CARE RESPONSE

An effective well planned health and community care response is central to our aim of saving lives and reducing illness. The dual challenge for the health and community care response will be to deal with the increased demand for services, whilst also coping with the inevitable scarcity of professional skills and resources due to illness.

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 section sets out the healthcare planning assumptions which should be used by responders, provides advice on the issues local planners should be considering and sets out the current status of work being taken forward centrally. 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.

9.1 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
- reducing the severity of illness and incidence of complications in infected individuals
- reducing disease transmission and rates of illness by applying individual and community infection control measures
- adjusting responses to reflect emerging epidemiological data
- developing surge capacity to meet expected demand, recognising that this will require a redefinition of boundaries between primary and secondary care
- making targeted and effective use of potentially scarce healthcare skills, facilities and resources
- reducing or ceasing non-essential activity as demand increases but maintaining essential care for emergencies or patients with chronic or other illnesses

- assessing all symptomatic patients rapidly and treating promptly with antiviral and other medicines if indicated
- providing effective treatment for those suffering complications
- educating the community and providing public advice and information
- vaccination, if and when suitable vaccines are available
- providing data to monitor the impact, effectiveness and adverse effects of interventions.

9.2 Key principles underlying planning and response

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

- Response arrangements should be based on strengthening and supplementing normal delivery mechanisms as far as is practicable
- Interventions will be applied where they achieve maximum health benefit, but may also be required to help maintain essential services
- Plans should be developed on an integrated multi-agency basis with risk sharing and cross-cover between all organisations
- Plans should encourage pan-organisational working, seeking to mobilise the capacity and skills of all public and private sector healthcare staff (including students and those who are retired), contractors and volunteers
- Although visiting all cases will not be possible, primary care plans should be based on influenza patients avoiding leaving home as far as possible
- Initial telephone-based assessment is likely to be necessary to meet demand
- Primary care response strategies should focus the available clinical capacity and skills primarily on treating those suffering with the complications of influenza or requiring other essential clinical care and assessing young children or patients in groups identified as being at particular risk
- Antiviral medicines should initially be available to all patients who have been symptomatic for less than 48 hours and ideally within 12–24 hours of reporting symptoms
- Response measures should maintain public confidence and feel fair
- Treatment and admission criteria should remain clinically based and hospital admission criteria should be applied in a transparent,

consistent and equitable way that utilises the capacity available for the seriously ill and most likely to benefit

- Plans should recognise the need to respond to psychosocial issues and concerns such as anxiety, grief and distress and for sympathetic arrangements to manage additional fatalities.

9.3 Key planning assumptions for health and community care planning

To allow sufficient time to finalise and implement operational response arrangements, the Scottish Government Health Directorates will advise on the reduction of non-essential and elective NHS services and may begin to suspend some performance targets from the onset of 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.

9.3.1 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 27.5% of symptomatic patients (including all symptomatic children under three) will require assessment and treatment by a general medical practitioner or suitably experienced nurse (planning range 13% – 27.5% 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).

9.3.2 Health and community care demand

- A short lasting pandemic of higher virulence would put greater strains on services than a more sustained pandemic of a lower virulence
- 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
- Children within the normal weight range for their age who have high fever and cough or influenza-like symptoms should if:
 - i) aged under one year or at high risk of complications (due to severe co-morbid disease) - be seen and assessed by a GP or hospital emergency department
 - ii) aged 1 and 2 years (i.e. up to 3 years) - be seen and assessed by a GP or suitably experienced health care professional
 - iii) aged 3 years and over - be assessed by the telephone helpline staff using a clinically based paediatric triage protocol and referred for antivirals or to a medical practitioner if indicated
- Assuming a complication rate of 25%, an attack rate of 50% and those under 3 needing to see a health professional, general practices can expect to see 3025 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.

Table 4 - 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

	Per 100,000 population		
	25% attack rate	35% attack rate	50% attack rate
Clinical cases	25,000	35,000	50,000
GP consultations	6,875	9,625	13,750
Hospital admissions	1,000	1,400	2,000
Deaths	625	875	1,250

Table 5 - 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

	Per 100,000 population		
	25% attack rate	35% attack rate	50% attack rate
Clinical cases	5,500	7,700	11,000
GP consultations	1,800	2,500	3,600
Hospital admissions	220	308	440
Deaths	140	200	280

Assumptions:

- 22% of the total demand occurs in the peak week.
- All complications (@ 25% cases) and symptomatic children under the age of 3 (3.2% of the population) are consulted by a GP.
- Hospital admissions @ 4.0% of cases.
- Deaths @ 2.5% of cases.

9.4 General principles of containment and infection control

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

- staff and public education
- 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

- the consistent application of good hygiene and infection control measures
- timely recognition of symptomatic patients
- segregating (isolating) symptomatic patients in their homes and limiting external contact
- using voluntary quarantining measures if necessary
- clustering symptomatic patients who are in hospital, residential homes or other closed establishments in specific wards or designated areas
- ensuring that staff are well informed about and adhere to procedures for the prevention of influenza transmission
- providing personal protective equipment if occupational risk assessments have indicated 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 is available at:

www.infectioncontrol.hps.scot.nhs.uk

9.4.1 Face masks/respirators in care settings

Various types of surgical face masks and respirators are available, offering differing levels of protection and meeting agreed European and/or international normative standards. WHO recommends the use of surgical masks and particulate respirators at 95% efficiency by healthcare workers during a pandemic and that symptomatic patients could themselves wear surgical masks to protect others if circumstances make it absolutely necessary for them to leave home and logistical arrangements allow. Standard Health and Safety Executive guidance calls for higher specification FFP3 respirators for healthcare workers whenever respiratory protection is indicated in the UK, although it recognises that this may not be sustainable in the special circumstances of an influenza pandemic. Based on available evidence, current UK pandemic influenza infection control guidance is:

- fluid-repellent surgical masks should be worn by healthcare workers who may be in close and/or frequent contact (within one metre) with symptomatic patients
- 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, intubations, aspiration), although such procedures should be avoided as far as possible. It should particularly be noted that fit testing and specific training are essential for these respirators.

9.4.2 Other personal protective equipment

If close contact with an influenza-infected patient is considered inevitable or highly likely, health workers 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. Although the ocular route is not regarded as a major route of transmission for normal human influenza viruses, it is nevertheless 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.

9.4.3 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

www.brit-thoracic.org.uk/PandemicFlu.html

Scottish Government Health Directorates

www.scotland.gov.uk/pandemicflu

Health Protection Scotland

www.hps.scot.nhs.uk/resp/index.aspx

9.5 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 in some areas over the course of an outbreak.

The capacity to deliver continuity of essential and emergency influenza and non-influenza 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 on a UK basis. It is intended that this work 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.

9.6 NHS Performance Targets

Consistent with and subject to the work described above, 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 influenza outbreak. The Scottish Government Health Directorates would continue to monitor NHS 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 Government HEAT targets will remain in place through an influenza 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 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 an agreed period of time, and according to the circumstances immediately following the pandemic
- These proposals are subject to the work being carried out on prioritising services and may be revised.

9.6.1 Trigger for suspension of targets

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

9.6.2 Further Work

Further guidance will be issued in due course on a wider range of targets. This may cover primary care, community care, NHS24 and the Scottish Ambulance Service.

9.7 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 and regularly updating 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.

9.8 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. These alternative arrangements and strategies need to be developed in advance and implemented as demand increases. Plans should be able to accommodate alternative service delivery arrangements such as:

- the introduction of a telephone-based initial assessment and triage of all symptomatic influenza patients by trained lay-operators following clinically approved algorithms to authorise antiviral collection and refer influenza patients to further services as appropriate
- 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.
- and any other specific local contingencies that have been identified as necessary

9.8.1 Delivering care in a community setting

Additional demand for healthcare will mean that most influenza patients will require an initial assessment, and the majority of their subsequent care and support, outside of hospital healthcare settings. Patients will need to access care (including self care) from their own home or residential settings as far as possible to help reduce and limit the spread of infection.

Developing effective arrangements that ensure a sustainable community-based response should therefore be a pivotal component in all local plans. Arrangements should provide for:

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

GPs and community health teams will continue to provide the initial health response. While normal primary and community care delivery mechanisms may remain adequate and maintainable in the very early and latter phases of a pandemic, services will need to adapt quickly in response to escalating demand. Ceasing non-clinical activities and similar measures may make some additional capacity available. However, pressure on individual practices will be heavy, additional demand for care in the home will be high and single-handed or smaller practices are likely to experience disproportionate difficulties caused by the absence of key staff.

In addition to maintaining essential provision for non-influenza patients, the resources and skills available in general medical practices should focus primarily on patients who:

- are suffering influenza complications
- are less than three years of age
- have relevant pre-existing medical conditions
- are in identified 'at-risk' groups
- are not responding to treatment
- need higher levels of care but cannot be admitted to hospital
- are pregnant
- are dying
- have died - including bereavement support.

9.8.2 Local influenza health coordination

Each territorial NHS Board will need to establish and resource an effective mechanism for directing and coordinating the local response.

Unless other local arrangements are in place, Community Health Partnerships, under the direction of their NHS Board, should carry out the local coordination of community services. In terms of functionality they should:

- act as a focal point, providing a link to and oversight of the local health response
- monitor and coordinate the overall health response on a pan organisational, whole systems basis
- maintain the continuing provision of general practice and primary care services both in and out of hours
- collect, collate and report information on the local health situation
- link with community care and other agencies to support the delivery of care and maintain patients at home
- provide a local link and health input and advice to the wider local coordination arrangements
- ensure that national messages are cascaded, reinforced and that the public are well informed and advised of local response arrangements.

9.8.3 Primary Care

NHS Boards' response plans should be developed in consultation with local professional representative committees and should include the following components:

- reinforcing individual practice and inter-practice service continuity arrangements
- developing mutual aid
- enhancing out-of-hours arrangements
- providing for those who are unregistered or away from home
- identifying inter-profession support opportunities.

9.8.4 Supplementing Primary Care

Normal primary care arrangements are likely to require significant supplementation as the pandemic wave(s) develop, and an effective support system during the peak week(s) of a pandemic should incorporate:

- 24x7 telephone-based access via a national influenza line for the majority of those patients who believe they are symptomatic, with an appropriate and timely response across Scotland
- the use of non-clinical staff to provide initial telephone assessment for most patients and either to authorise the collection of antivirals or refer patients to their GP as appropriate
- secure systems allowing for the collection of an antiviral treatment course and self-care leaflet by the patient's friend or relative from a designated collection point or, exceptionally, home delivery
- advice to parents/guardians of symptomatic children weighing 15 kg or less (under 3 years of age) to contact their general practice for assessment and antiviral solution
- prompt reference to a GP if history/signs/symptoms indicate influenza complications or failure to respond to treatment
- agreed and consistently applied clinical criteria and thresholds for hospital admission
- continuing provision for emergency treatment and for maintaining other essential primary care
- social support to help maintain patients in their home or residential setting
- protocols for the management of patients presenting in other settings. There should be recognition that some symptomatic patients will present at accident and emergency departments, general practice, pharmacies or other health facilities irrespective of advice or plans
- arrangements for targeted vaccination when/if a suitable pre-pandemic or specific vaccine becomes available.

9.8.5 Telephone-based access arrangements (national influenza line service)

Face-to-face clinical assessment for every patient will not be feasible at the peak of a pandemic, even assuming that most would be well enough to attend surgeries or other healthcare facilities. Department of Health analysis suggests that general medical practices will not be able to expand their collective telephone call-taking capacity sufficiently to meet the level of demand anticipated. Whilst patients may still choose to make contact via their GP surgery, call centres using trained call takers operating to a clinically-based algorithm offer a viable and acceptable alternative.

To provide public information and advice before and during a pandemic, the Government - in conjunction with the Central Office of Information, NHS Direct and NHS24 - will establish a national influenza line service at WHO international phase 5 (see figure 3).

From UK alert level 2 (WHO phase 6) the service will expand to provide initial patient assessment and antiviral authorisation and both functions will then remain operational until the impact of the pandemic and the threat of further waves subside.

The key objectives of the national influenza line service are to:

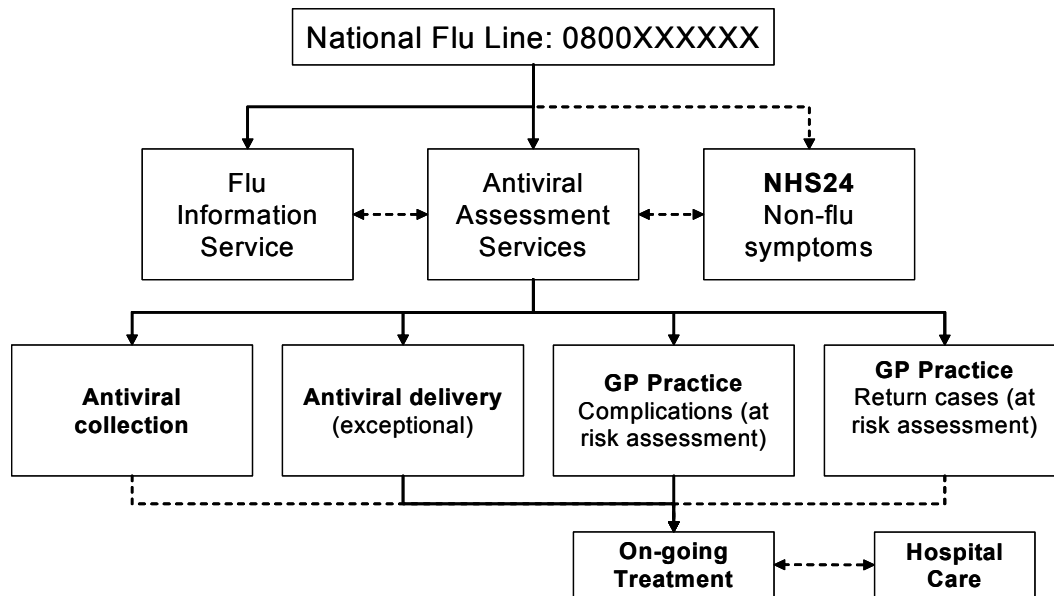
- provide pandemic influenza related advice and information
- provide access to pandemic related literature
- provide situation reports and daily updates
- provide access to a mechanism for rapidly assessing those suffering influenza-like symptoms
- authorise access to antiviral treatment (if that is indicated)
- give information on the nearest antiviral medicine distribution point
- refer to some other part of the health and community care system if that is a more appropriate disposition
- facilitate the capture of critical surveillance information (number of people calling who are symptomatic, demographics of those accessing treatment, take-up of treatment etc.) to inform the local and national pandemic response.

Initial assessment will focus on confirming that the caller has signs and symptoms of influenza, no indicators of complications, is aged three or over, has been symptomatic for less than 48 hours and antiviral treatment is not otherwise contraindicated. Suitably trained staff using a clinically based decision tree algorithm will perform these tasks and authorise the collection of antiviral medicines for the patient. Analysis suggests that, at a 50% clinical attack rate, such a service might need the capacity to handle a minimum of 11,000 influenza-related telephone calls per 100,000 population and 28 staff per 100,000 population per day to provide 24-hour cover during the peak week.

The Department of Health is developing a suitable national algorithm and producing model protocols/guidelines to allow the supply of oseltamivir following a telephone assessment. It also proposes to make the necessary amendments to medicines legislation to enable alternative prescription and supply arrangements in a pandemic and will be consulting on the proposals.

Further guidance on the provision of care in a community setting is available at: www.scotland.gov.uk/pandemicflu

Figure 3 - A proposed model of care from a patient's perspective



9.8.6 Providing rapid access to antiviral medicines

In order to limit the spread of infection and maximise individual health benefits, patients should take an antiviral medicine as soon as possible after the onset of symptoms – ideally within 12 but in any case within 48 hours. Therefore, rapid antiviral provision is an important planning aim. At the initial stages of a pandemic, any patient who has been symptomatic for less than two days should be offered treatment with antiviral medicines unless contraindicated, although this policy will be reviewed as information on the actual attack rate, clinical impact, optimum dosage regime, stock consumption, any resistance and timeframe within which treatment remains useful emerges.

A proportion of the national stockpile has already been pre-distributed to the NHS Boards (5% to mainland Boards and 10% to the island Boards). Subsequent supplies will be adjusted to reflect the actual attack rate, transient populations and supply position. Response plans should provide for local distribution to hospitals, health establishments, closed institutions and general practitioners, and should ensure that supplies are conveniently accessible to those local communities from pre-designated distribution points or collection centres (which are likely to include some community pharmacies) across the area. Storage and distribution arrangements should address the need to protect stock and staff security in consultation with the police and local pharmacy adviser. Self-management advice leaflets, information and contacts for support should also be available at these collection/distribution centres.

Plans should assume that a friend or relative will be available to collect the patient's antiviral treatment course from the designated distribution/collection point on production of authorisation from the influenza line or nominated health practitioner. Pre-pandemic messages will ask everyone to try to

arrange such helpers, but for the small proportion unable to do so, alternative arrangements such as a home delivery service by courier/taxi should be developed.

9.8.7 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 and the Scottish Government are reviewing available stock levels and working with the pharmaceutical sector and others to enhance stocks, improve supply chain resilience and consider other options for meeting demand and maintaining supply. Further clinical guidance on the prescribing and use of medicines during the pandemic alert and pandemic periods will be issued and there will be consultation on proposed changes to medicines legislation and related regulations, designed to ensure adequate patient access, with a view to implementing those changes in the event of a pandemic.

9.8.8 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 paid 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 influenza emergencies
 - ii) suspected or proven pandemic influenza 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.

9.8.9 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 in Scotland, 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. 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 integration 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.

To help community care providers meet these challenges, further guidance is available. *Planning for pandemic influenza in community care: An operational and strategic framework* can be found at the following website (<http://www.scotland.gov.uk/pandemicflu>). It deals with the impact of a pandemic influenza outbreak on community care, and how community care services should respond. There are key challenges in managing community care services, and the document sets out key planning considerations, and organisational and individual roles. It is intended for all involved in planning community care services, including managers of care at home services and managers of care homes.

9.8.10 Role of NHS24

Demand for health advice and information is likely to increase significantly during a pandemic. NHS24 will continue to play an important role in providing health advice and information through their normal telephone number, and via the NHS24 website (www.nhs24.com). Demand on NHS24 core services is likely to increase and the primary focus of service continuity plans is the maintenance of core services in the face of high levels of staff absence.

In the event of the pandemic threat increasing, the Government will also activate a national influenza line service from WHO international alert phase 5. Initially the service will provide advice, updated information and access to literature. At UK alert level 2 (WHO phase 6) the service will expand to provide rapid assessment and where necessary access to antiviral treatment for symptomatic patients

The Scottish Government and NHS24 will work with territorial NHS Boards to develop national influenza helpline services and local delivery arrangements.

9.8.11 Pharmacy

The contribution that pharmacies can make in a pandemic scenario will depend on the setting in which they routinely provide services and the qualifications, expertise and area of practice of their pharmacists. Community pharmacies are often located in the heart of communities. They can make an important contribution in support of self-care, dispensing/repeat dispensing of routine medicines, signposting other NHS services, supplying regular medicines to vulnerable people such as residents of care homes or those with long-term conditions and maintaining medicine supplies under contracts with other bodies such as hospices and prisons as far as possible.

To ease pressure on GP surgeries and community services, new powers may be given to community pharmacists (subject to consultation and parliamentary approval) to supply medicines and provide pharmaceutical services in a more flexible manner. Formal consultation will precede any proposed changes to legislation.

Hospital pharmacists and their staff will play an important part in making the best use of available medicines including the appropriate use of patients' own medicines and facilitating the discharge of patients with adequate supplies of medicines. Where there are shortages of some medicines, pharmacists are well placed to advise on the use of alternative medicines that have a similar effect. Pharmacies will play an important part in educating the community, providing positive health messages and advising patients and members of the public on medicine supply issues.

As the pandemic escalates some of the routine functions and services provided by pharmacies may have be reduced, or stopped for short or longer periods, as demands increase elsewhere. Specialist clinical pharmacists may be able to support doctors and other healthcare professionals in all settings, including primary care, hospitals and the community. Pharmacists working in primary care could also be deployed to support GPs in their practices or in community pharmacies.

9.8.12 Role of Scottish Ambulance Service

Demand on the Scottish Ambulance Service 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.

9.8.13 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.

Specific infection control guidance for dentists can be found in the document “*Pandemic Flu: Infection Control Guidelines for use in Hospitals and Primary Care Settings*” at: www.scotland.gov.uk/pandemicflu

9.9 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, NHS 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 e.g. for mental health
- the role of voluntary organisations
- specialist counselling.

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

10 MAINTAINING BUSINESS CONTINUITY – THE SCOTLAND WIDE RESPONSE

10.1 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 absence are likely to be a major factor.

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

10.1.1 Factors leading to possibly high levels of staff absence

Over the course of a pandemic, staff are likely to be absent from work for a combination of reasons including personal illness, the need to look after family members who are ill, bereavement, fear of infection, the impact of public health measures such as school closures and other factors such as possible transport difficulties. Levels of absence may vary due to the size and nature of a workplace, the kind of activity that takes place there and the composition of the workforce.

As part of its role of co-ordinating the preparations for a possible influenza pandemic, the Police and Community Safety Directorate has issued advice to assist business continuity planning comprising:

'Guidance on contingency planning for a possible influenza pandemic'

www.scotland.gov.uk/Resource/Doc/924/0040587.pdf

'Introductory advice to staff on planning for pandemic influenza'

www.scotland.gov.uk/Resource/Doc/1094/0041751.pdf

10.2 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. Absence 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 Scottish Government 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 absence – up to 30-35% over a 2-3 week peak period.

10.3 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, the environments in which people work and the extents to which the absence of even small numbers of highly specialist staff might constitute a material risk. 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 absence levels and options for home or remote working.

10.3.1 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. The risk assessment should consider whether the employee's work activity increases the risk of exposure beyond that of community acquired exposure and what proportionate control containment and protection measures, may be available. Most of the general principles for infection control in hospitals and other settings (see section 9.4) can be equally effective if applied in the general workplace.

Consultation and jointly conducted risk assessments by employers and staff and their trades unions or representatives, combined with 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 with influenza-like symptoms should be positively encouraged to stay at home until their symptoms resolve. Staff who develop influenza-like illness at work should be sent home. Non-punitive personnel policies and reassurances should emphasise and support those aims. Follow-up contact with absent employees, the provision of occupational health advice and other similar measures indicated in the Health and Safety Executive's existing guidance can help minimise other absences and encourage return to work as soon as possible. Making best use of recovered 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

10.4 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.

Regardless of how well developed and robust local planning and preparations are these are unlikely to be successful during a pandemic without the active support of individuals, families and communities. Local Authorities will want to reassure their communities that every reasonable preparation has been made for high volumes of additional deaths and to consider how to manage the

potential demands for advice, support and other needs before, during and after a pandemic.

During the early stages, local services will probably not know the precise scale of deaths in their area - although projections may become available - so plans need to be flexible and adaptable. Local service providers should aim to maintain current processes for as long as that is possible, but as numbers of additional deaths increase, those may soon become unsustainable. When that becomes the case, local services are likely to need to work differently and ways in which deaths are certified and funerals, burials and cremations arranged are likely to change.

Due to the possibility of fatality rates being too high for current systems to cope with, the Strategic Co-ordinating Groups (SCGs) in Scotland have been asked to take on the responsibility 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, NHS 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 Police and Community Safety Directorate has prepared a report on options for additional storage for the SCGs. "*Probable Pandemic Influenza Deaths in Scotland*" will be distributed to SCGs to aid planning for their area and assist in selection of suitable temporary body storage facilities.

The Police and Community Safety Directorate has commissioned an audit of mortuary capacity which looks 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.

10.4.1 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 the General Register Office of Scotland (GROS) to registrars, hospitals, GPs etc. As part of pre-planning for a pandemic, GROS has increased stocks of Form 11 in proportion to its 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 influenza. Accordingly, the Crown Office Procurator Fiscal Service, 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 influenza*** or ***presumed pandemic influenza***. A guidance letter has been issued to all Practitioners, about the certification of pandemic influenza, which gives examples of situations, and outlines all circumstances that can be legitimately considered for certification. This will encourage and give confidence to practitioners to certify appropriately. GROS will subsequently instruct registrars to accept the cause of death as pandemic influenza or presumed pandemic influenza without reference back to their local Procurator Fiscal. This combination should reduce delays in the registration of deaths and the disposal of remains.

10.5 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 the pandemic when staff absences are likely to be at their highest.

10.5.1 Communications

At the onset of a pandemic, the telecommunications industry would expect to be able to provide a near-normal service. However, like other sectors, the degree to which services may be affected will depend on a number of factors including the nature of the crisis, the number of workers who contract the virus and the resulting level of absence. Above-normal absence rates during a pandemic are likely to result in a gradual increase in the time taken for telecommunications providers to deal with customer requests and in carrying out routine maintenance.

The telecommunications industry would respond to a crisis by seeking to limit the impact on services by prioritising fault repairs at the expense of routine maintenance and the provision of new services. New services provided during such a crisis would generally be restricted to urgent requests from emergency responders recognised as Category 1 and Category 2 responders under the Civil Contingencies Act 2004.

While the telecommunications networks have the capacity to support a significant increase in home working, the reconfiguration of the networks to enable them to handle significant short-term changes in the location and pattern of access cannot be achieved overnight. It is vital that organisations talk to their telecommunications providers about the contingency of additional home working. Organisations planning a move to home working will also need to ensure that they have the necessary hardware and software in place and

appropriate arrangements to ensure support, oversight and audit of home-workers.

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.

10.5.2 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 Scottish Government regularly meets 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. A further workshop in September 2007 looked at the relationship with other utilities such as water and telecoms to better understand interdependency between all involved.

10.5.3 Financial sector

Pandemic planning in this sector is being led and coordinated by the Tripartite Authorities (HM Treasury, the Financial Services Authority 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 absence 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.

10.5.4 Food sector

Major food retailers are factoring pandemic influenza 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 Scottish Government hosts a stakeholder group which regularly meets with the sector to discuss its preparations and any specific issues which have arisen.

10.5.5 Transport sector

Public Transport operators aim to run as near normal services for as long as, and as far as, that is 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.

10.5.6 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 influenza scenario. As many key operations are automated, Scottish Water is confident that it will have sufficient staff to sustain these essential operations during an influenza 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.

10.5.7 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.

10.5.8 Judicial process

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 to develop plans for action during an influenza 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.

10.5.9 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
- 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
- ensuring that infection control is as effective as possible.

The Scottish Prison Service 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
- enhance care in prison for those who have influenza 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.

10.5.10 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.

10.5.11 Planning by Strategic Co-ordinating Groups and Local Authorities

SCGs and Local Authorities are focussing pandemic influenza 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.

10.5.12 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.

At a higher level of attack rate, factors such as capacity pressures on health establishments, 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, ensuring that expectations are realistic and that advice and information is 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 Government 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.

11 COMMUNICATION AND PUBLIC ENGAGEMENT

11.1 Current perceptions and understandings

Preparing for, responding to and recovering from an influenza pandemic will depend significantly on co-operation between the 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. Any emergency on this scale also needs strong 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 (DH) 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 influenza, 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).

11.2 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 new or re-emerging influenza virus and explain 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 that entails
- 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 all hard-to-reach groups), professions and businesses at the response and recovery stages
- provide advice and information for travellers and UK citizens overseas and for 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 multilingual 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 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.

11.2.1 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
- provision of 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 and multilingual 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.

11.3 Government News Co-ordination Centre and SEER

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 DH 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 activated, 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.

11.4 Cascading information

DH will inform the Scottish Government of any changes in the World Health Organization pandemic phases. The Cabinet Office will 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 the Chief Medical Officer (CMO) network. Other Scottish Government directorates will arrange sector-specific briefings.

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/directorates.

11.5 Health communications

The communications plan for Scotland supports the UK Framework and recognises that DH has the overall UK lead. DH will be the primary source of health related messages and will work closely with all four health departments/directorates, the Cabinet Office, other government departments/directorates, the Health Protection Agency and Health Protection Scotland 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 all hard-to-reach groups. Explanatory leaflets, a guide explaining pandemic influenza and other informative material is already available on the Scottish Government Avian & Pandemic Flu web pages: (www.scotland.gov.uk/pandemicflu) 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.

The CMO will have an important professional leadership role in a pandemic. In conjunction with expert groups, professional bodies and Health Protection Scotland, the CMO will provide multidisciplinary advice and information and may need to adapt initial guidance as the characteristics of the emerging influenza virus become more apparent or if pressures on capacity, pharmaceuticals or other supplies make tactical changes necessary.

11.6 Telephone advice and access

The Government will make public information, advice, access to literature and daily situation reports updates (in real time to ensure that the right message is communicated at the right time) available from WHO phase 5 through the national influenza line service (see also section 9.8.5).

12 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 South East Asia, the Middle East or Africa. 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 Government 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>Scottish Government Health Directorates (SGHD) in collaboration with Department of Health (DH)</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 Environment Directorates on animal/human health aspects and with FCO on travel advice
<p>Environment</p>	<ul style="list-style-type: none"> • Maintain international developments and support

Directorates in collaboration with Defra	<p>multinational surveillance and prevention initiatives (Defra lead)</p> <ul style="list-style-type: none"> • 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 SGHD and Defra
Scottish Government directorates	<ul style="list-style-type: none"> • Advise, encourage and test preparedness and business continuity planning across all sectors in Scotland
Health Protection Scotland	<ul style="list-style-type: none"> • Support SGHD • Support NHS Boards • 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
<p>Assessment of risk</p> <ul style="list-style-type: none"> • 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 (e.g. an avian influenza virus) outside the UK still represents a very small risk to the UK, especially if associated with an identified source (e.g. contact with sick poultry). Closer vigilance will be required if cases are

<p>associated with significant ongoing outbreaks of avian influenza in poultry, particularly if geographically close to the UK</p> <ul style="list-style-type: none"> • 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 <p>Priorities</p> <ul style="list-style-type: none"> • Maintain close liaison with international organisations such as WHO and OIE • Assist with identification of the virus and its characteristics • 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 <p>Main capabilities required</p> <ul style="list-style-type: none"> • 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 Government 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 Cabinet Sub-Committee on Civil Contingencies (SEER-CSC) if required
<p>SGHD in collaboration with DH</p>	<ul style="list-style-type: none"> • Inform Justice Directorates and NHS Scotland of change of phase and UK significance • Liaise with Environment Directorates and relevant Scottish Government directorates 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 NHS Scotland, community services and others • Begin to prepare the public for the possibility of an influenza

	<p>pandemic</p> <ul style="list-style-type: none"> • Prepare information materials for future phases • Launch online communications • Review preparedness plans for future phases • If within Scotland, confirm with HPS, HPA , DH and report to WHO and EU (via EWRS)
Scottish Government directorates	<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 SGHD • DfID: consider need for assistance abroad
Health Protection Scotland	<ul style="list-style-type: none"> • Monitor international situation and advise SGHD 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 	

Main capabilities required	
<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 Government working in a UK Government framework	<ul style="list-style-type: none"> • Review risk assessment, informed by Health Directorates • Continue to review and refine policies and pandemic management arrangements at official and Ministerial levels, including business continuity plans
SGHD in collaboration with DH	<ul style="list-style-type: none"> • Notify Justice Directorates and NHS Scotland of change in Phases • Advise on Scottish public health risk and ensure rapid reassessment if circumstances change • Liaise with Environment Directorates over implications for farming/poultry industry • 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
Scottish Government directorates	<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 SGHD • 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 SGHD on risk to UK public health • Produce update reports as agreed with SGHD • Liaise with SGHD over advice to travellers and link with HPA and Scottish Government communications 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

	<p>incidents/clusters</p> <ul style="list-style-type: none"> • 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 <p>Main capabilities required</p> <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 Government 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
SGHD in collaboration with DH	<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 Scottish Health Emergency Response Team • 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

	<p>response</p> <ul style="list-style-type: none"> • 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
<p>Scottish Government directorates</p>	<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 SGHD, issue information/advice to travellers/UK nationals abroad, including arrangements for UK residents abroad • DfID: consider need for assistance abroad
<p>Health Protection Scotland</p>	<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/directorates 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/directorates • 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

	<ul style="list-style-type: none"> • 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 Directorates • 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

Assessment of risk

- 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

Priorities

- 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:
 - 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

Main capabilities required

- Surveillance adapted to inform treatment and planning
- Interventions to reduce the impact

<ul style="list-style-type: none"> • 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 Government working in a UK Government framework	<ul style="list-style-type: none"> • Continue cross-Government management. • Activate Government News Co-ordination Centre to ensure co-ordinated media handling/response
SGHD in collaboration with DH	<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, SGHD, 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)
Scottish Government directorates	<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 Government 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

UK alert level 2	
Scottish Government working in a UK Government framework	<ul style="list-style-type: none"> • Fully activate government arrangements for managing and coordinating national response
SGHD in collaboration with DH	<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
Scottish Government directorates	<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 SGHD 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 Government working in a 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

SGHD in collaboration with DH	<ul style="list-style-type: none"> • Notify escalating UK Alert level and implications. • 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 Government directorates	<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 (e.g. school closures) • Report to Health Directorates on preparedness and prepare daily situation reports on the NHS in its area

End of first pandemic wave

Assessment of risk

- 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

<ul style="list-style-type: none"> • 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>	
<p>Scottish Government working in a UK Government framework</p>	<ul style="list-style-type: none"> • Monitor international developments • Develop and implement recovery plans
<p>SGHD in collaboration with DH</p>	<ul style="list-style-type: none"> • Prepare report • Continue to monitor Scottish situation • Develop recovery plans, for Health Departments/Directorates 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
<p>Scottish Government directorates</p>	<ul style="list-style-type: none"> • Develop and monitor recovery plans, and prepare for possible subsequent waves
<p>Health Protection Scotland</p>	<ul style="list-style-type: none"> • Continue heightened surveillance • Monitor virus for significant antigenic variations • Monitor antiviral susceptibility • Assess attack rate during the pandemic and current population susceptibility • Continue to assess efficacy of interventions during the pandemic
<p>NHS and Community Care</p>	<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 Directorates

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.

13 CONTACT POINTS

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14 LIST OF 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)
DAs	Devolved Administration(s)
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
EMA	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	} National Health Service telephone helplines
NHS Direct Wales	
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
SG	Scottish Government
SGHD	Scottish Government Health Directorates

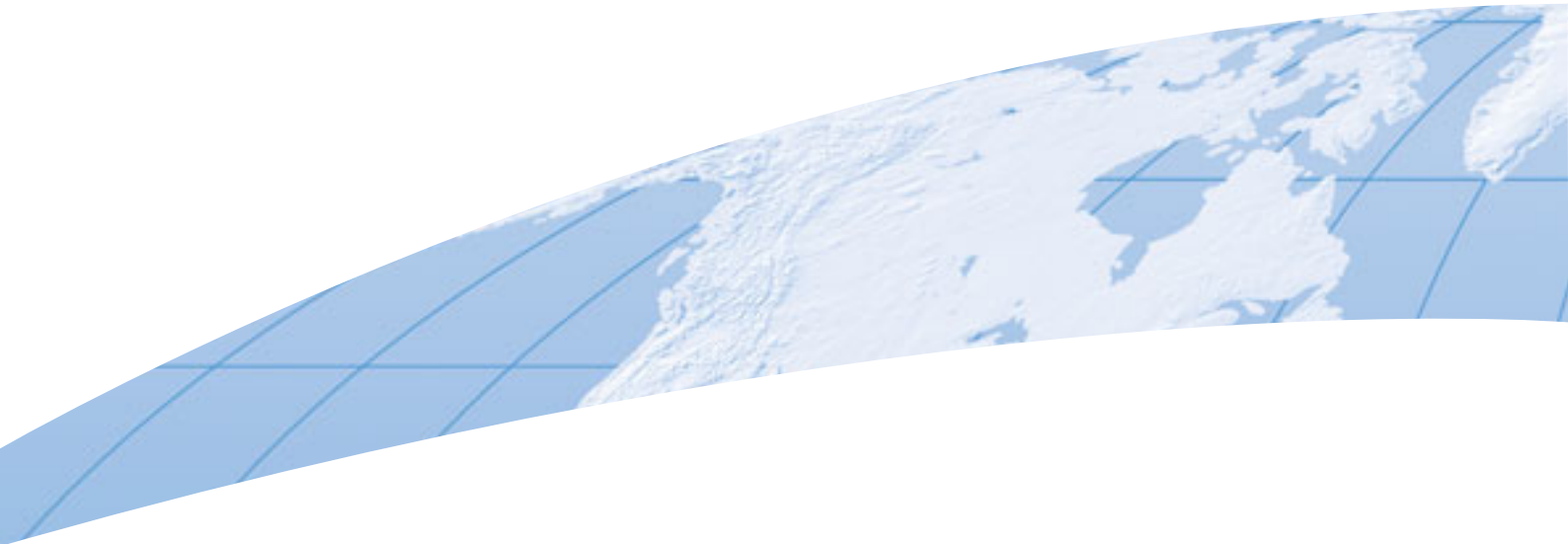
SGJD	Scottish Government Justice Directorates
SITREP	Situation Report
UK	United Kingdom
UKNIPC	United Kingdom National Influenza Pandemic Committee
US	United States of America
VLA	Veterinary Laboratories Agency
WHO	World Health Organisation

15 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.



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