

Contingency planning for an influenza pandemic

National measures

The Swedish National Board of Health and Welfare classifies its publications in accordance with various types of document. This is the Swedish National Board of Health and Welfare's guidelines for planning, development of methods etc. It includes recommendations which, with scientific and/or empirical backing, provide a basis for the planning, supervision, quality work, method development etc. of the relevant authorities and those in charge of operations. The Swedish National Board of Health and Welfare is responsible for conclusions and recommendations.

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Foreword

The present contingency plan is based on the description and analysis of the legal, medical and organisational conditions for national measures before and during an influenza pandemic recorded in the document *'Influenza – strategies for prevention and control'*.

The overall goals covered by contingency planning are as follows:

- To develop strategies for handling the effects a pandemic can have on society
- To contribute towards various players in society being ready to handle the aspects of a pandemic for which they are responsible
- To establish a system for early detection of a potential pandemic and evaluate the effect of the pandemic on society
- To describe possible countermeasures and the way they are to be used, and
- To draw up strategies to improve the possibilities of implementing adequate countermeasures.

In a separate document, *'Contingency planning for an influenza pandemic – data for regional planning'*, the Swedish National Board of Health and Welfare submits its recommendations, primarily for planning on the part of the county councils and the municipalities.

Johan Carlson
Unit manager

Contents

<i>Foreword</i>	3
Specific planning conditions	5
<i>Distribution of responsibility</i>	6
Swedish National Board of Health and Welfare	6
Swedish Institute for Infectious Disease Control	7
Medical Products Agency	8
County councils and municipalities	8
<i>Measures during the various phases of an influenza pandemic</i>	9
<i>Special measures in the event of a pandemic</i>	12
National Pandemic Group	12
European and international collaboration	13
Regional coordination and planning	13
Health service	14
Monitoring and reports	14
Information and communication	15
Use of vaccine	16
Use of antiviral drugs in the event of an influenza pandemic	18
Contingency storage of drugs and vaccines	19
Distribution of drugs and vaccines from contingency stocks	20
Other measures to prevent spreading	21
Contingency arrangements in sectors of society outside the health service	21

Specific planning conditions

The Swedish National Board of Health and Welfare deems that the prerequisites for contingency planning for influenza will always change, and the ambition is thus for the contingency plan to be revised annually, or if necessary more regularly. Certain measures necessitate a new organisation and distribution of responsibility to facilitate optimum implementation of the requisite measures. This is made clear by the Swedish National Board of Health and Welfare's document '*Influenza – strategies for prevention and control*'. The planning presupposes that a satisfactory solution be found regarding these matters.

The following are the planning conditions for 2005:

- The plan applies to an influenza pandemic the phases of which are declared by the World Health Organisation (WHO).
- A pandemic means extensive global spreading of a completely new influenza virus.
- A new type of influenza virus which is spread amongst humans arises somewhere in the world outside Sweden. The influenza reaches Sweden as part of an ongoing pandemic and quickly becomes widespread here in Sweden.
- The time from initial identification of this new type of virus to Sweden being affected by it will probably be less than with previous influenza pandemics (about 3-4 months).
- During the early phases of an influenza pandemic a shortage of vaccine can be predicted. As things stand it is estimated it will take at least 2-6 months before an adapted influenza vaccine can be made available for general use. In all circumstances access will probably be very limited, especially at the beginning of the pandemic. Sweden has no domestic manufacturer of influenza vaccine, and is entirely dependent on imports. There is no guarantee that Sweden will get sufficient influenza vaccine to cover national requirements.
- Knowledge of how antiviral drugs against influenza should best be used during a pandemic is currently incomplete. As knowledge increases, the guidelines for antiviral agents may thus need to be revised. During a pandemic they also need to be adapted to the development of the pandemic.

Special contingency plans will be drawn up separately to restrict the spread of influenza from birds and other animals to humans (and thus the potential start of a pandemic in Sweden) and to improve the work on the annual influenza epidemics.

Distribution of responsibility

This section describes the distribution of responsibility between the authorities who principally work on protection against infection and the health service. Certain problems must be resolved before a pandemic breaks out, and the solution in question will often need to be adapted when the pandemic occurs. Other tasks can be performed during the actual pandemic.

Depending on how an influenza pandemic develops, further authorities will probably gain an important role in this work. This applies to certain national authorities and, at a regional level, in particular to the county administrative boards. But this contingency plan principally deals with what is specific to an influenza pandemic, and thus only very generally concerns the obligations incumbent on county administrative boards and municipalities in accordance with the law (2002:833) on extraordinary events and other applicable legislation. Neither is the government's superordinate role in control of the authorities – both before and during a pandemic – described here in more detail.

Swedish National Board of Health and Welfare

Before the pandemic the Swedish National Board of Health and Welfare shall:

- Coordinate planning regarding the national influenza pandemic with the authorities and organisations concerned;
- Trace access to vaccine and antiviral drugs and initiate and evaluate strategies to give Sweden access to them during an epidemic;
- Assess the need for and use of
 - Vaccines
 - Antiviral agents
 - Antibiotics
 - Healthcare resources
- Draw up
 - Prioritisation plans for vaccination, with guidelines on distribution of vaccine throughout the country
 - Programmes of information and information sheets for the general public and the mass media in collaboration with other authorities concerned
 - Regulations and recommendations for county councils and municipalities to reduce the spread of infection.

During the pandemic the Swedish National Board of Health and Welfare shall:

- Coordinate the work and follow-up of the measures against the pandemic in the county councils and the municipalities
- Follow the development of the pandemic worldwide and declare when a new phase of the pandemic commences.
- Follow the European and international work in order to control the pandemic and implement measures agreed Europe-wide and internationally in Sweden
- Keep the government informed of the development of events, the state of affairs and the expected development of the pandemic, and of the measures taken and planned.

Swedish Institute for Infectious Disease Control

Before the pandemic the Swedish Institute for Infectious Disease Control shall:

- Follow the development of knowledge regarding various aspects of the influenza pandemic globally and assist the Swedish National Board of Health and Welfare in preparing the knowledge base needed to develop the contingency plan
- Operate and develop laboratory diagnostics including typing and resistance determination of influenza viruses and prepare diagnostic methods for new strains
- Monitor the development of the influenza in Sweden
- Monitor Sweden's influenza-vaccine cover amongst the groups for whom vaccination is recommended in accordance with the Code of Statutes of the Swedish National Board of Health and Welfare, SOSFS 1997:21

During the pandemic the Swedish Institute for Infectious Disease Control shall:

- Be responsible for detailed epidemiological monitoring of influenza
- Implement increased laboratory diagnostics as necessary during the various phases of the pandemic
- Assist the Swedish National Board of Health and Welfare in preparing the knowledge base needed to adjust and develop the contingency plan
- Notify the general public and the health service in accordance with the joint guidelines for the authorities
- Implement close monitoring of influenza-vaccination cover amongst prioritised groups during the various phases of the pandemic
- Follow and analyse how many people fall ill and how many die in Sweden.

Medical Products Agency

The Medical Products Agency shall:

- Work towards approval in the EU of influenza-pandemic vaccines that meet the requirements or approve them nationally
- Approve licence prescription of pandemic vaccines and other necessary drugs as necessary, and in accordance with the Swedish National Board of Health and Welfare's proposals
- Be responsible for official release of batches of pandemic vaccine (so-called batch release)
- Monitor the effect and side effects of pandemic vaccines and antiviral drugs
- Check stored drugs to verify adherence to the set quality standards
- Notify the general public and the health service of properties of influenza-pandemic vaccines and other drugs.

County councils and municipalities

- The county councils (and where appropriate the municipalities) are ultimately responsible for the health service and the work on protection against infection within their area.
- The relevant healthcare authorities are responsible – in accordance with notified regulations and other recommendations – for drawing up regional plans to deal with the effects an influenza pandemic will have on activities.
- The county medical officer is responsible within the county council for planning, organising and managing the work on protection against infection. This includes devising local application of the influenza-pandemic plan and managing protection against infection during a pandemic.
- County councils and municipalities should collaborate to ensure optimum use of joint resources. One main task is to redistribute resources in order to maintain functions important to society. County councils and municipalities shall:
 - Redistribute healthcare resources and resources for a municipal home-help service and draw up a prioritisation list for use of resources
 - Create an inventory of possible new beds
 - Clarify staffing

Measures during the various phases of an influenza pandemic

The table describes the various phases that an influenza pandemic undergoes in accordance with the classification recommended by the World Health Organisation (WHO). The table shows which organisation is responsible for defined measures during each phase. Some of the measures are described in greater detail in the next section of the document.

Phase	Definition	National measures
New virus detected WHO PHASE 0.1	<ul style="list-style-type: none"> • A case of a new type of influenza virus in humans has been confirmed. • There are no signs of spreading or outbreak. 	<ul style="list-style-type: none"> • The Swedish National Board of Health and Welfare follows developments in the EU and at the WHO. • The Swedish Institute for Infectious Disease Control follows epidemiological developments and reports continuously to the Swedish National Board of Health and Welfare. • The county medical officers are kept informed by the Swedish National Board of Health and Welfare.
WHO PHASE 0.2	<ul style="list-style-type: none"> • Two or more human cases of the new type of virus have been confirmed. • No evidence of spreading from person to person. 	<ul style="list-style-type: none"> • The Swedish National Board of Health and Welfare updates the national plan, focusing on the guidelines for the way antiviral drugs and vaccines must be used on the basis of epidemiological data on the new types of virus.
Pandemic alarm WHO PHASE 0.3	<ul style="list-style-type: none"> • The new virus proves able to spread from person to person. 	<ul style="list-style-type: none"> • The Swedish National Board of Health and Welfare coordinates control of the pandemic together with the authorities and organisations concerned by convening the National Pandemic Group, which commences its work. • All authorities provide updated information on 'key groups' in society which are necessary for maintaining vital functions. • The Swedish Institute for Infectious Disease Control adapts its monitoring to every phase in accordance with a special plan. • The Swedish National Board of Health and Welfare coordinates the work of the county

**Pandemic
WHO
PHASE 1**

- En new pandemic has started when the WHO has confirmed that a virus with a new haemagglutinin subtype, compared with the latest epidemic strains, has caused several outbreaks in a country and has spread to other countries. A similar clinical picture with serious morbidity and mortality in at least one part of the population occurs.
- The Swedish National Board of Health and Welfare keeps the government continuously informed from this phase on, and during the subsequent phases of the epidemic.
- The Swedish National Board of Health and Welfare follows the work at the WHO and in the EU, and forwards the guidelines on prevention of the spread of infection drawn up there in the form of travel advice etc.
- The Swedish National Board of Health and Welfare declares that a pandemic has broken out.
- The Swedish National Board of Health and Welfare continuously issues information on guidelines and other matters on the website, and issues it directly to the county medical officers.
- Information on use of antiviral drugs from the Swedish National Board of Health and Welfare for the county councils via the county medical officers.
- If vaccine is available, vaccination commences in accordance with national guidelines drawn up by the Swedish National Board of Health and Welfare.
- Following consultation with the National Pandemic Group the Swedish National Board of Health and Welfare recommends that county councils and municipalities revise their regional pandemic plans on the basis of the information available on the new strain of virus.

Pandemic WHO PHASE 2	<ul style="list-style-type: none"> • Outbreaks and epidemics occur in several countries and spread regionally throughout the world. • It is assumed Sweden will get its first case during this phase. 	<ul style="list-style-type: none"> • Municipalities and county councils consider an extraordinary-event assessment. • The Swedish National Board of Health and Welfare issues and coordinates healthcare guidelines. • Vaccination in accordance with national guidelines as far as vaccine is available. • Distribution of antiviral drugs. • The members of the National Pandemic Group are in daily contact.
The pandemic abates. WHO PHASE 3	<ul style="list-style-type: none"> • The number of outbreaks has stopped increasing or is decreasing in the countries first affected, but there are still outbreaks and epidemics involving the new type of virus in other places. 	<ul style="list-style-type: none"> • In collaboration with the National Pandemic Group, the Swedish National Board of Health and Welfare is responsible for making a preliminary compilation of the effects of the pandemic. • The pandemic plan is modified in accordance with experiences of the pandemic.
Second wave WHO PHASE 4	<ul style="list-style-type: none"> • A second wave can be expected in many countries within 3-9 months of the first wave. 	<ul style="list-style-type: none"> • Same organisation as in Phase 2. • In the event of access to vaccine, vaccination of groups not vaccinated previously.
Pandemic over WHO PHASE 5	<ul style="list-style-type: none"> • The WHO will issue a report when the pandemic period is over, which means a return to a normal frequency of influenza incidence for the time of year. 	<ul style="list-style-type: none"> • The National Pandemic Group compiles an evaluation of the pandemic in consultation with the relevant players. • Revision of previous plans, nationally and regionally.

Special measures in the event of a pandemic

National Pandemic Group

In its role as national coordinator of protection against infection, the Swedish National Board of Health and Welfare convenes a crisis group – the National Pandemic Group. The group comprises the director-general or equivalent, or their representatives, principally from the following authorities and organisations:

- Swedish National Board of Health and Welfare (chair)
- Swedish Institute for Infectious Disease Control
- Work Environment Authority
- Medical Products Agency
- Swedish Emergency Management Agency
- Swedish municipalities and county councils

Depending on the development of the pandemic in question, other authorities may need to be included in the group, e.g. the Swedish Police Board, the Swedish Armed Forces, the Swedish Board of Agriculture, the Swedish Rescue Services Agency and other authorities responsible for important social functions.

The National Pandemic Group is formed when this plan is laid down, and will thereafter have annual contact. In conjunction with a threatening pandemic, a more operational working group will be attached to the group, with experts from the participating authorities and, if necessary, external experts, who will see to ongoing work during the pandemic. This group of experts will mainly do the longer-term work of drawing up the requisite knowledge base during the course of the pandemic, and continuously developing and evaluating the handling of the pandemic.

National Pandemic Group's duties

The National Pandemic Group shall:

- Follow the development of the pandemic in Sweden and internationally
- Review various authorities' activities during the pandemic and adjust them through comparison with the pandemic plans already set up
- Assist the Swedish National Board of Health and Welfare with advice in the event of strategic changes in control of the pandemic
- Support the Swedish National Board of Health and Welfare in the work of coordinating the pandemic control measures of various authorities, county councils and municipalities.

European and international collaboration

Many of the measures dealt with in this document have a European and international dimension, and must be coordinated within the European Union and with international organisations such as the World Health Organisation (WHO). Handling of a pandemic will thus entail intensive European consultation and international collaboration for many of the national authorities. The authorities taking part in international work must include this when planning the staff resources needed for implementation of work during a pandemic.

Regional coordination and planning

Most of the measures during an influenza pandemic will be carried out by municipalities and county councils. They are responsible for drawing up contingency plans during the interpandemic phase and for implementation of prescribed measures during the various phases of a pandemic. A description of this work can be found in the document 'Contingency planning for an influenza pandemic – data for regional planning'. The Swedish National Board of Health and Welfare is responsible for following up and coordinating the planning work and for implementing the plan during a pandemic.

In accordance with the law (2002:833) on extraordinary events in peace time relating to municipalities and county councils, every municipality and county council must have a crisis-management committee, and for every new mandate period they must set a plan regarding handling of extraordinary events. The law allows the crisis-management committee to take over all or parts of areas of activity from other committees in the county council or the municipality in situations that call for this. It is the chair of the crisis-management committee who assesses when an extraordinary event should entail the committee coming into play. An extraordinary event is one that deviates from the norm, entails a serious disturbance or impending risk of a serious disturbance to important social functions and requires speedy action on the part of a county council or municipality. An influenza pandemic will most probably entail serious disturbances regarding important social functions and will thus be deemed to be an extraordinary event in legal terms.

Since the interaction between the crisis-management committee and the county medical officer has not been regulated in detail, it is important that every county council ensures functional clarification of the distribution of work between these two bodies. It is also important that the management structures set up in county councils and municipalities take into consideration the national coordinating role of the Swedish National Board of Health and Welfare in accordance with the Swedish Infectious Diseases Act (2004:168) and the possibilities of redistributing resources amongst the county councils if necessary in accordance with the law (2002:833) on extraordinary events.

Health service

The health service will be one of the most strained social sectors during a pandemic. Calculations indicate that patients with influenza will occupy hundreds of hospital beds in every county council during the pandemic. The strain on primary healthcare will also be very extensive and most of the normal resources will probably be exhausted. There will consequently be a need for extensive planning to facilitate the adjustments that will be required to achieve optimal care. It is above all the county councils who plan healthcare during a pandemic, but healthcare and municipal care will also be affected and will need adapting in the event of a pandemic. This is described in greater detail in the document 'Contingency planning for an influenza pandemic – data for regional planning'. The Swedish National Board of Health and Welfare will continuously assist the health service with guidelines for care of patients with influenza and will coordinate county-council measures. The Swedish Institute for Infectious Disease Control will assist in developing and evaluating influenza-virus diagnostics and monitoring the spread of infection and vaccine cover.

Monitoring and reports

National monitoring

During the annual epidemic season there is routine national monitoring of influenza-like disease in the form of so-called sentinel monitoring, whereby a number of primary-care physicians issue notification regarding patients with influenza-like symptoms. This is combined with a contemporary report from the microbiological laboratories on positive influenza-virus isolates. This report will need to be adapted and further developed in order to provide the requisite information on the number of cases of disease, special risk groups or patterns of dissemination during the various phases of the pandemic. The Swedish Institute for Infectious Disease Control draws up guidelines for this increased monitoring in collaboration with the county medical officers and the Swedish National Board of Health and Welfare. The Swedish Institute for Infectious Disease Control compiles the statistics collected and quickly forwards the results to the Swedish National Board of Health and Welfare (and thus to the National Pandemic Group) to facilitate adaptation of the recommendations on use of antiviral drugs and vaccines and on targeted countermeasures. Information is simultaneously forwarded to European and international players in accordance with predetermined agreements.

The increased and partially changed use of antiviral drugs necessitates intensified monitoring of any side effects and development of resistance against them. Use of a new pandemic vaccine means that safety and effect must be carefully and continuously followed up. Monitoring of vaccines and other drugs is included in the Medical Products Agency's area of responsibility, and up-to-date guidelines will be drawn up in consultation with the Swedish Institute for Infectious Disease Control. Monitoring of vaccination cover – which at national level is incumbent on the Swedish Institute for Infectious Disease Control – also needs to be stepped up in a pandemic situation to facilitate measurement of the effect of the measures undertaken.

European and international monitoring

The established reports to international networks and authorities will be continuous. The Swedish National Board of Health and Welfare in collaboration with the Swedish Institute for Infectious Disease Control is responsible for reports on the epidemiological situation in the country, above all to EU institutions and other member states and to the World Health Organisation in accordance with current agreements and procedures.

Information and communication

It is estimated that there will be a great need for information before and during an influenza pandemic. Great emphasis must also be placed on coordinating the information from various authorities. Any such coordination of the authorities' informational measures should primarily be within the parameters of the work of the National Pandemic Group

Distribution of responsibility

The Swedish National Board of Health and Welfare maintains the established contacts with the authorities, above all with the EU institutions and the World Health Organisation, in order to guarantee that information going out to the general public, the media and the relevant authorities is coordinated with information from other countries and international organisations. The Swedish Institute for Infectious Disease Control and other authorities also play important roles in this work.

In its role of coordinating protection against infection in Sweden, the Swedish National Board of Health and Welfare makes statements on the authority's strategies, guidelines and decisions. The Swedish National Board of Health and Welfare also makes statements on the general situation and the expected development of the pandemic. The Swedish National Board of Health and Welfare is the spokesman for the National Pandemic Group. Information will be continuously published on the Swedish National Board of Health and Welfare's website.

The Swedish Institute for Infectious Disease Control provides information on influenza epidemiology and influenza viruses. The information is continuously published on the Institute's website. The Medical Products Agency provides information on pandemic vaccines and antiviral drugs and other authorities involved regarding the authority-specific issues.

The pattern and effects of the influenza pandemic change from day to day and will affect everyone. There will thus be a great need for regional and local information. The county councils and the municipalities have several crucial functions in a pandemic situation, e.g. the county medical officers' management functions, the crisis-management committee and regional medical catastrophe management. Individual representatives of the health service, e.g. business managers, also have important roles during a pandemic. Not least because of this it is important that the county councils and the municipalities have a unified informational strategy. Coping with this calls for coordination of communication plans for influenza with the crisis-communication plans and the plans for psychological care.

Information for the general public on various measures at a local level will principally come from the county council and the county medical officer, but also from the county administrative board and the municipalities. To some extent this information may also need coordination at a national level, and this will be performed by the Swedish National Board of Health and Welfare through the National Pandemic Group.

Resources

During a pandemic the information channels used today must be reinforced technically and in terms of staffing in order to meet the requirements that will be made of them. This must be prepared by all authorities who can be expected to be crucial to the informational and communicatory work in the event of a pandemic. The possibilities of internal communication between the health service and the authorities concerned must also be guaranteed. In a special crisis-communication plan for influenza, which is currently being drawn up in consultation with the crisis-management authority and other authorities concerned, the Swedish National Board of Health and Welfare intends to create a basis for effective work on these issues before and during a pandemic.

Use of vaccine

Background

For several reasons the vaccine recommendations in the event of an influenza pandemic will greatly differ from those applied during normal influenza seasons, and the differences will include the following:

- Access to pandemic vaccine will be limited.
- Groups in society other than those prioritised for annual influenza vaccination may need to be prioritised for vaccination in the event of a pandemic, e.g. those with socially important functions, and
- A new strain of virus may mean that other groups in society than is normally the case are at greater risk of being affected by serious disease, and for that reason need prioritising for vaccination.

The vaccine that will be developed for a pandemic strain of virus will differ from the vaccine used today. A pandemic vaccine will only contain one type of virus (monovalent) and not the three types of virus normally included in the annual influenza vaccine (trivalent). It will probably also contain less active substance and have new additives (adjuvants), in order to ensure that the vaccine suffices for more people. Two doses of vaccine taken at least a few weeks apart will probably be needed to achieve protective immunity. This will in part require new logistics, both for administration and for follow-up of the effect and side effects of the vaccine. At EU level, approval of the pandemic vaccine will take place using a specially prepared fast procedure.

In the event of a pandemic the current vaccination recommendations (in accordance with the Code of Statutes of the Swedish National Board of Health and Welfare, SOSFS 1997:18) will need reappraisal, depending on access to vaccine and the pattern of the epidemic. People at high risk of being affected by a serious pattern of disease always need to be prioritised, but in the event of the threat of a pandemic involving very

extensive morbidity in those of working age it may be necessary to vaccinate specific predefined professional groups in order to keep important social functions going (the health service, municipal services, water, electricity, heating, refuse collection, the police, indispensable transport facilities, burials etc.).

The overall goals of a vaccination programme during an influenza pandemic are stipulated in greater detail in the Swedish National Board of Health and Welfare's document 'Influenza – strategies for prevention and control'. The goals are as follows:

- To protect those at the greatest risk of serious complications and high mortality as a result of the influenza pandemic
- To maintain good healthcare, vital social functions and effective control of the pandemic
- To prevent spreading of the influenza to medical risk groups
- To protect those groups of the population who have proven to be at greatest risk of falling ill.

Prioritisation must be set on the basis of these targets. It may need to be revised, depending on the pandemic's epidemiology and development over time as well as access to vaccine at any given time.

In the event of a pandemic there are a number of important circumstances that must be taken into consideration in order to meet the overall vaccination goals. Health-service staff and municipal care staff will be subjected to high exposure to influenza viruses at the beginning of the pandemic in conjunction with local epidemic outbreaks, and will be more affected than the population in general. It is particularly important to protect this staffing group to enable the health service to function and adequately cope with sick patients.

Other groups who will need prioritising more than is otherwise the case are those who are necessary for the security of society and who hold positions that are crucial to implementation of the basic functions in society.

An important factor to be taken into consideration in prioritisation is specific epidemiological characteristics of the type of influenza that creates the pandemic, i.e. the age groups most affected, how serious a level of disease the pandemic strain achieves, infectiousness and to what extent professional users can protect themselves using other measures.

Prioritisation list for vaccination

On the basis of the current assessment of a future pandemic, the following prioritisation list has been drawn up (the estimated number of individuals is stated in brackets):

- Special risk groups on the basis of the epidemiology of the pandemic, e.g.
 - people with cardiac and pulmonary complaints or other underlying diseases (approx. 750,000)
 - pregnant women (approx. 80,000)
 - children aged 6-23 months (approx. 150 000)
 - people aged over 65 (approx. 1.5 million, of whom the majority also form part of the first group with underlying diseases)

- Healthcare staff who it can be assumed will come into close contact with influenza patients, e.g. in emergency departments and departments of infectious diseases (preliminary estimate approx. 100,000)
- Other healthcare staff and municipal-care staff (preliminary estimate approx. 210,000)
- Staff with very important social functions (approx. 325,000)
- Household contacts with high-risk patients (the number will depend on the risk groups identified)
- Children of pre-school age and schoolchildren not in any other risk group
- Healthy people aged 18 to 64.

The groups to be covered by a targeted vaccination programme will be assessed in accordance with access to vaccine and the characteristics of a given pandemic. But it is important that every county medical officer, together with the county administrative board and the municipalities and on the basis of national guidelines, draw up an inventory of staff in positions important to society, giving the numbers, and that they have a plan for the groups of healthcare staff to be prioritised. With the support of the Swedish Emergency Management Agency, the Swedish National Board of Health and Welfare intends to plan support for this local prioritisation work.

Procurement of vaccine

The special problems in connection with procurement of vaccine during a pandemic have been dealt with in greater detail in the document 'Influenza – strategies for prevention and control'. In the opinion of the Swedish National Board of Health and Welfare some form of centralised vaccine-procurement procedure is required, and discussions are in progress with Swedish municipalities and county councils to find the best possible forms of such a centralised procurement model. But regardless of the procurement procedure one must be aware that joint international production capacity is insufficient for the emergency requirements in the event of a pandemic, and a shortage of pandemic vaccine will thus arise.

Use of antiviral drugs in the event of an influenza pandemic

The principles of how antiviral drugs are to be used during an influenza pandemic are discussed in the document 'Influenza – strategies for prevention and control'. To sum up, it can be stated that the available antiviral drugs have a documented effect on influenza, both in the treatment of those already sick and in preventive use. But the role antiviral drugs should play in the event of an influenza pandemic is not totally clear and requires continued development work. Current planning is based on the present incomplete level of knowledge, and thus recommendations on use will gradually need to be changed. The strategies for use will also be adapted to the way the pandemic in question affects various groups of the population and the drugs to which the new virus is sensitive. This can also be changed during a pandemic.

The following are the main areas of use it is estimated will be appropriate during a pandemic:

- Targeted post-exposure prophylaxis or treatment at an early stage, especially of people at a high risk of complications or serious illness. It is principally the new antiviral drugs – oseltamivir in particular – that will be used in this context. There is limited documentation of treatment of interpandemic influenza in medical risk groups, but data indicates an effect entailing a shorter period of illness and some reduction in secondary complications.
- Long-term prophylaxis for people with important social functions. In the event of a pandemic affecting large sections of the able-bodied population, people with vital social functions may need protection. The older antiviral drug amantadine could be used in this population if the type of virus in question is sensitive to these agents. Amantadine has a documented effect as a prophylactic, development of resistance is expected to be low and few side effects have been reported in this group of previously healthy adults.

Contingency storage of drugs and vaccines

In the event of an influenza pandemic consumption of vaccine and drugs will change dramatically. Firstly the need for vaccine and antiviral drugs against influenza will dramatically increase, and secondly it can be assumed that the need for drugs to treat secondary diseases resulting from influenza (e.g. pneumonia) or diseases that may be exacerbated by influenza (e.g. cardiac and pulmonary diseases) will also increase. This is further complicated by the fact that most hospitals and pharmacies currently have very small drug stocks. As a contingency in preparation for a pandemic the contingency drug stocks thus need to be increased. Drugs and vaccines are procured in Sweden by the relevant medical authority. In accordance with its instructions the Swedish National Board of Health and Welfare keeps certain drugs stored for contingency purposes.

Vaccines

The special problems regarding influenza vaccine have been described in the planning conditions above, thus no actual long-term storage is possible.

Antiviral drugs

Antiviral drugs have hitherto been used to a very limited extent during the annual influenza epidemics in Sweden and the rest of Europe, and there are thus only small quantities in circulation or in health-service and pharmacy stocks. A limited quantity is also stored for contingency purposes as prophylaxis for those who have come into contact with bird flu.

The Swedish National Board of Health and Welfare deems that there should be further contingency storage of antiviral drugs against influenza in accordance with the approach stated above. In the opinion of the Swedish National Board of Health and Welfare storage of the following stocks is required to cover parts of this requirement:

- Oseltamivir for post-exposure prophylaxis and treatment of risk groups: 220,000 10-tablet courses of treatment;
- Amantadine as prophylaxis for those with important social functions: 200,000 42-tablet prophylactic courses;
- Oseltamivir as prophylaxis for those with important social functions in whom for various reasons amantadine cannot be used: 125,000 42-tablet prophylactic courses.

To complement these stocks the healthcare authorities should also keep a volume of current stocks, principally of oseltamivir, equivalent to approximately five years' normal use of the drug. Since the agent is relatively new on the market and cannot yet be deemed to have established its place as a form of treatment of interpandemic influenza, this quantity is hard to calculate. An initial calculation of use should be implementable at the end of the year's influenza season.

Antibiotics

Use of antibiotics will increase during an influenza pandemic, mainly because of the complications to be expected, e.g. in the form of pneumonia and the other infections, above all in people in medical risk groups who have had influenza. The Swedish National Board of Health and Welfare already stocks antibiotics that can be used for this purpose and can be made available to the healthcare authorities in the event of a shortage.

Other drugs

The expected complications of influenza will also mean increased use of other drugs for pulmonary and cardiac diseases. With the small current stocks in many hospitals and pharmacies this means that the county councils should review their readiness for dealing with a shortage or increased consumption of these drugs.

Distribution of drugs and vaccines from contingency stocks

Drugs are distributed through the National Corporation of Swedish Pharmacies, and this will also be the case in the event of an influenza pandemic. Contingency drugs can be ordered through the Swedish National Board of Health and Welfare by contacting the contingency officer. Procedures for this and for distribution are described in a special document. Guidelines for use of these contingency drugs are drawn up by the Swedish National Board of Health and Welfare in collaboration between the county medical officers and county councils. Special aspects of handling of these drugs during a pandemic are also investigated by the Medical Products Agency. Procedures for use of these drugs should be included in the county councils' plans, taking into special consideration how to handle prescription of drugs to large groups of patients.

The county medical officer organises the logistics of vaccinations, paying special attention to the need for mass vaccinations and possibly two doses of vaccine.

Other measures to prevent spreading

The Swedish National Board of Health and Welfare's document 'Influenza – strategies for prevention and control' gives a clear account of the control measures against spreading of influenza which society can implement pursuant to legislation. This applies both to the conditions for including influenza as a socially dangerous disease in accordance with the Swedish Infectious Diseases Act and to restriction of general gatherings and public entertainments or communications. There is also an account of the conditions for possible voluntary measures that can be undertaken with the aim of restricting spread of infection. It is not clear to what extent restrictions in general gatherings or public entertainments, closure of schools and day nurseries, restriction of general communications or other measures to reduce contacts between people would affect the development of an influenza pandemic. The World Health Organisation considers that these types of measure can be considered, but does not recommend them in general. In certain circumstances they could have an effect at an early stage of the pandemic in terms of reducing the speed of the spread of infection, e.g. in a situation in which one is waiting for production of a vaccine. There is thus good reason for a contingency arrangement for these types of measure, particularly if the international development of the pandemic leads to some of these restrictions being introduced in countries around Sweden or to the World Health Organisation or the European Union recommending them.

Contingency arrangements in sectors of society outside the health service

Experiences of previous pandemics support all sectors of society being affected by a pandemic in the form of extensive employee absence as a result of sickness. All employers, but especially employers with important social functions, should have contingency arrangements for the way business is to be carried out in the event of the type of strain that a pandemic may constitute. Absence as a result of sickness will not be evenly distributed, and in important key categories everyone at a workplace may be absent at the same time. The extensive spread of infection may also mean that the possibility of finding replacement staff may be limited. It is thus recommended that employers review their contingency plans and backup systems, plan alternative solutions, prepare prioritisation of staff and important functions and consider whether voluntary or reinforcement staff can be used to maintain activities important to society.

An overview is provided here of activities that can be deemed important to society. They are carried out both publicly and within trade and industry. Some of the activities dealt with require certain key staff to be available. Other activities require a minimum number of authorised staff in order to safeguard the activity. The following compilation of activities that can be deemed important to society involves classification into the categories crisis-management ability (ability to manage and provide information during the crisis), operational ability (ability to handle the operational measure) and reduced vulnerability (ability of the infrastructure to withstand the crisis). These abilities constitute the basis for society's contingency arrangements for crises.

Crisis-management ability

Society must have the ability to manage, coordinate and provide information when handling the pandemic and to maintain general management ability in society. Important activities with regard to maintaining such ability include:

- Parliament, the government, the Swedish government offices
- Management functions in certain crucial authorities, county councils, county administrative boards and municipalities
- Presentation of public information on Swedish Radio, Swedish Television, TV4, the Swedish Central News Agency and the major daily papers
- Technical management support such as IT operation and telephone exchanges to facilitate the above activities.

Operational ability

Society must have the ability to counteract or alleviate the problems caused by a pandemic and to maintain contingency arrangements to deal with other disturbances. Important activities for a good level of operational ability include:

- Certain municipal activities such as the health service, care of the elderly, psychosocial care and cleaning
- The Swedish Church, other religious communities and undertakers
- The rescue services, the police, other activities in the field of security and surveillance such as customs, the coastguard, sea, air and mountain rescue services, security guards and the Swedish Armed Forces
- Parts of the central authorities that have contingency arrangements for measures or support in the form of analyses, advice etc. in connection with the pandemic, and for other forms of incidents.

During a pandemic these players will encounter an increased workload. It is of great importance that this group of players above all has the capability for operational endurance.

Reduced vulnerability

Infrastructure which is important to society must be able to withstand the disturbances that may occur as a result of the crisis. This infrastructure includes parts of the technical infrastructure, transport systems that meet basic social needs, and certain systems that are necessary to the social economy and other basic social functions, e.g.:

- Operation of municipal technical systems such as water, electricity, heating etc.
- The electricity supply, telecommunications, IT infrastructure and distribution of radio and TV programmes

- Traffic control systems, traffic monitoring, maintenance capacity etc. within the state road-traffic agencies, ports and county-council public transport, and tasks within transport companies and distribution
- Fuel supply
- The financial sector, above all the payment system and social insurance offices

Within these areas there are several groups of key staff who are extremely important to the running of operations. Here too, in certain areas people will be exposed to an increased workload in the event of a pandemic, e.g. payment of social insurance.

Support functions

For society to be able to maintain a good level of crisis contingency arrangements, certain support functions are also necessary. Parts of childcare should be maintained to allow parents involved in activities important to society to remain at work. There are several different groups of voluntary staff who may constitute an important means of support in society during a pandemic. They may constitute support in the fields of crisis management, operational ability and reduced vulnerability.