

THE NATIONAL PLAN FOR PANDEMIC OF INFLUENZA IN THE SLOVAK REPUBLIC



ADOPTED BY THE GOVERNMENT
OF THE SLOVAK REPUBLIC

ON AUGUST 22, 2001



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PREPARED BY NATIONAL PUBLIC HEALTH INSTITUTE OF THE SLOVAK
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Introduction

Influenza belongs to the group of diseases with serious health and economic consequences. Annually more than 2 million cases of influenza and influenza-like diseases are reported in Slovakia. Every year an outbreak occurs affecting practically the entire area of Slovakia. However, the greatest danger represents pandemic of influenza, when a novel subtype of the influenza virus develops, capable of a inter-human transmission. Only the A type influenza viruses have the ability of forming novel subtypes; they induce an infection not only in humans, but also in animals like birds, pigs and horses. The B and C type influenza viruses induce infections only in humans. A new subtype of a human influenza virus appears due to recombination of human and animal strains of the influenza A type viruses in the animal host. This leads to the antigenic shift. As population is not immune against the new subtype, the infection spreads quickly and epidemic appears turning in the course of few months into a pandemic.

In the 20th century, four pandemics were recorded. In 1918 it was the Spanish Influenza caused by the A(H1N1) subtype, in 1957 the Asian Influenza caused by the A(H2N2) subtype, in 1968 the Hong Kong Influenza caused by the A(H3N2) subtype, and in 1977 the Russian Influenza caused by the A(H1N1) subtype.

Because of the high morbidity and mortality influenza pandemic has a great social and economic impact. The most serious one was recorded in the 1918 – 1919 pandemic during which more people than in the World War I died. Approximately 500 million cases with over 40 million deaths were reported throughout the world.

The experts who investigate the circulating influenza viruses in the human and animal populations warn of the possibility of an appearance of a new human subtype in the near future. Therefore, the World Health Organisation (WHO) has defined influenza inter-pandemic and pandemic period, and has prepared a timetable of activities, which need to be undertaken in the WHO member states in five phases:

Phase 0 is a period between two pandemics, when known influenza virus subtypes still circulate in the population. **Preparedness Level 1** will appear following the first report of isolation of a novel virus sub-type from a single human case. For its detection a close international co-operation is necessary, especially the co-operation of National Reference Centres (NRC) with the WHO collaborating centres (WHO CC). All influenza isolates, which are impossible to be subtyped in NRC, are sent to the WHO CC together with the identified strains to confirm the virus subtype. **The Preparedness Level 2** will exist when it has been confirmed that two or more new virus subtype human infections have occurred, but the ability of the inter-human spread is questionable. If a human transmission is confirmed and at least one outbreak lasting over a minimum two weeks in one country, then the **Preparedness Level 3** begins.

Phase 1: Confirmation of onset of the pandemic. The pandemic will be declared when the novel virus subtype will be shown to cause several outbreaks in at least one country.

In **Phase 2** outbreaks are occurring in multiple countries and spreading

region by region across the world. The morbidity and mortality increase rapidly, the first Pandemic wave occurs.

In **Phase 3** the increase in outbreak activity in the initially affected countries has been stopped or reversed, but outbreaks of the new virus are still occurring elsewhere.

Phase 4: Second or later waves of pandemic.

Phase 5 is characterised as the end of the pandemic, when consequences are assessed and the lesson for the next pandemic is learnt. (see Timetable of activities in the levels of alert of novel influenza virus in the inter-pandemic and pandemic period).

The pandemic of influenza is a real threat. The number of people on earth and the population density are growing. Annually, the number of airline passengers increases, the travelling time shortens even with the long distances, thereby also the possibility of the spread of infections becomes easier. The high concentration and mobility of population are factors, which will speed up the spread of a new virus subtype. Today, the transmission of an infection from one continent to another is a matter of several hours, not of several days or weeks, like it was e.g. at the time of the Spanish flu pandemic. It is difficult to estimate the duration of individual phases of the inter-pandemic and pandemic period; nevertheless, it is necessary to consider the fact that the duration will be much shorter than in 1918. Also the transfer of information is very quick, which may lead to the panic. Therefore, it is important to deal with the preparation for a pandemic responsibly, so that the taken steps and measures will satisfy the population and convince it of a serious and expert approach of all those involved.

The WHO has recommended that all countries establish “National Pandemic Commissions” (hereinafter NPC), which should adopt their own National Pandemic Plans (hereinafter NPP). The early adopted measures may significantly reduce the health, social and economic consequences of a pandemic. According to the WHO recommendations, the proposal of the establishment of a National Pandemic Commission and the proposal of the National Plan for Pandemic of Influenza in the Slovak Republic is submitted in this document.

Establishment of the National Pandemic Commission of the Slovak Republic

The National Pandemic Commission is a multi-sector commission whose activities are based on the WHO recommendations and on specific conditions of Slovakia. It proposes, approves and controls the tasks of the pandemic plan in the inter-pandemic and, subsequently, pandemic period; or, if necessary, updates this plan. The Commission submits drafts of legal regulations of the pandemic plan, negotiates and approves the allocating of funds for management of pandemic, co-operates with the WHO and its collaborating centres, and methodically governs the work of regional anti-epidemic commissions.

The National Commission shall be established at the Ministry of Health SR (MoH SR) and the members of the Commission will be appointed by the Minister of Health upon a proposal of the governmental and non-governmental organisations involved. The National Commission will be composed of the following members: the Head of Public Health SR – Chairman of the Commission; Head of the Section of Epidemiology and Microbiology of the National Public Health Institute of the Slovak Republic (NPHI SR); Head of NRC of Influenza in SR; Head of the Health Care Strategy Section MoH SR; Head of the State Drug Policy Department MoH SR; a representative of the Association of Health Insurance Companies; representatives of the Ministry of Labour, Social Affairs and Family SR, Ministry of Finance SR, Ministry of Education SR, Ministry of Defence SR, Ministry of Interior SR, Ministry of Justice SR, Ministry of Transport, Posts and Telecommunications SR, Ministry of Environment SR, Ministry of Economy SR, Ministry of Agriculture SR-State Veterinary Administration, Slovak Academy of Science, Slovak Red Cross; and a media contact person. The activity of the National Pandemic Commission is provided for by an Executive Committee whose chairman is the Head of Public Health SR; Head of the Section of Epidemiology and Microbiology of the NPHI SR; Head of NRC of Influenza in SR; Head of the Health Care Strategy Section MoH SR; Head of the State Drug Policy Department MoH SR. The National Pandemic Commission holds meetings and works in compliance with its Rules of Procedure and its Statute. The National Commission may invite representatives of other institutions and organisations, or experts to its meetings, as appropriate.

Tasks:

1. To establish a Pandemic Commission, appoint its members, prepare its statute and rules of procedures.
R: Head of Public Health SR
D: September 2001
2. To establish an Executive Committee and appoint its members.
R: Head of Public Health SR
D: September 2001

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Tasks that have to be met in the inter-pandemic and in the pandemic periods:

- I. Influenza Surveillance
- II. Measures against Spreading of Infection
- III. Production, Import, Registration and Distribution of Vaccine.
- IV. Treatment of Influenza Diseases and Complications, the Supply of Drugs and the Plan of Bed Availability
- V. Health Education in the Prevention of Infection and Continuous Information of Population about the Development of Epidemiological Situation and the adopted Measures
- VI. Provision of the Functioning of the Public Life and Economy

ad I. Influenza Surveillance

a) Monitoring of influenza incidence and distribution of diseases in the human population

In Slovakia incidence of influenza and influenza-like acute respiratory illnesses is observed. Compulsory reporting is regulated by section 7 §15 of the MoH Decree No. 79/1977 as amended by the Decree No. 54/2000 on Measures for Prevention of Infectious Diseases,. The clinical definition of influenza, according to the WHO recommendations (WHO Recommended Surveillance Standards Second Edition – October 1999, S157), is used. Influenza is a disease with a sudden onset, temperature higher than 38 °C, with the presence of at least one of the respiratory symptoms such as cough, sore throat and rhinitis, and with the presence of at least one of the general symptoms such as headache, muscle pain, pain in joints and weakness. Incidence is surveyed on the basis of reporting, carried out by all GPs and paediatricians according to the Directive of the Head of Public Health SR, No. SOZO 9099/97/ŠZÚ SR of 24th September 1997. The reporting takes place regularly once a week, in the course of the whole year, for the period of 7 days, commencing from Friday and ending on Thursday. The report contains the number of clinically confirmed infections according to the age groups 0-5 yrs., 6-14 yrs., 15-59 yrs., 60+ yrs., the number of complications according to the type and the above mentioned age groups, number of those disabled for work and number of deaths. The reported data are processed on the district, regional and national levels. The networking of ten Public Health Institutes (PHIs) with the NPHI SR is used for the processing of data along with a special computer programme “Influenza” developed in the Information System of Hygiene, Epidemiology and Microbiology (ISHEM). ISHEM stations are built in all the 36 PHIs. However, for technical and financial reasons, 26 SHIs have not been connected to the computer network of the Influenza programme yet.

b) Monitoring and identification of influenza viruses circulating in the human population

The laboratory diagnostics of influenza and influenza-like infections is made by the isolation of the virus and the identification of its subtype, by the virus detection, or antigen detection and a serological evidence of a four-fold increase in the titre of antibodies in the acute and re-convalescent serum.

Virus isolation trials and methods of detection are performed in four virological laboratories in Slovakia: in the NRC laboratory at the NPHI SR in Bratislava, in PHI laboratories of Košice and Banská Bystrica, and in the laboratory of the Military Institute of Hygiene and Epidemiology. A more detailed identification of isolated influenza virus strains is made in the NRC, which co-operates with the WHO collaborating centre in London; here the results of the identification made in the NRC are verified. The laboratory results from the above four laboratories are reported to the NRC at the time of an influenza season once a week, out of season once a month.

The collection of material for a virological tests is carried out by medical practitioners in co-operation with an epidemiologist upon an agreement with the staff of the competent virological laboratory. The laboratory surveillance of influenza will be regulated by a special directive for the performance of influenza surveillance.

c) Monitoring and identification of influenza viruses circulating in animals

It is possible to detect a new drift or a shift of the influenza virus only by means of continuous monitoring of the circulating viruses during the whole year not only in humans, but also in animals in the area concerned. The aim of this mapping is to identify the drift changes, which could indicate an antigenic shift. The laboratory diagnostics of influenza in animals falls in the competence of the Reference Laboratory at the State Veterinary Institute in Nitra.

Tasks:

1. To continue in the influenza surveillance
R: Head of Public Health SR D: ongoing
2. To prepare a special directive for the performance of influenza surveillance
R: Head of Public Health SR D: September 2001
3. To increase the standard level of laboratory influenza diagnostics by improvement of technical equipment of laboratories
R: C Head of Public Health SR D: ongoing
4. To provide for the functionality of the "Influenza" computer programme in the framework of the Information System of Hygiene, Epidemiology and Microbiology (ISHM)
R: Head of Public Health SR D: ongoing
5. To develop a method of monitoring of viruses circulating in animals, and to begin with its implementation
R: State Veterinary Administration D: December 2001

ad. II. Measures against Spreading of Infection

a) General measures

The following measures are adopted or recommended at the time of epidemic outbreaks:

- in outpatient facilities: strengthening of the emergency medical service, appointing individual waiting rooms or defining surgery hours for patients with an influenza infection, suspension of paediatric advisory services
- in inpatient facilities: isolating the infected patients, new patients admitting limitation, creation of bed reserves especially in emergency services, limit to selective surgery, prohibition of visits, elimination of ill staff, introduction of barrier nursing technique
- in the pharmacies: strengthening of the pharmaceutical emergency service, provision for a sufficient supply of medicines for the treatment of influenza and its complications
- in school and pre-school facilities: tightening up the rules for the entry filter, early detection and isolation of sick persons, closing schools
- in social care institutes: early detection and isolation of sick persons, limitation to the admittance of new clients, prohibition of visits, elimination of ill staff
- in cities and communities: limitation of mass events, health education of population

The extent of the adopted measures depends on the actual epidemiological situation. The health authorities introduce them on the district, regional and national levels. On the local level, measures may be adopted by the directors of organisations - e.g. hospital directors, school directors. In the event of a pandemic the adoption of measures will be co-ordinated by the National Pandemic Commission.

b) Specific measures – vaccination against influenza and pneumococcus infections

In Slovakia, vaccination is carried out according to the MoH SR Decree No. 79/1997 Coll., as amended by the Decree No. 54/2000 on Measures for the Prevention of Infectious Diseases, and a Special Directive of MoH SR on the Carrying out and Control of Vaccination in SR, published in the Yearbook of MoH SR, part 5-7, dated 15th March 1999. Vaccination is recommended generally, especially to residents of nursing homes and other chronic-care facilities, geriatric centres and social care institutes. Vaccination is also recommended to all persons aged ≥ 65 years, to persons with chronic disorders – pulmonary, cardiovascular systems, metabolic, renal and immune disorders (regardless of age), to their household members, as well as to the medical staff who comes in the direct contact with the patient. Vaccination ought to be carried out every year. At the time of an approaching pandemic outbreak it will be necessary to provide for the vaccination of the managing staff, staff of the supply services, police, army, those working in energetics, food industry, shops, staff of the posts and telecommunications, firemen etc.

The cost of the vaccine is covered according to the Act on the Medical Code of

Conduct No. 98/1995 Coll., and a Special Directive of MoH SR 'Indicative List for Covering the Cost of Vaccines by Insurance Offices', published in the Yearbook No. 17-18, dated 16th December 1997, in the following manner: the cost of the vaccine for residents of nursing homes and other chronic-care facilities, geriatric centres and social care institutes is covered from the state budget. Health insurance offices cover the cost of the vaccine for all persons aged ≥ 65 years, to persons with chronic disorders – pulmonary, cardiovascular systems, metabolic, renal and immune disorders; for the medical staff who come in the direct contact with the patient; and for the members of the troops of the Slovak Army entrusted with special tasks. It is also covered by the person who asks for vaccination or to whom the doctor recommends vaccination and does not belong to the group of the above persons.

Along with vaccination against influenza it is recommended to carry out the vaccination against pneumococcal infections, where, however, annual re-vaccination is not necessary.

Tasks:

1. To implement effective general and specific measures in the inter-pandemic and pandemic periods
R: Head of Public Health SR
Head of the Health Care Strategy Section MoH SR
D: ongoing
2. To implement the principles of vaccination against influenza and against pneumococcal infections by medical practitioners
R: Head of Public Health SR
Head of the Health Care Strategy Section MoH SR
Head of the State Drug Policy Department MoH SR
D: ongoing

ad III. Production, Import, Registration and Distribution of Vaccine

The vaccine against influenza is typical for changing its composition each season. At present, vaccines contain three influenza virus strains recommended by the WHO experts group every year in February. They are the A(H3N2), A(H1N1) and B type influenza virus strains. In the course of eight months, i.e. from February until September, the vaccines are produced, tested, approved and registered. At present there are 5 types of vaccine against influenza registered in Slovakia: Subinvira (producer Imuna Šarišské Michal'any, š.p.), Vaxigrip (Aventis Pasteur), Fluarix (Glaxo SmithKline), Influvac (Solvay Duphar), and Begrivac (Behring). However, the only Slovak vaccine producer – Imuna Šarišské Michal'any – has stopped the production and failed to supply the vaccine for the 2000/2001 seasons. The import of vaccines from abroad in individual seasons is provided for by 4-6 suppliers, whom the Head of Public Health SR has approved the import of vaccines by his decision. Vaccines covered from the state budget are distributed via PHI in the SR; vaccines covered otherwise are distributed through the pharmacies.

It is probable that in the event of an influenza pandemic the vaccine will be supplied in stages, and individual groups of inhabitants will be vaccinated gradually.

On the basis of today's knowledge it is assumed that the vaccine against the new pandemic influenza subtype will be available no sooner than 6 months after its isolation. The vaccine is produced by a reproduction of influenza viruses in chicken's embryos, and, as to its capacity, its production is globally limited. It is true that at the time of a pandemic a three-times greater production is anticipated, as only one virus strain will be produced; however, it is almost certain that, even despite this, the requirements shall not be covered. At the time of a pandemic outbreak the countries producing the vaccine will be satisfying their own requirements as a priority, and only then export it. The above implies that a return to the production of the vaccine against influenza in Slovakia is a strategic task. It is important to conclude contracts for the supply of the vaccine containing the pandemic strain of the influenza virus so that the imported vaccine is not preferentially supplied to other countries.

Tasks:

1. To provide for the production of the vaccine in Slovakia
R: Head of the State Drug Policy Department MoH SR
D: as soon as possible
2. To conclude contracts on a future contract with the suppliers of imported vaccines on the supply of the vaccine containing the pandemic strain of the influenza virus
R: Head of Public Health SR
D: December 2001
3. To draw up a plan of the need for the vaccine, for groups of SR inhabitants.
R: National Pandemic Commission
D: December 2002

ad IV. Treatment of Influenza Diseases and Complications, the Supply of Drugs and the Plan of Bed Availability

The treatment of influenza is most frequently asymptomatic. It consists in the administration of antipyretics, upper airways, antiinflammatory drugs, drugs against cough, sufficient input of liquids and lying in bed. Out of the total number of infections in Slovakia, 6% of complications are reported on average. Most frequent complications are bronchopneumonias and sinusitides, the most serious pneumonias. Bacterial influenza complications are treated with antibiotics. As for antiviral drugs, neuraminidase inhibitors are available.

When planning the medicines it is important to consider that influenza makes the course of basic chronic diseases worse - such as cardiovascular disorders, chronic pulmonary diseases, kidneys, metabolism and others. Standard therapeutic policies of MoH SR do not mention the treatment of influenza by antiviral drugs on the basis of neuraminidase inhibitors; therefore it is necessary to prepare national guidelines on the treatment of influenza and its complications in the inter-pandemic and pandemic periods.

In the event of a pandemic an increased pressure on hospital beds is expected; that is why, apart from a limitation to non-urgent hospitalisations, it is important to develop a bed reprofiling plan in the hospitals of each district, and to provide for the covering the cost of drugs for the treatment of influenza and its complications by health insurance offices.

Tasks:

1. To prepare national guidelines on the treatment of influenza and its complications
R: Head of the Health Care Strategy Section MoH SR
D: September 2002
2. To develop a bed reprofiling plans on districts/regional level
R: Head of Public Health SR,
Head of the Health Care Strategy Section MoH SR
D: September 2001
3. To provide for the covering of the cost of medicines for the treatment of influenza and its complications by health insurance offices
R: Head of the State Drug Policy Department MoH SR
D: ongoing

ad V. Health Education in the Prevention of Infection and continuous Information of Population about the Development of the epidemiological Situation and the adopted Measures

a) Health education of inhabitants

concentrates on the ways and possibilities to prevent and to limited the spread of infections. It is carried out by all the health staff in co-operation with the PHI departments of health education in SR according to the plan of actions which is developed before an influenza season. The education of inhabitants takes advantage of all available means.

b) Informing the population

In the inter-pandemic period, the NRC of influenza established at NPHI SR in Bratislava keeps the inhabitants informed on the course of the influenza season in Slovakia. It bases its information on an analysis of the data, reports from 36 PHIs in SR, laboratory diagnostics results and an analysis of the influenza season in the world, in particular in the neighbouring countries. The NRC of influenza passes information to the Ministry of Health SR, to all PHIs in SR, to some national institutions involved, and to the international institutions in the context of the international programme for influenza surveillance (EISS, FLUNET). The MoH SR continually informs the press agencies on the epidemiological situation. These information are available on the web sites <http://www.health.gov.sk> and <http://www.sea.host.sk>. In the event of a pandemic of influenza, the press secretary of the National Pandemic Commission will be providing information on the epidemiological situation.

Information on the development of the incidence in the districts and regions is provided by the relevant PHIs.

On the basis of a request from the World Health Organisation, the Ministry of Health of SR regularly informs the WHO on all activities concerning the preparations for coping with the expected influenza pandemic in the Slovak Republic.

Tasks:

1. To provide for the education of inhabitants on the prevention of infection
R: Head of Public Health SR D: ongoing
2. To provide for regularly informing of the health professionals and general population on the course of the influenza season and on the measures adopted
R: Head of Public Health SR D: ongoing

ad VI. Provision for the Functioning of the Public Life and Economy

Considering the high incidence and fatality rate, pandemic influenza outbreaks as well as extensive epidemic outbreaks may have a serious social and economic impact. They put in danger the supply of population with basic vital needs, and the functioning of the national economy. Therefore it is important to develop a plan of supplying the inhabitants with drinking water, electrical energy, gas, petrol, food, etc. in such situations. As a high fatality rate is expected, it is also necessary to develop a plan for burying the dead. When implementing the tasks of the pandemic plan at the district level it have to proceed according to the Disaster and emergency plans of infectious diseases, which, however, have to be unified, supplemented and regularly up-dated once a year.

Tasks:

1. To provide for the functioning of the public life and economy
R: National Pandemic Commission D: ongoing
2. To update the regional/district existing Disaster and emergency plans of infectious diseases
R: Head of Public Health SR D: December 2002

TIMETABLE OF ACTIVITIES ON THE LEVELS OF ALERT OF NOVEL INFLUENZA VIRUS IN THE INTER-PANDEMIC AND PANDEMIC PERIOD

PHASE	CHARACTERISTICS	WHO ACTIVITIES	ACTIVITIES ON THE NATIONAL LEVEL	ACTIVITIES ON THE REGIONAL/DISTRICT LEVEL
Phase 0	With no identification of a novel influenza virus subtype	Co-ordination of the international influenza surveillance programme in humans	Co-ordination of the National Influenza Surveillance Programme Establishment of the National Pandemic Commission (NPC), Development of the National Pandemic Plan (NPP), adopting the NPP by government.	Provide surveillance on influenza - the reporting of cases, taking of samples of biological material and vaccination of risk groups. Establishment of regional/district pandemic commissions (PC) Updating of regional/district existing Disaster and emergency plans of infectious diseases
Phase 0 Preparedness Level 1	Confirmation of a novel influenza virus subtype in a single human case	Co-ordination of the international efforts to assist national and local authorities, reporting the potential pandemic virus	Strengthening of the national surveillance. Intensive contact with WHO and neighbour NRC's. Regularly inform of the health professionals and general public.	Strengthening of the surveillance on regional and district level. Intensive contact with NPC. Regularly inform of the health professionals and general public.
Phase 0 Preparedness Level 2	Confirmation of two or more human infections of the new subtype, inter-human transmission questionable	Encourage the country where the index case were detected. Promote development and evaluation of candidates for production of vaccines and development of reagents necessary to laboratory diagnostic of the new strain.	Updating the list of members of the NPC in order to provide for a fast communication. Completion of the legislative process for the pandemic plan.	Updating the list of members of the District and Regional PC in order to provide for a fast communication. Distribution of legislative and legal rules to the members of R/D PC
Phase 0 Preparedness Level 3	Confirmation of inter-human transmission, at least 1 outbreak lasting over a minimum 2 week period in 1 country	Convene experts for influenza vaccine composition to develop, disseminate and encourage co-ordinated clinical trials of vaccines and develop ways most likely to make vaccines widely available throughout the world, make plans for production and international distribution of a vaccine	NPC meeting: Updating the NPP, establishing an effective management process, for measures adopting and for the control of their fulfilment	District and Regional PC meeting: Updating of the regional/district existing disaster and emergency plans of infectious diseases directed towards the pandemic of influenza, establishing an effective management process, for measures adopting and for the control of their fulfilment.

Phase 1	Confirmation of onset of pandemic. Several outbreaks, in at least one country, to have spread to other countries.	Enhance monitoring and reporting of the global spread and impact of the new virus Issue recommendations - for the composition and use of vaccine -for the use of antiviral drugs	Regular meetings of NCP, National response measures should be initiated, according to the NPP, updating of NPP, especially estimate the needs for vaccines, according to the priority groups of population and of the vaccines availability.	Regular meetings of regional/district PC -provision for the fulfilment of the pandemic plan -mapping of needs -co-operation with NCP
Phase 2	Regional and multi-regional epidemics, spreading in several countries all over the world Confirmation of a novel influenza virus subtype in a single human case in the Slovakia	Continue in the above activities. Support to regional activities	Regular meetings of NPC: Concentrate on identification of novel virus. Collect and analyse surveillance data, update prevention and control measures and control their fulfilment, obtain and distribute the vaccine, provide national guidelines for treatment on influenza including anti-viral drugs, provide for the functioning of the economy and public life	Regular meetings of regional/district PC: adoption of measures and control of their fulfilment, especially organisation of vaccination and vaccine distribution, supply with medicines, strengthening of public health services, keeping the national guidelines for treatment on influenza including anti-viral drugs, reprofiling the hospital beds
Phase 3	End of the first pandemic wave Decrease of the incidence, outbreaks are still occurring elsewhere	Continue in the above activities	Continue in the above activities. Estimate the remaining needs for vaccines. Prepare the strategy for the adoption of measures for the second wave on the basis of the experience from the first pandemic wave	Continue in the above activities, Evaluation of effectiveness of the measures adopted in the first pandemic wave
Phase 4	Second or later pandemic waves	Continue in activities according to the extent and character of the second wave. Estimate the remaining needs for vaccines. Estimate of availability of anti-viral drugs.	Continue in activities according to the extent and character of the second wave.	Continuation in activities according to the extent and character of the second wave

Phase 5	End of the pandemic. Duration about 2-3 years Back to Phase 0	Assessment of the overall impact of the pandemic. Evaluation of the “lesson learned” from the pandemic that will assist in responding to future pandemics. Update of the WHO Pandemic Plan	Assessment of the impact of the pandemic. Evaluation of the fulfilment of measures and their effectiveness. Evaluation of “lesson learned” from the pandemic and for the next pandemic. Updating the NPP.	Summarisation of consequences. Evaluation of the fulfilment of measures and their effectiveness Evaluation of “lesson learned” from the pandemic and for the next pandemic. Updating the regional/district PP.
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