

**NATIONAL INFLUENZA PANDEMIC  
PREPAREDNESS PLAN OF THE REPUBLIC  
OF AZERBAIJAN**

(Endorsed by the State Commission for Prevention of Avian and Pandemic  
Influenza and Coordination of all Agencies in this Field during the meeting held on  
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## ABBREVIATIONS USED

**USA DTRA – United States of America Defense Threat Reduction Agency**  
**ARCS** - Azerbaijan Red Crescent Society  
**IHR – International Health Regulations**  
**NPH**– Nasopharyngeal  
**SCPAPI** - State Commission for Prevention of Avian and Pandemic Influenza and Coordination of all Agencies in this Field  
**NRLI**– National Reference Laboratory for Influenza  
**WB – World Bank**  
**SVS** – State Veterinary Service  
**ELISA** – Enzyme-Linked Immunosorbent Assay  
**ECG - Electrocardiogram**  
**MES** – Ministry of Emergency Situations  
Flunet – Global Influenza Supervision Network  
EIP – Extended Immunization Program  
**HA** – Haemaglutinine  
**CC** – Cellular Cultures  
**HRR** – Haemaglutinine Retention Reaction  
**MFA** – Ministry of Foreign Affairs  
**HIV** - Human Immunodeficiency Virus  
**IF** – Immunofluorescence  
**IFM** – Immunofluorescence Method  
**CBR** – Complement Binding Reaction  
**ARD** – Acute Respiratory Diseases  
**ARDS – Acute Respiratory Diseases Syndrome**  
**CRH – Central Rayon Hospital**  
**NA** – Neuraminidase  
**NAMRU-3 – Navy Army Medical Research Unit - 3**  
**IMTF**- Inter-ministerial Task Force  
**REG** – Regional Expert Group  
**RHES** – Republican Hygiene-Epidemiological Station  
**RNA** – Ribonucleic Acid  
**RSQI** - Republican Sanitary-Quarantine Inspection  
**RAPS** – Republican Anti-Plague Station  
**RT – PCR** – Polymerase Chain Reaction  
**MH** – Ministry of Health  
**CE** –Chick Embryos  
**MF** – Medical Facilities  
UNICEF – The United Nations Children’s Fund  
USAID – United States Agency for International Development  
**WHO** – World Health Organization  
**WHA** – World Health Assembly  
**VNR** –Virus Neutralizing Reaction

## 1. Introduction

### Why is a National Influenza Pandemic Preparedness Plan Necessary

The annual influenza epidemics and the related high rates of incidence and mortality, especially among high-risk groups, are one of the topmost problems of public healthcare. The goal of national experts being in active cooperation with the WHO is the improvement and enhancement of international influenza surveillance and preparing the country for a possible influenza pandemic. The crucial role for limiting to a minimum the gravity of such a pandemic, related to the expected high incidence rate, aggravations and lethality, will be given to the preparedness of the national public healthcare system for action in pandemic circumstances on national and international level. The creation of this National Influenza Pandemic Preparedness Plan is a demonstration of the unconditional support for Resolution WHA 56.19 of the 56th World Health Assembly and the Secretariat's Report A58/13, dd. April 7, 2005, on global surveillance and control of influenza, which define the disease and the policies on its prevention as a priority of national public healthcare systems.

This Plan was prepared in accordance with the latest recommendations of the WHO's global program for influenza surveillance and control, as well as with consideration of the current capacity of the Azerbaijan healthcare system, and will be periodically evaluated and updated. Depending on the dynamics of the epidemic situation, the achievements of the medical science and the country's practical capacity, this Plan will be corrected and amended so as to provide for an optimum volume of prophylactic and anti-epidemic measures and maximum efficiency in pandemic environment.

**The main goal** of the National Plan for Influenza Pandemic Preparedness is to set up an adequate organization for taking comprehensive and timely action to:

- limit the morbidity rate and reduce the mortality rate of pandemic influenza;
- ensure the optimal settings for treatment of infected people;
- maintain the functionality of vital public sectors and services, such as healthcare, security, transport, etc.;
- ensure permanent, reliable and up-to-date public information on the influenza pandemic developments and the measures applied.

Additional expected outcome of the National Influenza Pandemic Preparedness Plan is to improve the existing system for monitoring and control of season influenza epidemics in parallel with the country's preparation for possible pandemics, thus achieving significant reduction of morbidity, mortality and losses from influenza epidemics.

**The main activities** which should be taken to this end are as follows:

- strengthening of epidemiologic and virologic surveillance of influenza;
- increase use of vaccines and antiviral medications during the period between pandemics. The immediate effect will be decrease in morbidity and mortality rates of annual influenza epidemics. This will, at the same time, be an important step towards

preparing healthcare units for efficient and rational use of such medications in case of a pandemic;

- preparation and adoption of a strategy for providing the country with vaccines and antiviral drugs in pandemic settings, when shortages could be expected;
- building national reserves of antiviral drugs. At the beginning of the pandemic period, when the new vaccine will still not be produced, and during the following months, the only available specific remedy against influenza will be the antivirus preparations. The need for sufficient quantities of drugs requires maintaining of a permanent national reserve;
- further research into the epidemiology and prevention of influenza. Improved information for medical professionals and the general public on the scale of the disease and the ways of prevention and treatment.

## **1.2 Command and Control**

1. The pandemic will be regarded as a crisis and national crisis management mechanisms will be put in effect. ***National Crisis Management will be administered by the State Commission for Prevention of Avian and Pandemic Influenza and Coordination of all Agencies in this Field - SCPAPI.***

2. On the expert level, coordination of all activities is responsibility of the ***Inter-ministerial Task Force – IMTF***

Inter-ministerial Task Force which is formed by the participation of all relevant authorities and institutions and scientists under the managerial coordination of the SCPAPI will be administered by the State Commission for Prevention of Avian and Pandemic Influenza and Coordination of all Agencies in this Field during the pandemic.

3. ***Ministry of Health*** is the main institution that is responsible for the nation wide organization in case of a pandemic. Within this scope, a planning will be made about the duties of all relevant organizations during the pandemic.

4. ***Ministry of Emergency situations*** – is a structure that ensures the collaboration and coordination between the relevant agencies during the pandemic (holds secretarial duties of the SCPAPI). The Ministry of Emergency Situations implements the requirements set by the Ministry of Health within the frames of activities set by SCPAPI and informs the Republic of Azerbaijan Presidents Office, the Cabinet of Ministers and other Ministries.

## **1.3 Communication**

1. Strategic and Operational Communication

The information regarding the spread of the pandemic in the country has to be released by the Ministry of Health.

## 2. Vocational Information and Consultancy

With this purpose, an order will be sent to the heads of all health facilities about the operational preparations for the pandemic. Technical information, bulletins and data flow will be provided by the Ministry of Health.

## 3. Informing the Society and Media Communication System

*The Ministry of Health Press Center* will play the main role in answering the questions of the public.

Posters, brochures and television spots prepared by the Ministry of Health will be used in communication.

Trainings on “washing hands and hygiene, control of the diseases transmitted through the respiratory tract” will be provided especially at provincial level.

Communication mechanisms during the pandemic and which mechanisms to use in informing the public should be determined. Explanations on the pandemic at national level will only be made through the bulletins of the Ministry of Health, while information on the methods of protecting the public from the disease will be provided by the experts at provincial level.

## **1.4 Duties and Responsibilities of Institutions and Organizations in the event of Pandemic**

### **State Commission for Prevention of Avian (and pandemic) Influenza and Coordination of all Agencies in this Field”-SCPAPI**

SCPAPI will serve as the main policy and communication organ implementing planning and prevention during the health related emergency situations at the highest level.

Goals:

- Ensure that epidemic preventive planning is done at the highest level nationally and regionally;
- In case of a pandemic, provide daily information to the public regarding the AI situation through mass-media;
- Plan financial resources necessary for the activities, give permissions to use funds from the budget and from the international financial organizations
- Regularly update the President about the preparations

### **Inter-ministerial task force - IMTF**

Main purpose of IMTF is to ensure proper collaboration during the AI preparatory activities financed by the governmental and donor organizations. IMTF responsibilities are as follows:

- Ensure communications during the fighting measures and other interministerial response measures undertaken in case of the AI or potential human pandemic ;
- Organize meetings on quarterly basis to analyze AI situation, discuss innovations, identify new needs and address them
- Organize the implementation of detailed working programs to fight the AI and take response measures against it and create an operational group for monitoring;

- Provide quarterly reports to SCPAPI with regards to the AI issues in Azerbaijan;
- Implement other issues of AI identified by the interministerial task force

## 1.5 CENTRAL ORGANIZATION OF THE MINISTRY OF HEALTH

### 1. Sanitary-epidemiological surveillance inspection SESI

This is the main responsible organization in pandemic planning and pandemic condition. It will act as a coordinator in the works of other organizations.

Duties;

- Preparation of the pandemic plan
- Provision of cooperation with high levels of the Ministry and the “State Commission for Prevention of Avian (and pandemic) Influenza and Coordination of all Agencies in this Field”- SCPAPI
- Planning the task plans of the organizations
- Preparations at provincial level
- Logistic planning
- Conducting training activities
- Conducting exercises
- Data evaluation
- Creation and administration of Operation Crises Center
- Providing leadership and coordination in the provision of services

### 2. Republican Anti-plague station and Influenza reference laboratory

- Planning of laboratory services
- Capacity development for laboratories at central and provincial level
- Providing communication with international reference laboratories
- Preparation of laboratory guidelines
- Providing support for scientific studies

### 3. Republican Sanitary-Quarantine Inspection

- Taking the necessary health measures at border gates
- Cooperation with the institutions and organizations of other countries in accordance with International Health Regulations
- Preparation of brochures about pandemic for people who enter or exit through the border gates

### 4. Department of Medical assistance

- Completing the hospital preparations
- Determination of the logistic needs of mobile hospitals and public buildings
- Ensuring that the intensive care units are prepared
- Cooperating with SESI for the exercises

### 5. Republican Center of Innovation and Supply

- Making the necessary regulations for import of the medicines and medical materials to be used during the pandemic and obtaining them from the market
- Following the international medicine sector
- Completing the purchasing procedures for provision of the necessary materials for pandemic

#### 6. Republican Center of Hygiene and Epidemiology - RCHE

- Creating a data collection system
- Providing technical infrastructure for the exercises

#### 7. Press service of the Ministry of Health

- Acting as the main regulatory body in communication with the public in the event of a pandemic. It will prepare an action plan.
- Conducting the hot-line application
- Creating reply systems
- Organization of press conferences
- Preparation of press bulletins
- Organization of television programs
- Making the necessary arrangements for the visibility of programs and actions

#### 8. Department of International Relations

- Providing communication with embassies
- Providing communication with international bodies
- Making the necessary preparations for the people coming from and going abroad
- Coordination of the relations with foreign countries

#### 9. Other Departments of the Ministry, Department for Information and Statistics and other departments

- They will support SESI in personnel, technical materials, equipment and programs.

### **1.5 REGIONAL ORGANIZATIONS OF THE MINISTRY OF HEALTH**

#### 1. Regional CHE - 83 districts, 11 of them in Baku

- Fulfilling practices such as quarantine, isolation, closure of schools and work places, announcing holidays
- Providing social order and taking the necessary security measures in health facilities
- Preparing mobile hospitals and the public buildings that will be used as hospitals
- Preparation of Provincial Pandemic Plans
- Providing cooperation with the local authority
- Making the duty planning of the bodies in the province
- Making preparations at provincial level
- Logistic planning
- Conducting trainings
- Conducting exercises
- Collecting and evaluating data
- Providing leadership and coordination in the provision of services
- Creating a referral system

#### 2. Primary Level Health Facilities – Rural district hospitals, FAB-feldsher points, Curative ambulances, Polyclinics in cities

- Conducting training activities
- Provision of institutional health services
- Conducting a referral chain and triage

- Conducting pandemic control measures
- Collecting data

### 3. Secondary Level Inpatient Care Facilities – Central Regional Hospitals (CRH)

- Implementation of patient diagnosis and treatment protocols
- Planning and implementation of inpatient care services
- In-hospital service planning
- Fulfilling in-facility infection control applications
- Collecting data
- Supporting scientific studies

## 1.7 OTHER HEALTH FACILITIES

### 1. Azerbaijan Medical University

- Supporting the training studies
- Implementation of patient diagnosis and treatment protocols
- Planning and rendering inpatient care services
- In-hospital service planning
- Fulfilling in-facility infection control applications
- Supporting scientific studies

### 2. Health Units of Official Institutions – Ministry of Internal Affairs, Border Army, Railway Service, Civil Aviation Agency, State Security

- Provision of institutional health services
- Implementation of referral chain and triage
- Collecting data
- Supporting scientific studies

### 3. MINISTRY OF EMERGENCY SITUATIONS

- Providing coordination between institutions - SCPAPI
- Informing the President’s Office of the Republic of Azerbaijan, the Cabinet of Ministers and other ministries
- Fulfilling the demands of the Ministry of Health within the scope of SCPAPI activities

### 4. MINISTRY OF INTERNAL AFFAIRS

- Identify duties of local administrations at provincial level
- Rendering security-related services
- Fulfilling practices such as isolation and quarantine
- Fulfilling the practices demanded by the Ministry of Health within the scope of SCPAPI activities

### 5. MINISTRY OF ECOLOGY AND NATIONAL RESOURCES

- Monitoring of the routes of migration birds
- Population information

- Cooperation with Hunter's Society

#### 6. MINISTRY OF EDUCATION

- Providing education at schools
- Announcing vacation for schools when necessary
- Fulfilling the practices demanded by the Ministry of Health within the scope of SCPAPI activities

#### 7. THE MINISTRY OF AGRICULTURE, State Veterinary Service

- Taking the necessary precautions for disease control in poultry
- Ensuring information exchange with the Ministry of Health
- Training of public
- Fulfilling the practices demanded by the Ministry of Health within the scope of SCPAPI activities

#### 8. AZERBAIJAN RED CRESCENT SOCIETY AND OTHER VOLUNTARY INSTITUTIONS

- Training of public within the standards determined by the Ministry of Health
- Provision of voluntary personnel when necessary
- Providing the necessary support in case of demand by the Ministry of Health

#### 9. INTERNATIONAL INSTITUTIONS – WHO, WB, UNICEF, USAID, ADB, US DITRA, NAMRU-3

- Provision of technical assistance
- Conducting mutual scientific studies
- Organization of mutual conferences and meetings

## **2. Basic Information and Definitions**

### **2.1. Periods, Phases and Levels of Influenza Pandemic**

A typical characteristic of influenza epidemics is the gradual and continuous development in time, which provides an important practical possibility of defining the phases of the pandemic. The phases of an influenza pandemic differ both in their epidemiologic characteristics and in the goals, specifics and efficiency of the prevention. Anti-epidemic measures should be planned in advance and respectively implemented.

The criteria proposed by the WHO in 2005 (WHO/CDS/CSR/GIP/2005.5) were applied in making National Influenza Pandemic Preparedness Plan (Table 1). According to these criteria, there are 4 main periods and 6 phases of an influenza pandemic. For the purpose of planning and commitment on national level of the action related to the particular situation in Azerbaijan, the national plan makes differentiation of four pandemic levels, depending on the degree of impact / the risk of impact on the country from the globally spreading pandemic.

Table 2 shows the phase subdivision of the influenza pandemic according to the development of a pandemic situation in Azerbaijan and its correspondence with the WHO's classification.

The Plan covers all phases and the respective levels by basic actions and components which will be implemented in the country during the inter-pandemic period and in the period of emerging of a possible pandemic.

Information about the appearance of a new pandemic influenza virus and the beginning of an influenza pandemic would come from the WHO. (Phases 5 and 6). Azerbaijan will probably be affected by the pandemic some time after receiving of such information, i.e. there will be a certain interval between levels 1 and 2 of phase 6 which could be used for limiting the possibility of infiltration of the pandemic virus into the country, thus slowing the pandemic's spreading and gaining time for preventive measures.

**Table 1**

**PHASES AND LEVELS OF INFLUENZA PANDEMIC ACCORDING TO THE  
2005 WHO CLASSIFICATIONS**

<b>WHO</b>
<b>INTER-PANDEMIC PERIOD</b> <b>Phase 1.</b> There are no verified new sub-types of the influenza virus in humans. Even if such are found in animals, the risk of occurrence of infection or disease in humans is considered low.
<b>Phase 2.</b> There are no verified new sub-types of the influenza virus in humans. The sub-type of influenza virus circulating among animals however represents a substantial risk to humans.
<b>PANDEMIC PREPAREDNESS PERIOD</b> <b>Phase 3.</b> Occurrence of a case/cases caused by a new strain of influenza virus in humans without transmission of the infection to another human or rare cases of infecting of close contacts.
<b>Phase 4.</b> Small outbreak/outbreak with limited human-to-human transmission of virus; virus spread is strictly localized, which indicates that virus has not yet adapted to humans.
<b>Phase 5.</b> Bigger outbreak/outbreaks and human transmissions are still limited, which indicates that the virus becomes more adapted but still has not adapted completely to dissemination only among humans
<b>PANDEMIC PERIOD</b> <b>Phase 6</b> Phase of pandemic spread: Increasing and prolonged virus transmission among the entire population.
<b>POST-PANDEMIC PERIOD</b> Going back to the inter-pandemic period.

**Table 2**

**PERIODS, PHASES AND LEVELS OF INFLUENZA PANDEMICS IN AZERBAIJAN ACCORDING TO WHO CLASSIFICATIONS**

<p><b>GLOBAL PERIODS AND PHASES OF A PANDEMIC (WHO)</b></p>	<p><b>PHASE DIVISION IN LEVELS DEPENDING ON THE SITUATION IN AZERBAIJAN</b></p>
<p><b>INTER-PANDEMIC PERIOD</b></p>	
<p><b>Phase 1.</b> There are no verified new sub-types of the influenza virus in humans. Even if such are found in animals, the risk of occurrence of infection or disease in humans is considered low.<sup>1</sup></p>	
<p><b>Phase 2.</b> There are no verified new sub-types of the influenza virus in humans. The sub-type of influenza virus circulating among animals however represents a substantial risk to humans.</p>	<p><b>Level 1.</b> Azerbaijan is not affected</p>
	<p><b>Level 2.</b> Azerbaijan is affected or has major contacts (such as travels, trade relations) with an affected country</p>
<p><b>PANDEMIC PREPAREDNESS PERIOD</b></p>	
<p><b>Phase 3.</b> Occurrence of a case/cases caused by a new strain of influenza virus in humans without transmission of the infection to another human or rare cases of infecting of close contacts</p>	<p><b>Level 1.</b> Azerbaijan is not affected</p>
	<p><b>Level 2.</b> Azerbaijan is affected or has major contacts (such as travels, trade relations) with an affected country</p>
<p><b>Phase 4.</b> Small outbreak/outbreak with limited human-to-human transmission of virus; virus spread is strictly localized, which indicates that virus has not yet adapted to humans.<sup>2</sup></p>	<p><b>Level 1.</b> Azerbaijan is not affected</p>
	<p><b>Level 2.</b> Azerbaijan is affected or has major contacts (such as travels, trade relations) with an affected country</p>
<p><b>Phase 5.</b> a bigger outbreak/outbreaks and human transmission is still limited, which indicates that virus becomes more adapted but still has not adapted completely to dissemination only among humans.<sup>2</sup></p>	<p><b>Level 1.</b> Azerbaijan is not affected</p>
	<p><b>Level 2.</b> Azerbaijan is affected or has major contacts (such as travels, trade relations) with an affected country</p>

GLOBAL PERIODS AND PHASES OF A PANDEMIC (WHO)	PHASE DIVISION IN LEVELS DEPENDING ON THE SITUATION IN AZERBAIJAN
Phase 6. Phase of pandemic spread: Increasing and prolonged virus transmission among the entire population. <sup>2</sup>	Level 1. Azerbaijan is not affected yet.
	Level 2. Azerbaijan is affected or has major contacts (such as travels, trade relations) with an affected country
	Level 3. Fading of the pandemic wave
	Level 4. Successive pandemic wave
POST-PANDEMIC PERIOD Going back to the inter-pandemic period	Going back to the inter-pandemic period

<sup>1</sup> The difference between Phase 1 and 2 is determined by the level of risk of infection or contracting the disease by humans from strains circulating in animals. Their differentiation will be based on various factors and their relative importance according the latest scientific knowledge. Such factors can be: pathogenic to humans and animals; spread among domestic animals and livestock, or only among wild animals; existence of epizootic or enzootic processes, geographically localized or widespread; the information about the virus genome, or other scientific information.

<sup>2</sup> The difference between Phases 3, 4, and 5 is based on the assessment of the risk of pandemics occurrence. Various factors and their relative weight may be taken into account depending on modern scientific knowledge: the efficient infection transmission; the geographic localization and dissemination; severity of the disease; existence of human strains genes (when an animal strain is at hand); virus genome and other scientific data. (WHO/CDS/CSR/GIP/2005.5)

## 2.5. Epidemiology of Influenza and Characteristics of Pandemic Influenza

It is specific of influenza that due to the unique combination of permanent changeability of antigen structure of influenza virus, in parallel with easy and very effective air-drop mechanism of transmission of infection, the short incubation period and total susceptibility, caused by the type specific immunity (and therefore – lack of immunity to actually circulating strain)it can disseminate with significant intensity, annually causing **seasonal** epidemics which are serious health, economic and social problem. In different periods of time **influenza pandemics can take place** unlike other infections.

The categories of epidemic outbreaks, epidemic and pandemic differ, depending on the morbidity level. Increased influenza morbidity in a limited group of persons, most often organized team (pediatric, educational, social institution, military unit, etc.) is defined as an **epidemic outbreak**; **an epidemic** is the increasing of morbidity above the usual and expected levels, specific for definite territory in a definite period of time, while a **pandemic** is the succession of mass successive epidemics in individual countries, located in different parts of world, provoked by one and the same virus variant.

The ability of influenza viruses to provoke seasonal epidemics as well as pandemics, is referred to their biological peculiarities. These are relatively big (80–120 nm), RNA viruses with spherical or oblong form and external coating, where their main superficial antigens are located – glycoproteins, called hemagglutinin (HA) and neuraminidase (NA).

Of the three types of influenza viruses – A, B and C, which cause the influenza disease in humans, these of group A are with the biggest epidemiological importance although the epidemic dissemination of specific also for the type B viruses.

The B influenza virus possesses only one HA and NA and is not divided into sub-types. Type B viruses usually cause more limited epidemic outbreaks. They, like influenza C, which passes as a light respiratory infection and has no epidemiological importance in practice, are pathogenic only for humans.

Only influenza viruses of the A type cause big epidemics and pandemics, some of which are very severe. Influenza virus A is isolated not only from humans but also from mammals (swine, horses, whales) and birds, which are its biggest natural reservoir. Depending on antigen characteristics of superficial antigens, type A viruses are subdivided in 16 sub-types HA and 9 sub-types NA. Changes in mentioned antigens, known as **antigen drift** and **antigen shift** are the reasons for arising of influenza epidemics and pandemics in humans.

The first type of changes – **antigen drift**, is observed in influenza viruses of type A and B, arising annually or every several years and are small changes in HA and/or NA, which lead to arising of new epidemic strains, related to the preceding or to these belonging to the same subtype of this virus. These small changes in antigen structure allow the virus to overcome immune barrier, established in response to circulation of preceding strains and to disseminate widely, causing the next epidemics. Due to these reasons, the composition of inter-pandemic influenza vaccines are changed twice annually by WHO.

In significantly longer intervals of time, influenza viruses of type A undergo **antigen shift** – sharp and significant changes in antigen structure, when Ha and/or NA become absolutely different from these, circulating earlier i.e. they form **new pandemic sub-types**, against which there is no collective immunity. When most of the people in the world have no immunity and when the virus is adapted to easy transmission from man to man, it could be expected to have pandemic. It is considered that pandemic is forthcoming, when the new virus starts to spread quickly outside of community where it has been proven for the first type.

Studies on the long history of influenza epidemics and epidemiological experience show that they arise unpredictable and there no strict cyclic recurrence in their appearance. In the 20th century, pandemics arise at relatively long intervals of 9 to 39 years.

The most severe influenza pandemic in human history started in Spain in 1918. **The Spanish influenza** is caused by virus A (H1N1) and is outlined with high morbidity and lethality in younger people, significant percentage of clinically manifested cases (40%) and arising of many complications, mainly in severe forms of pneumonia. According to estimates, the number of deceased persons is between 20 and 40 millions.

The next pandemic was the so called **Asian influenza** caused by virus A(H2N2), which started in 1957 in China and covered the total world only for 6 months. 40-50% of the population in total was affected and the clinically manifested cases were 25–30%. The number of lethal cases was about 1 million.

In July 1968 started the pandemic of **Hong Kong A (H3N2)** influenza. It affected 30–40% of the world population and the lethal cases were about 500,000.

These two pandemics affected all age groups and lethality is highest in elderly persons and persons with chronic diseases.

The last pandemic of the 20th century was the **Russian influenza**, caused by virus A (H1N1) in 1977-1978. The disease was significantly lighter, non-malignant and with lower lethality. It affected mainly children and young people. This fact is explained by data indicating that identical virus circulated earlier – in the period of 1947-1956 and therefore the persons over 23-years of age had immunity. This pandemic also had another peculiar feature – virus A (H1N1) was the first pandemic strain which did not replace the agent of the preceding pandemic – in this case, virus A (H3N2), but continues to circulate in parallel with it.

Thus the main sub-types of influenza virus type A, circulated at the end of the 20th century: A(H3N2) – since 1968 and A(H1N1) – since 1977 under the form of its antigen variants continue their circulation till now, provoking annual influenza epidemics with different severity in the world.

Another specific feature for pandemics in the 20th century was that the new virus reached Europe approximately 3 to 4 months after its first isolation in South-East Asia. The modern conditions however provide for much faster spread due to facilitated migration of population groups to different points in the world by the use of quick railway and especially air transport.

The pandemics described earlier passed under the form of several successive waves, each next being with increasing severity. This peculiarity is with exclusively practical importance and should be born in mind in planning of pandemic vaccine which probably should not be possible to be provided for the first wave of pandemic but its availability for the next waves will be necessary and of great benefit.

## **2.7. Expected peculiarities of the next influenza pandemic**

Expected peculiarities of a possible future pandemic, based on epidemiological experience from the 20th century:

- It is impossible to forecast exactly when the next pandemic will arise but it is known that till now the longest interpandemic period was 39 years and the latter two pandemics were in 1968 when appeared the new subtype A (H3N2), replacing A(H2N2) and in 1977 when A (H1N1) appeared after 20 years absence.
- The next pandemic virus will appear most probably again in South-East Asia like the two out of three last pandemic viruses.
- It is impossible to forecast the antigen structure of the new pandemic influenza virus but it is probable the virus to have the superficial antigens or virulence of influenza viruses of animal origin (i.e. bird influenza A (H5N1), which appeared in 1977 in Hong Kong).
- After adapting completely to effective transmission from human to human, the new virus will disseminate quickly and pandemic will cover the total world within 6 to 10 months. There are reasons to expect this to be for shorter period bearing in mind the intense international connections – trade, air transport and forced urbanization.
- It is most probable several successive pandemic waves to be disseminated, referred to high morbidity and lethality in all age groups and severe social and economical consequences all over the world.

- It possible the first pandemic wave to start out of the winter season, typical for the annual influenza epidemics.
- In contrast of the seasonal epidemics, pandemic will affect at greater extend the young people, probably with higher lethality too. This imposes undertaking of measures to protect the persons from professional groups, connected with execution of main activities necessary for society and responsible for protection of important public functions like health workers, managing staff of national administration, personnel from defense, police, fire brigades, in the sphere of water supply and sewerage, power engineering, transport and telecommunications.
- The degree to which elderly people will be affected will depend on antigen relation of the new pandemic virus with the viruses causing the previous pandemics.
- It is not possible to forecast the lethality rate. If pandemic virus will be similar to the bird virus A (H5N1), it could be expected high lethality.
- Significant loading of health system, referred to the necessity of execution of prophylactic measures (especially if there is pandemic vaccine) as well as care for the patients, the number of which will exceed the usual epidemic levels could be surely forecasted. Loading will be increased additionally due to the expected high percentage of cases with severe clinical symptoms and complications which impose hospitalization.
- Proving of first pandemic strains in Azerbaijan usually precedes the beginning of pandemic morbidity and therefore enhancement of viral diagnostic activity immediately after WHO reports the beginning of new pandemic is of great practical importance.

The severity of each pandemic depends mainly on the virus virulence, its ability for easy dissemination among the people and the level of collective immunity, respectively susceptibility of people to the new pandemic subtype. These factors can not be controlled and pandemic could be avoided or terminated but its consequences could be significantly less severe if the society is prepared in advance. Of special importance is the preparedness of health systems to exercise permanent intensive epidemiological and virological control and to dispose with flexible plan for action during pandemic, with sufficient quantity of antiviral medications and vaccines in order to meet the multiply increased needs of population from medical assistance is of great importance.

### **Possible burden of disease, hospitalization and deaths due to influenza according to various attack rates**

(Population of Azerbaijan is accepted as 8 265 700 )

Cumulative attack rate	Number of person with influenza	Number of person applied to health facilities	Number of hospitalizations	Number of deaths among all cases
0,25	2 066 600	1 033 300	5 690	3 820
0,20	1 653 300	826 600	4 550	3060
0,15	1 240 000	620 000	3 410	2 300
0.10	826 600	413 300	2 270	1530
0,05	413 300	206 700	1140	770

The stated facts explain the exclusive activity of the national health systems and international organizations and the efforts for the moment to be prepared the health care in the world for undertaking of coordinated adequate acts in eventual appearance of new pandemic influenza.

### **Outbreak of Avian Influenza in Azerbaijan in 2006**

Following the appearance of influenza A/H5 virus infection in several wild and domestic bird species in the Republic of Azerbaijan in February 2006, two clusters of human avian influenza due to influenza A/H5N1 cases were detected and reported by the Ministry of Health to the WHO Regional Office for Europe during the first two weeks of March 2006. On 15 March 2006, an international team supported the Ministry of Health in investigation and response activities.

As a result of active surveillance, 22 individuals, including six deaths, were evaluated for influenza A/H5N1 and associated risk infections in six districts. The investigations revealed eight cases with influenza A/H5N1 virus infection confirmed by a WHO Collaborating Centre for Influenza and one probable case for which samples were not available. The cases were in two unrelated clusters in Salyan (seven laboratory confirmed cases, including four deaths) and Tarter districts (one confirmed case and one probable case, both fatal). Close contact with and de-feathering of infected wild swans was considered to be the most plausible source of exposure to influenza A/H5N1 virus in the Salyan cluster, although difficulties in eliciting information were encountered during the investigation, because of the illegality of some of the activities that might have led to the exposures (hunting and trading in wild birds and their products). These cases constitute the first outbreak worldwide where wild birds were the most likely source of influenza A/H5N1 virus infection in humans.

The rapid mobilization of resources to contain the spread of influenza A/H5 in the two districts was achieved through collaboration between the Ministry of Health, WHO and its international partners. Control activities were supported by the establishment of a field laboratory with real-time polymerase chain reaction (RT-PCR) capacity to detect influenza A/H5 virus. Daily door-to-door surveillance undertaken in the two affected districts made it unlikely that human cases of influenza A/H5N1 virus infection remained undetected.

### **3. Clinical features of influenza**

**Uncomplicated influenza** is specified by instant start, elevated temperature and fever, strong sickness, ebb and headache, muscular pains, dry and irritating cough, rheum. These symptoms in children are often accompanied with nausea, vomiting, middle ear inflammation in temperature convulsions are noticed some times. In most patients influenza symptoms fade down within seven days but the cough and weakness can continue for more than two weeks.

**The disease severity** of influenza depends on number of factors. It is known that the appearance of new subtype of influenza virus, to which the population has no immunity, is always the reason not only for very high morbidity but for significantly higher percentage of severe forms, complications and high lethality. Furthermore, sometimes strain are disseminated which are related to the known types of influenza viruses, which possess higher virulence and then the diseases pass more severe too. Infection severity is determined in great extend also by the status of human organism. Influenza viruses can provoke serious diseases in persons of all age groups, incl. in completely healthy persons but the percentage of severe cases as well as lethality are highest usually in persons over 65 years age. People with chronic diseases are threatened by

more severe course of the disease as well as from complication from influenza infection, in whom influenza is the usual reason also for exacerbation and additional worsening of the main disease.

Advanced age and existence of chronic diseases are the **main risky factors, predisposing to arising of complications**. Lower respiratory tract is affected most often as a result of influenza morbidity (secondary bacterial, viral-bacterial and primary viral pneumonia; exacerbation of chronic pulmonary diseases). Complications of cardiovascular system are frequent too (ischemic heart, rhythm and conduction disorders, heart failure, myocarditis, pericarditis) of the central and peripheral nervous system (encephalitis, meningitis and meningoencephalitis, neuritis, myelitis). Inflammation of middle ear is noticed often in children. Other possible complications are sinusitis, myositis, toxic shock syndrome, immunodeficiency states, etc. In bigger part of patients, especially in persons of high risky groups, the concomitant chronic conditions decompensate and exacerbate to a degree which threatens their life. Resulting pulmonary, cardiovascular, neurological, renal and metabolic complications usually impose longer hospital treatment.

### ***Reporting line***

The main reporting of suspected cases should happen on the Primary Health Care (PHC) level to the nearest health care facility. This one will inform the rayon epidemiologist and chief doctor of the Regional Central Hospital. They investigate the case and inform within 6 hours the republican epidemiological center and the Ministry of Health. If Avian Influenza A (H5N1) is suspected the Republican anti-plaque station and the State Veterinary Service should be informed.

### **Rapid investigation and confirmation**

#### ***Source identification***

In order to identify the possible source of infection case report forms should be completed for every individual for whom a diagnosis of influenza viral infection is being considered. This will provide preliminary information about exposure history to help target further in-depth investigations on the source of infection.

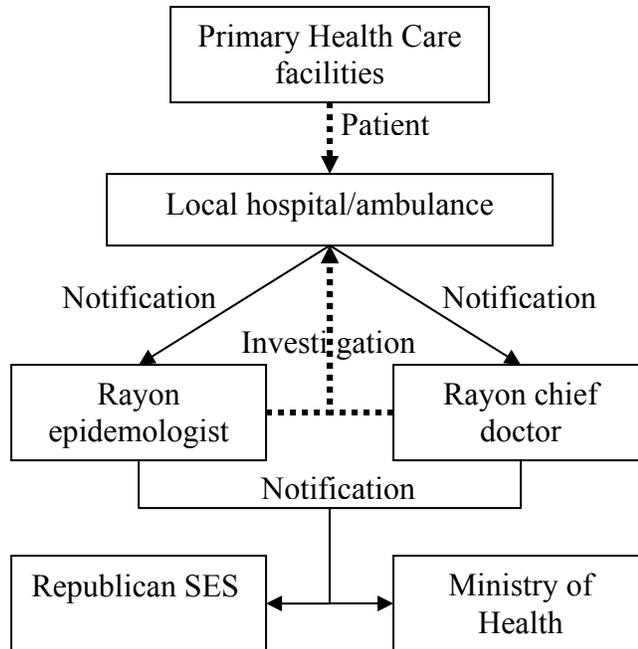


Figure 1: Reporting flow in case of suspected pandemic strain influenza on primary health care level in Azerbaijan

#### **Ensuring continuity of services (business continuity)**

1. All health facilities will fulfill their planning's so that, in the event of a pandemic, they can meet the increased number of patients and continue their services without interruption even if their personnel get sick. To this end, a checklist will be developed and will be tested in health facilities.
2. All health facilities will carry out their internal service planning's by considering an increased patient capacity. The number of possible cases and necessary beds will be foreseen according to the prepared scenarios. Arrangements will be done in polyclinics and inpatient services considering these numbers.
3. When necessary, retired health professionals and voluntary people will be called for help.
4. Protective material standards that will ensure provision of the most efficient service by health professionals have been identified. The Ministry of Health will provide the available equipment.
5. In order to avoid interruption of some public services (communication, energy, transportation, security, etc.), monitoring, diagnosis and treatment services necessary to recover from the disease with minimum harm will be organized in the facilities providing these services.

#### **4. Laboratory identification of influenza viruses at respiratory diseases in the different stages of influenza pandemic**

Laboratory control of influenza in Azerbaijan is carried out by the National Reference Laboratory of Influenza – in the framework of the National Plague Center .

Virological diagnosis is very important element of the readiness of the country for eventual influenza epidemic. Confirmation of clinical diagnosis “influenza” is possible only at positive result from virological examination because symptoms similar to these of flue are caused also by a great number of other pathogenic microorganisms. Importance of laboratory control of influenza increases in parallel with increasing of the danger from pandemic and the control tasks have definite specificity in each stage of pandemics.

**During the interpandemic period**, along with the routine activities of laboratory control of the circulation of usual influenza viruses and seasonal influenza epidemics, it is necessary to undertake measures to strengthen and prepare the laboratory network to process the big number of clinical samples which they should be able to test in case of pandemic. It is important the staff to be trained to apply a definite minimum of methods, including quick and express diagnosis, and the laboratories to be provided with the necessary consumables for routine examinations and to foresee additional resources in case of pandemic.

**In the period of readiness for pandemic**, the ability of national laboratory network to prove as early as possible the appearance of new pandemic virus among the Azerbaijan population will be very important. For this aim, along with preparation of laboratories, very important will be also the organization level for collection and sending of sufficiently big number of samples for examination.

**In the pandemic period** it will be practically significant to have laboratory confirmation for suspension of the first wave of pandemic and respectively - the beginning of the next one.

**The end of the pandemic** could be declared at existence of correlation between epidemiological data and the results from laboratory control, which should be maintained at status of increased activity at least several months and decreasing of morbidity.

In case of dissemination of new pandemic variants of influenza virus and arising of influenza epidemic in Azerbaijan, laboratory diagnostics will be carried out by the Influenza laboratory in Central Anti-Plague Station and will prepare instruction by which the Ministry of Health will order to virological laboratories in the country to observe the optimum procedures for execution of diagnostic examinations and to provide safety in manipulation of clinical materials, strictly observing WHO recommendations.

The main activities of laboratory control of influenza in Azerbaijan in the separate periods, stages and levels of influenza pandemic are stated below as follows:

## **INTER-PANDEMIC PERIOD**

### **PHASE 1.**

There are no verified new sub-types of the influenza virus in humans. Even if such are found in animals, the risk of occurrence of infection or disease in humans is considered low.

### **PHASE 2.**

There are no verified new sub-types of the influenza virus in humans. The sub-type of influenza virus circulating among animals however represents a substantial risk to humans

**Level 1.** Azerbaijan is not affected

**Level 2.** Azerbaijan is affected or has major contacts (such as travels, trade relations) with an affected country

**The laboratory supervision includes:**

- Classic, quick and express diagnostics.
- Serological examinations of different age groups of patients.
- Confirmatory diagnostic of the results from virological laboratories at the National Influenza Laboratory.
- Submitting the results from the diagnostic tests to the Ministry of Health and the global influenza-supervision network– FluNet.
- Continuous monitoring of the laboratory examinations information on influenza on a global scale.

## **PANDEMIC PREPAREDNESS PERIOD**

### **PHASE 3.**

Occurrence of a case/cases caused by a new strain of influenza virus in humans without transmission of the infection to another human or rare cases of infecting of close contacts

**Level 1.** Azerbaijan is not affected

**The laboratory supervision includes:**

- Diagnostic examination of influenza and acute respiratory diseases continue in the country as stated above.
- Data from the diagnostic exams are made available to the MH and the Global Influenza Surveillance Network – FluNet.
- Continuous monitoring of the laboratory tests information on influenza on a global scale.

**Level 2.** Azerbaijan is affected or has major contacts (such as travels, trade relations) with an affected country

**The laboratory supervision includes:**

- Diagnostic examinations continue, with accent on diagnostics of newly appeared pandemic influenza virus.
- Submitting the results from the diagnostic tests to the Ministry of Health and the global influenza-supervision network– FluNet.
- Continuous monitoring of the laboratory tests information on influenza on a global scale.

### **PHASE 4.**

Small outbreak/outbreak with limited human-to-human transmission of virus; virus spread is strictly localized, which indicates that virus has not yet adapted to humans.

**Level 1.** Azerbaijan is not affected

**The laboratory supervision includes:**

- Diagnostic examinations for influenza and acute respiratory diseases continue in the country, with accent on diagnostics of newly appeared pandemic influenza virus.
- Data from the diagnostic exams will be made available to the MH and the Global Influenza Surveillance Network – FluNet.
- Continuous monitoring of the laboratory examinations information on influenza on a global scale.

**Level 2.** Azerbaijan is affected or has major contacts (such as travels, trade relations) with an affected country

**Laboratory supervision includes:**

- Diagnostic examinations for influenza and acute respiratory diseases continue in the country, with accent on diagnostics of newly appeared pandemic influenza virus.
- Data from the diagnostic exams will be made available to the MH and the Global Influenza Surveillance Network – FluNet.
- Continuous monitoring of the laboratory examinations information on influenza on a global scale.
- 

**PHASE 5.**

A bigger outbreak/outbreaks and human transmission is still limited, which indicates that virus becomes more adapted but still has not adapted completely to dissemination only among humans.

**Level 1.** Azerbaijan is not affected

**Laboratory supervision includes:**

- Diagnostic examinations for influenza and acute respiratory diseases continue in the country.
- Data from the diagnostic exams are made available to the MH and the Global Influenza Surveillance Network – FluNet.
- Continuous monitoring of the laboratory tests information on influenza on a global scale.

**Level 2.** Azerbaijan is affected or has major contacts (such as travels, trade relations) with an affected country

**Laboratory supervision includes:**

- Diagnostic examinations for influenza and acute respiratory diseases continue in the country, with accent on diagnostics of newly appeared pandemic influenza virus.
- Data from the diagnostic exams are made available to the MH and the Global Influenza Surveillance Network – FluNet.
- Continuous monitoring of the laboratory tests information on influenza on a global scale.

**PANDEMIC PERIOD**

**PHASE 6.**

Phase of pandemic spread: Increasing and prolonged virus transmission among the entire population.

**Level 1.** Azerbaijan is not affected

**Laboratory supervision includes:**

- Stepping up diagnostic examinations, especially in persons with influenza-like symptoms, arriving from abroad, as well as from cadaver materials of persons who died with the clinical features of an influenza-like disease.
- Requesting the new pandemic influenza strain from the WHO World Influenza Centers (London or Atlanta).
- The National Reference Laboratory for Influenza urgently develops an inactive antigen for serological diagnostics and diagnostic serums for identification of newly-isolated strains of the pandemic virus for its own needs and for the diagnostic laboratories in the country.

- Data from the diagnostic exams in Azerbaijan are made available to the MH and the Global Influenza Surveillance Network – FluNet.
- Continuous monitoring of the laboratory tests information on influenza on a global scale.

**Level 2.** Azerbaijan is affected or has major contacts (such as travels, trade relations) with an affected country

**Laboratory supervision includes:**

- Strengthening of diagnostic activity for influenza and acute respiratory diseases of virological laboratories in the country.
- All virologic laboratories immediately dispatch all suspicious isolates to the National Reference Laboratory for Influenza for the purpose of identification.
- Data from the diagnostic exams are made available to the MH and the Global Influenza Surveillance Network – FluNet.
- Continuous monitoring of the laboratory tests information on influenza on a global scale.

**Level 3.** Fading of the pandemic wave

**Laboratory supervision includes:**

- Diagnostic examinations at virological laboratories continue.
- Analysis of data from diagnostic examinations at the National Laboratory and virological laboratories during the first pandemic wave.
- Data from the diagnostic exams are made available to the MH and the Global Influenza Surveillance Network – FluNet.
- Continuous monitoring of the laboratory tests information on influenza on a global scale.

**Level 4.** Successive pandemic wave

**Laboratory supervision includes:**

- Diagnostic tests at virological laboratories in the country are focused mainly on cases of disease outbreaks teams and family foci.
- The National Influenza Laboratory will continue the identification of the newly isolated strains of the influenza viruses.
- Data from the diagnostic exams are made available to the MH and the Global Influenza Surveillance Network – FluNet.
- Continuous monitoring of the laboratory tests information on influenza on a global scale.

## **POST-PANDEMIC PERIOD**

Going back to the inter-pandemic period

## **METHODOLOGICAL GUIDELINES FOR IMPLEMENTATION OF NATIONAL PANDEMIC PLAN IN THE AREA OF LABORATORY DIAGNOSTICS**

Methods for isolation and proving of influenza viruses in respiratory diseases

In case of pandemic spread of new sub-type of influenza virus, the efforts are directed to optimization and intensification of diagnostic processes and urgent proving of new pandemic virus by provision of maximum number of clinical samples for laboratory tests as stated in the National Pandemic Plan.

### **1. Collection of clinical samples:**

**À) The following samples should be taken in cases of diseases with respiratory symptoms:**

- Nasopharyngeal washes or aspirates
- Tracheal or broncho-alveolar lavages
- Cadaver samples (parts of trachea, lungs, etc.)
- Serum samples – from persons in acute and convalescence stage of the disease

**B) In cases of diseases with non-respiratory symptoms and at complications of influenza-like diseases**

**Suitable diagnostic methods include:**

- Detection of antigen in affected tissues or cadaver samples
- Serology – in availability of double serum sample

**2. Laboratory methods for influenza virus confirmation in samples from patients**

- Recommended laboratory methods are presented in Table 1 and the available tests in Table 2.

**Table 1**

**LABORATORY METHODS FOR INFLUENZA VIRUS CONFIRMATION IN  
PATIENT SAMPLES**

<b>Methods – types</b>	<b>Tests are carried out as follows:</b>
<p><b><i>Retrospective (classic virological methods)</i></b> Result: in 10-20 days</p> <ul style="list-style-type: none"><li>• Isolation of virus of chick embryos and cell cultures</li><li>• Serology: CBR and HRR</li></ul>	<p>During all pandemic phases, especially intense during phases 4, 5, 6</p> <p>→ Methods can be applied in all virological laboratories in the country</p>
<p><b><i>Fast methods</i></b> Result: in 6 to 20 hours Clinical and cadaver samples are used, primary isolates.</p> <ul style="list-style-type: none"><li>• IF, RT-PCR, ELISA</li></ul>	<p>During all pandemic phases, especially intense during phases 5 and 6</p> <p>→ Methods can be applied only in some specialized laboratories in the country</p>
<p><b><i>Rapid methods</i></b> Result: in 10 to 30 minutes Used for direct confirmation of viral antigen in clinical samples.</p> <ul style="list-style-type: none"><li>• Enzyme immunoassay tests:</li></ul>	<p>During phases 4, 5 and 6</p> <p>→ Applied at clinical cases for rapid orientation of attending physician</p>

**Note:** The applied laboratory method is determined by the type of newly received samples and concomitant disease information.

**Table 2****TESTS**

<b>Diagnostic test</b>	<b>Detecting the type of influenza virus</b>	<b>Test samples</b>	<b>Result (time)</b>
Isolation of virus of chick embryos and cell cultures	A and B	NP swab , pharyngeal swab, nasal wash, bronchial wash, nasal aspirate, sputum	5-10 days
IFM for viral antigen confirmation	A and B	NP swab, nasal wash, bronchial wash, nasal aspirate, sputum	2-4 h
RT-PCR for typification and sub-typification	A and B	NP swab , pharyngeal swab, nasal wash, bronchial wash, nasal aspirate, sputum	1-2 days
Serology: (CBR, VNR, HRR) for antibodies confirmation	A and B	Double serum samples (from acute and convalescence stage of infection/	>2 weeks
Enzyme immunoassay tests: (ÅLISA) for viral antigen confirmation	A and B	NP swab , pharyngeal swab, nasal wash, bronchial wash	2 h
Quick enzyme immunoassay tests	A and B	NP swab , pharyngeal swab, nasal wash, nasal aspirate	<30 minutes

## 5. Means for prophylaxis and treatment of influenza

### 5.1. Introduction

The main components of the system of measures, which health care should undertake in influenza epidemic settings are the extra prophylaxis with anti-influenza vaccines and antiviral preparations and specific therapy with antiviral preparations, and it is very important they to be used adequately. In the different stages of pandemic preparedness, the significance and strategy for implementation of these measures differ.

**During the interpandemic period (phase 0)** most widely applied are the ordinary “seasonal influenza vaccines” as a basic means for protection from this disease, complications and untimely death. Establishment of effective organization for execution of vaccine prophylactics of influenza in interpandemic period and increased application influenza vaccines in accordance with the recommendations of WHA 2003 (WHA 56.18) for increasing of vaccine coverage in persons from risky groups so that till 2006 in elderly persons to reach up to 50%, and till 2010 - to 75% is the most sure way for gradual preparation of health network, society, as well as the manufacturers influenza vaccines for succession acts at the conditions of pandemic and provision of population with the biggest possible quantity of vaccine, mechanism for its quick distribution as well as staff, trained to apply it.

Improvement of annual pre-seasonal influenza prophylaxis has also important direct effect – reduction of severity and losses from influenza epidemics – immediate results, which are easily measurable and with proven economical efficacy.

**During pandemic period** the “pandemic” influenza vaccine will be applied, which should be prepared in accordance with antigen characteristics of influenza virus which provoked pandemic. It will most probably be a monovalent vaccine, which due to complete absence of immunity of population to the new virus, will be applied twice in order to achieve good immune response.

Wide application for therapy and extra prophylactic will find chemopreparations with specific antiviral effect.

During pandemic, mass necessity of broad access to medical aid and prophylactic and therapeutic means will arise, which will exceed significantly the ordinary necessities, in combination with unavoidable shortage of vaccines and antiviral preparations. Expected several successive waves of pandemic impose combination of readiness for acts of health network at the conditions of overloading for a long period of time.

Due to the above reasons, it is important to take a decision in advance which groups of population with which medicines to be provided, to determine the indications for their application and to establish the relevant organization for their delivery in the country and their successive distribution among the population.

The optimum use of available quantities of vaccines and antiviral preparations will aim effect at morbidity level and reduction of lethality, in parallel with the maximum provision of possibilities for normal functioning of health system, maintenance of country security, the main branches of economics and servicing sphere, reduction of economical losses.

## 5.2. Vaccines

### 1. Influenza vaccines

Vaccination is the main means for influenza prophylaxis during interpandemic periods as well as during pandemic, which is proven in many epidemiological studies carried out all over the world at different epidemiological situations. Summarized data on the efficacy of most widely applied inactivated influenza vaccines are presented in Table 1.

**Table 1**

**EFFICACY OF INACTIVATED INFLUENZA VACCINES**  
(*Kristin L. Nichol, Efficacy and cost effectiveness of influenza vaccination*)

AGE GROUP/RESULT	VACCINE EFFICIENCY
<b>Children</b>	
Laboratory confirmed case of influenza <sup>1</sup>	60% to 90%
Acute otitis media (all cases)	30% to 36%
<b>Healthy adults &lt; 65 years</b>	
Laboratory confirmed case of influenza <sup>1</sup>	70% to 90%
ARD/influenza-like diseases (all cases)	25% to 34%
Temporary disability due to ARD/influenza-like diseases	32% to 43%
Reversibility of patients due to ARD/influenza-like diseases	42% to 44%
<b>Elderly people living at home</b>	
Laboratory confirmed case of influenza <sup>1</sup>	50% to 60%
Hospitalized due to:	
Pneumonia (all cases)	33% (95% CI 27%-38%)
Respiratory system diseases (all causes)	32% (95% CI 29%-40%)
Congestive cardiac conditions	27% (95% CI 15%-39%)
Lethal cases (all reasons)	50% (95% CI 45%-56%)
<b>Elderly people living at social homes</b>	
Respiratory diseases	
Pneumonia	56% (95% CI 39%-68%)
Hospitalizations	53% (95% CI 35%-66%)
Death	48% (95% CI 28%-65%) 68% (95% CI 56%-76%)

<sup>1</sup> Efficacy in infants could be lower to certain degree

<sup>2</sup> Efficacy in elderly people from at-risk groups is similar to that in healthy elderly people

## **2. Practical problems related to the provision of pandemic influenza vaccine**

Influenza vaccines are the main prophylaxis tool for influenza during interpandemic periods as well as during pandemic and in preparation of plans for their application it is important to record all circumstances which could affect the process of their provision or effective application:

- As a whole, the quantity of influenza vaccines manufactured in the world for seasonal prophylactic of influenza is not sufficient. Over 95% of vaccines are produced in 9 countries, where 12% of the world population is living and at present 62% of the total available quantity of influenza vaccines are used. Countries not producing vaccines import influenza vaccines, in effect, from five West European countries only.
- The quantities of pandemic vaccine, at least in the beginning of period, will be even more insufficient. Because the vaccine strain can only be prepared after the onset of the pandemic, establishing a reserve in advance is not possible. The first doses of vaccine will appear only several months after beginning of pandemic and will be in very limited quantities.
- To provide adequate protection to new influenza virus at the conditions of total absence of antigen similarity with previous strains, most probably two successive doses of vaccines will be necessary per person i.e. the quantity of planned doses should be double.
- The possible prohibition (for example by the force of extraordinary national legislation in the countries where vaccine is produced) of the export of pandemic vaccine could lead to a grave global, respective national crisis in public health.
- The national immunization coverage, depending on the small number of imported vaccine kits, is far from the optimum values.

## **3. Main activities related to vaccine prophylaxis of influenza during the interpandemic period**

1. Increasing of consumption of influenza vaccines in interpandemic period: increasing of national vaccine coverage and the coverage of separate risky groups and reaching of vaccine coverage defined as an aim by the WHO Assembly for elderly persons - 75% by 2010.
2. Improvement of registration and reporting of influenza immunizations. Monitoring of vaccine coverage in at-risk groups of population.
3. Development of a strategy to ensure the future supply of pandemic vaccine: clarification of the procedure for negotiating quantities and supply of vaccine - through conclusion of preliminary contracts or bilateral agreements with separate manufacturers or with states where vaccines are produced. Planning of a mechanism for gradual increase of supplies in parallel to increase of the quantity of the produced pandemic vaccine.
4. Planning of the necessary financial resources for provision of vaccine during the entire pandemic period.
5. Establishment of the regulatory framework for rapid marketing authorization of the new pandemic vaccine.
6. Clarification of operational needs and opportunities for application of pandemic vaccine strategy (availability/necessity of warehouses for vaccines, refrigeration chain, possibilities for distribution of vaccines, immunization centers, personnel for application of vaccines).

## **4. Main activities related to vaccine prophylaxis of influenza during the pandemic period**

1. Vaccination is the main means for prophylactics of influenza and will be effective in each one of several successive pandemic waves due to which the strategic aim is to cover

gradually the maximum part of the population which, however, will depend on the available quantity of vaccine.

2. In the beginning of a pandemic, it is certain that vaccines will be insufficient and its distribution will be carried out by preliminary defined and coordinated priorities, specifying in which groups and subgroups of population the immunization will start.

3. **Priority groups:**

- 3.1 Professional groups, connected with execution of main activities, vital for the public and responsible for preservation of important public functions***

- Purpose of immunization for these groups: to maintain the normal functioning and to avoid the disintegration of society during a possible influenza pandemic.

- Immunization of persons employed in the sphere of public health to a certain extent will help for reduction of morbidity and lethality and will provide better access of population to medical aid.

- For the normal course of main public functions, it is significantly important: the managing staff of national administration, assuming important public responsibilities as well as the staff in defense, police, fire guards, in services sphere – water supply and sewerage, power engineering, transport and telecommunications.**

- 3.2 Groups of population in which the risk from complications, hospitalization and lethality is increased***

- Purpose of immunization for these groups: to reduce complications, necessity of hospitalization and lethality.

- Generally speaking, these are the same groups with recommendations to be immunized prior to the beginning of each influenza season\*

- persons of all age groups with chronic conditions
    - persons over the age of 65

- \* depending on available information in already started pandemic (own observations, data of WHO, separate countries) the available vaccine will be redirected with priority for provision of most threatened age groups which could differ from the suggestible, depending on the peculiarities of pandemic strain (i.e. prevailing affection of little children, in young persons or pregnant women).

- 3.3 Persons without risk medical factors (healthy adults and children)***

- Purpose of immunization for these groups: to reduce necessity of medical assistance and addressing of therapeutic institutions; to maintain normal social and economical activity of society and to limit the financial losses (referred to absence from work due to illness of workers and officials or due to illness of members of their family).

- Decision to immunize this group will depend on availability of sufficient quantities of vaccine.

4. Regular provision of authentic and understandable official information for society which should know the real possibilities of health care at every definite moment of pandemic and to be informed why vaccine is not accessible for all.

5. Permanent monitoring of national immunization coverage, evaluation of coverage in risky groups and current reporting of efficacy of immunizations carried out.
6. Possible scenario for execution of immunizations during pandemic – depending on availability of pandemic vaccine and quantities possible to be provided as well as the specific peculiarities of pandemic virus and epidemiological characteristics of running pandemic are possible different variants:
  - 6.1. There is no developed pandemic vaccine or due to various reasons the country has not received preliminary contracted for purchase quantities of vaccines – no immunizations are carried out and it is reckoned only on antiviral preparations;
  - 6.2. Available quantities of vaccine are limited – in case of shortage of vaccine, immunization should start first in persons of priority groups who have not suffered influenza yet;
  - 6.3. If pandemic vaccine is in sufficient quantities, it is possible to undertake successive gradual coverage of the three mentioned groups.
7. Organization of distribution of available influenza vaccines and execution of immunizations:
  - Available quantities of pandemic influenza vaccine are stored till their distribution in the central warehouse of the Ministry of Health.
  - During a pandemic, the distribution of vaccine for all regions in the country will be organized centrally by the Ministry of Health upon observation of general priorities and criteria for its application.
  - Regional SES will be responsible for organization and execution of immunization in the region, correct storage and distribution of vaccine, keeping of regular documentation:
    - drafting plans for organization and execution of immunization in the region;
    - clarification of vaccine quantities, distributed by the Ministry of Health through the cold chain system;
    - if vaccines are provided for larger groups of population, additional immunization sites will be opened based on preliminary defined therapeutic institution in the regional plan for out-of-hospital and hospital assistance, including medical consulting rooms in the schools;
    - if vaccines are provided for the entire population, all polyclinics will be involved in the immunization process.

It should be borne in mind that neither the scale nor the severity of a future pandemic could be defined in advance as it is unknown also the characteristics of pandemic virus or when to expect its appearance.

Therefore the proposed strategies for organization and execution of immunization during pandemic should be discussed only as a possibility but not as already taken decision.

Decisions regarding the real priorities can only be taken under clear conditions of a real pandemic and in the presence of a vaccine against the pandemic virus.

## **5. Pneumococcal vaccine**

Polyvalent polysaccharide pneumococcal vaccine could be used in order to reduce the cases of most often influenza complication – pneumococcal pneumonia. Immunization with polyvalent polysaccharide pneumococcal vaccine is recommended for the following consignments:

1. Children over 2 years.
2. All persons over 65 years
3. Persons with increased risk of pneumococcal infection, determined by availability of chronic diseases: cardiovascular, pulmonary, metabolic diseases, especially diabetes, alcoholism and hepatic cirrhosis.
4. Persons with chronic effluent of liquor due to congenital defects, cranial traumas or neurosurgical manipulations.
5. Persons with functional or anatomic asplenia including with sickle cells disease. When planned splenectomy is forthcoming, immunization should be done at least 14 days (preferable 4 to 6 weeks) prior to operative intervention.
6. Persons with reduced immune response which is the direct reason for increased risk of severe pneumococcal infection: Hodgkin's disease, lymphoma, leukemia, multiple myeloma, chronic renal failure, nephrotic syndrome, organ transplantation. immunosuppression, caused by other disease or specific therapy, including corticosteroids.
7. HIV positive and patients with clinically manifested HIV infection.

### **5.3. Antivirals**

World Health Organization states that when administered with general prevention measures (canceling of meetings, closure of schools), early and targeted use of antiviral drugs can at least slow down the spread of the pandemic. Supply and efficient use of antiviral drugs seems to affect the progress of the pandemic

In the recent years, some anti-viral agents have been developed which are protective and therapeutic against influenza infection. There are two classes of drugs - M2 inhibitors like Amantadine and Rimantadine and neuraminidase inhibitors like Oseltamivir (Tamiflu) and Zanimivir (Relenza). These drugs have been licensed to treat and protect from seasonal human influenza in some countries and thought to be effective against various influenza agents.

Amantadine and rimantadine inhibit this activity and are called as “M2 inhibitors”. These drugs are not effective against B type influenza viruses, because B viruses do not have M2 protein. After the completion of replication, viral neuraminidases of both type A and B viruses help the disconnection of the virus from the infected cells and prevent the viral accumulation before the next infectious circle starts.

Zanamivir and oseltamivir are two licensed neuraminidase inhibitors. These drugs are designed to stop the replication circle by preventing the virus release and allowing the accumulation of virus. Both drugs can be used in the treatment and prevention because Type A influenza viruses cause pandemics.

Amantadine and rimantadine as M2 inhibitors show similar characteristics in terms of antiviral efficacy, but differ in terms of metabolic and safety profiles. Because of this difference, their use during a pandemic will be different.

Amantadine is excreted through renal tubular way with little metabolic change. Therefore, the dosage should be reduced in case of renal insufficiency. Because Rimantadine is mostly metabolized by the liver, there is no need for reducing the dosage. Side effects of amantadine are difficulty in concentrating, insomnia, and confusion in the elderly. In order to reduce the risk of side effects, the dosage should be decreased for people 65 years old and above. There are many defined drug interactions (central nervous system stimulants, anti-cholinergics, anti-histaminics, certain diuretics) increasing the side effect risk of Amantadine.

Rimantadine rarely causes side effects and these side effects are less and weaker than those of amantadine. Amantadine is administrated orally as 200 mg per day (twice a day as 100 mg capsules). Rimantadine is administrated orally as 300 mg per day (twice a day as 150 mg capsules).

Neuraminidase inhibitors are used more safely, and resistance to these drugs develops rarely. However, that they are expensive is a disadvantage. Zanamivir and oseltamivir which are neuraminidase inhibitors have different characteristics. When administered orally zanamivir is not active biologically, therefore it should be taken as dry powder through inhalation. Oseltamivir can be taken orally. Oseltamivir is rapidly metabolized to carboxylate by hepatic esterases and can be identified in the plasma 30 minutes after the administration. Although most of it is excreted through urine, dosage reduction is only needed for people who have serious renal insufficiency (creatinine clearance < 30 ml/min).

When oseltamivir and zanamivir are administered within the first 2 days of the starting of disease, it is shown that they have shortened the period of disease caused by type A and B influenza viruses. The period of disease is shortened 1.5 days in average; disease is shortened 3 days in the people who have a severe start. Different than M2 inhibitors, neuraminidase inhibitors also reduce the antibiotic use due to disease.

It is reported that more than 11.000 patients between 1-97 years old have used oseltamivir. Clinical studies have indicated that benefits of oseltamivir treatment are not limited with mitigating influenza symptoms. There is evidence indicating that oseltamivir is effective in the reduction of secondary respiratory system complications such as bronchitis, pneumonia and sinusitis, and hospitalization rates. Furthermore, it is tolerated well and has a good safety profile. Oseltamivir is also active against avian influenza strains.

There is not sufficient data about the use of oseltamivir in pregnant women. Fatal toxicity or teratogenic effects were not observed in animal tests. Oseltamivir should be used in pregnant or breastfeeding women if the benefits are to be more than potential risks.

Side effects of zanamivir are very rare. Few bronchospasm cases are reported in underlying asthma. Reported side effects about the use of oseltamivir are nausea (4%) and vomiting (6%). These side effects are temporary and usually observed after the first dose.

Zanamivir is administered as 20 mg/day (5 mg twice per 12 hours) for 5 days.

The resistance during the treatment of influenza with antiviral drugs usually occurs during the use of M2 inhibitors; and no resistance develops in prophylactic use. Neuraminidase inhibitors rarely cause to the development of resistance.

World Health Organization (WHO) recommends that neuraminidase inhibitors should be preferred for treatment, if they are available.

In Azerbaijan, approx 350 (as of June 07) packages of Oseltamivir are nationally stockpiled. The drugs can be released and distributed by request to the Ministry of Health, if needed in the Rayons. Additionally 2-4 packages of Oseltamivir were distributed to each Rayon hospital in order to start an early treatment of suspected cases. At the moment it is not planned to purchase further packages of Oseltamivir.

It is thought that in pandemics human strain will lead to highly severe morbidity and mortality in the future. In this case, use of Oseltamivir may be necessary for two situations (prophylaxis and treatment).

Prophylaxis for international passengers: When an influenza pandemic is announced, WHO will make suggestions for passengers in order to slow down and restrict the international spread. Health professionals will also follow these suggestions during travel.

### 5.3.1. Oseltamivir phosphate (Tamiflu®)

An influenza treatment drug belonging to the group of neuraminidase inhibitors. It treats effectively influenza viruses types A and B and when administered in the first 48 hours after the patient catches the flue, it relieves significantly the clinical symptoms and their duration, influencing especially the body temperature levels. The treatment of patients of high-risk groups with Tamiflu prevents the occurrence of complications and reduces by 50% the incidence of pneumonia and the need for hospitalization.

**Oseltamivir phosphate (Tamiflu®)** is registered as:

- Capsules, containing 75 mg of Oseltamivir;
- Powder for oral suspension. The suspension may be prepared for the whole treatment course – either by the patient or by a pharmacist, in accordance with the instructions of the manufacturer;
- For administering **only in a pandemic situation** the medicine may be supplied as active substance of oseltamivir phosphate (Tamiflu®), in the form of white crystal powder. It is stored in green drums, each with size 48 x 48 x 71 cm. Each drum contains 2 plastic bags with 7 kg of active substance each. It is delivered in cases of 4 drums. The content of one drum of active substance of oseltamivir phosphate is enough for:
  - Treatment of 400 patients for 5 days
  - Preventive administration - for 400 persons in the course of 10 days
  - Preventive administration - for 100 persons in the course of 40 days (according to approved dosage for prevention during epidemic outbreaks)

The suspension of oseltamivir phosphate is prepared with regular drinking water and may be kept at room temperature or in a refrigerator.

Microbiological and chemical tests show that when kept at room temperature (up to 25° C), the suspension remains stable up to three weeks after its preparation. When kept in a refrigerator (5° C), the suspension is stable up to six weeks after preparation.

#### *Indications for use*

**Treatment of influenza:** adults and children above 1 year. The treatment is proven to be effective when it begins up to 2 days after the beginning of the disease.

#### **Prophylaxis of influenza:**

1) adults and adolescents above 13 years of age in contact with sick persons with clinically established influenza (*post-exposure prophylaxis*)

2) depending on the epidemic situation, when circulating and vaccine strains do not concur and when a pandemic situation occurs it may be used for *continuous prophylaxis* Dosage

**Treatment of influenza:**

- a) adults and adolescents above 13 years of age: 1 capsule(75 mg) twice per day for 5 days;
- b) children 1 to 13 years – as shown in Table 4.
- for children with body weight over 40 kg the dosage is the same as the one for adults;
- for children with body weight less than 40 kg. the dosage is determined per kg of weight,

**Treatment of children 1 to 13 years of age**

Body weight	Suggested use for 5 days (treatment)
≤ 15 kg	30 mg twice daily
> 15kg to 23 kg	45 mg twice daily
> 23 kg to 40 kg	60 mg twice daily
> 40 kg	75 mg twice daily

Suspension for oral administration may be used for both children and adults with the respective dosage.

**Prophylaxis of influenza:**

- *Post-exposure prophylaxis* for adults and adolescents above 13 years of age: 75 mg (1 capsule) per day for 7 days, preferably taken in the morning, together with the breakfast
- *Continuous prophylaxis* in epidemic/pandemic situations: the recommended dose is 75 mg (1 capsule) or equivalent quantity of suspension once per day for no more than 6 weeks.

When prescribing the medicine, the instructions of the manufacturer concerning dosage for persons suffering from other diseases, described contraindications, interactions with other medicines, etc. must be observed.

**5.3.2. Rimantadine hydrochloride (Remantadine®)**

The anti-virus medicinal product Rimantadine and the chemically similar Amantadine, known as adamantane derivatives are from class M2 virus inhibitors and are among the first anti-virus medicinal products applied in the medication and prophylaxis of influenza. The examination of the mechanism of action and effectiveness of Rimantadine was carried out in the former Soviet Union in 1969, after which it was applied on a mass scale for treatment and prophylaxis of influenza. Remantadine was registered in USA in 1993 for treatment and prophylaxis of adults and children above 1 year of all variants of flue of type A.

Its broad-scale use however is connected **with the risk of selection of resistant strains of flu viruses**, hence it will be necessary to conduct regular virological examinations of the circulating viruses.

*Indications for use:*

**Treatment of influenza - adults and children above 7 years of age.** Treatment should begin when the first symptoms of influenza appear. The effectiveness of the product is best manifested when it is taken in the first 48 hours.

**Influenza prevention for adults**

*Dosage:*

**Treatment of influenza:**

a) adults and adolescents above 14 years of age:  
the first day – 2 tablets (100 mg) 3 times per day\*  
the second and third days - 2 tablets (100 mg) 2 times per day  
the fourth and fifth days - 1 tablet (100 mg) once per day  
\* 3 tablets may be taken twice per day in the first day,  
or 6 tablets may be taken once

b) children from 7 to 10 years: 1 tablet (50 mg) 2 times per day

c) children from 11 -14 years: 3 tablet (50 mg) 3 times per day)

Duration of treatment - 5 days.

**Prophylaxis of influenza:** for adults in an epidemic situation – 1 tablet (50 mg) once per day in the course of 30 days.

When prescribing the medicine, the instructions of the manufacturer concerning dosage for persons suffering from other diseases, described contra-indications, interactions with other medicines, etc. must be observed.

**Adverse effects of antivirals**

Every person who is taking antivirals (oseltamivir, zanamivir) as therapy or prophylaxis should be monitored for side effects. Two reasons are responsible for that;

1. There is still limited experience with antivirals. More information is needed also on the side effects to adjust recommendations in the future.
2. To decide if the individual side effects might influence the continuation of the therapy and especially prophylaxis.

This information should be collected by the physician together with the clinical daily information in the patient's documentation.

**5.3.3. Strategy for Administering of Antiviral Drugs**

The anti-virus medicinal products are effective both for early treatment and prophylaxis of influenza. Their action is immediate, starting as soon as the first dose is administered. They have no adverse effect and do not influence the immune response when administered together with anti-flue vaccines. Vaccines are indisputably the best prophylactic means in the inter-pandemic or pandemic situations; however it is not very likely to have them available as early as the first, and may be even the second pandemic waves. In this period the anti-virus medicinal products will be the only ones with specific action against the pandemic flue virus and will therefore be of primary importance for reduction of the morbidity rate, the hospitalizations and may be even the mortality rate, the economic loss and disorganization of social life.

Due to the insufficient production capacity and shortage worldwide, it is necessary to supply some quantities of anti-virus medicinal products in advance as a national reserve and to conclude contracts for additional deliveries later.

The strategy for administering of anti-virus medicines will depend on the quantities, which can be provided, given their global shortage, high price, especially of Tamiflu and the size of the population groups for which it will be used.

Possible options for use of anti-virus medicinal products are:

### ***1. Preventive administering of antiviral medicinal products***

#### *- Continuous preventive administration*

May be carried out during the whole pandemic wave or at the time of the peak morbidity, which lasts about four weeks. This type of preventive administration is effective in respect to morbidity, complications, hospitalizations and mortality (especially with the risk groups), but it requires big quantities of medicines and is therefore very expensive – hence non-applicable.

#### *- Short preventive administration*

It is effective when influenza outbreaks in closed or semi-closed groups. This type of preventive administering has a duration of 10 to 21 days.

#### *- Preventive administering for immunized persons*

Administered after immunization in order to protect the person against falling ill after the vaccine is administered, but no antibodies have been produced yet in protective titers. The duration of this period may vary (from 2 to 6 weeks), depending on whether one or two doses of vaccine need to be administered in order to create immunity.

#### *- Post-exposure prophylaxis*

For persons in contact with influenza patients. Duration – 1 week.

#### *- Combined administering*

For treatment of ill persons and such that are in contact with them.

### ***2. Treatment with Anti-virus Medicinal Products***

- The treatment is effective only if it begins at an early stage – within the first 48 hours from the beginning of the illness.
- It is recommended especially for people from the risk groups, which have not been vaccinated because of contra-indications, lack of vaccine or any other reason.
- The anti-virus products available for the set of measures against pandemic influenza should be used for early treatment.

### **5.3.4. Main Activities Related to the Administering of Antivirals during the Inter-pandemic Period**

1. Develop a concept for the creation of a national reserve of antivirals.
2. Develop a strategy for guaranteeing a maximum access (through the pharmacies) of the population to anti-virus products in case a pandemic situation occurs.
3. Planning of the needed financial resources to secure a permanent national stock of anti-virus medicinal products.
4. Development of a strategy for ensuring of future supplies of anti-virus medications: clarify the procedure of negotiating the quantities and their delivery – by concluding preliminary contracts or bilateral agreements with individual manufacturers or states in which such medicinal products are manufactured.
5. Definition and preliminary development of the national targets and priorities for application of the anti-virus medications during pandemic in view of the anticipated quantity.
6. Identification of the criteria for release and use of the national reserves in case of notification of danger of emerging pandemic and during the pandemic period.

7. Clarify the operational needs and capacity to store, distribute and administer the anti-virus products during a pandemic outbreak (availability/needed storehouses, possibility to store for a long period, modes of distribution).
8. Make the anti-virus products widely known to the medical experts and increase their use during the seasonable influenza outbreaks – mainly in treating people from the risk groups.

### 5.3.5. Main Activities Related to the Administering of Antivirals during a Pandemic Period

The available quantities of antiviral medical products in the set of measures against pandemic influenza should be used primarily for early treatment, especially of persons with higher risk of complications and death.

1. In the beginning of the pandemic situation, when the vaccine will not have been produced yet, and in the succeeding months, when the quantities of vaccine will not be enough, the distribution of anti-virus products will be done in accordance with priorities set and agreed upon in advance. The priority groups in principle do not differ from the ones, pointed out in the section on influenza vaccines, but different strategies will need to be implemented for each of them, depending on the possibilities:
  - ***Continuous preventive administration*** - 4 to 6 weeks (during the peak of the pandemic wave) for professional groups performing most essential activities for the society and responsible for maintaining the major social functions, especially the medical staff.
  - ***Early treatment*** - 5 days. It is recommended especially for persons with whom the risk of complications, hospitalization and death is higher (persons from all age groups with chronic diseases and persons above 65 years of age), who have not been immunized because of contraindications, lack of vaccine or any other reason.
  - ***Combined application of treatment and post-exposure prophylaxis to influenza*** patients and persons who are in contact with them. Duration – 5 or 7 days respectively. This combination could slow down the spreading of the pandemic virus and is therefore appropriate in the beginning of the pandemic outbreak.
2. Regular communication to the public of truthful and easy to understand information, because it must know what the real capacity of the health care system is in every moment of development of the pandemic influenza and must be informed as to why the anti-virus products are not available for everybody.
3. Permanent virus control and monitoring of the sensitivity of circulating viruses to the anti-virus products. Intensive international exchange of information on the resistance capacity of the virus.
4. Organize the distribution of antivirals from the national stock:
  - Available quantities will be stored until their distribution in the central warehouse of the Ministry of Health.
  - During the pandemic outbreak, the distribution to all regions will be done centrally by MH while observing the approved priorities and criteria.
  - Regional SES will be responsible for development of plans for prevention and hospital treatment in specified medical establishments in the region, for the

good storing and distribution of the products, for the maintaining of appropriate documentation.

### **International Health Regulations (2005): strengthening core capacities**

The IHR(2005) will have a significantly broader scope of application compared to the former regulations. Under the IHR(2005), States Parties must notify all events that may constitute a public health emergency of international concern. States are also obliged to report evidence of public health risks outside their territory that may cause international disease spread. Notifications and reports are now communicated to WHO through the National IHR Focal Point. In addition the IHR(2005) update and further develop the provisions in the current Regulations with regard to routine public health measures at points of entry and relating to international traffic. States and WHO will have to develop, maintain and strengthen appropriate public health and administrative capacities to comply with the new Regulations.

#### *Broader network of information sources*

The IHR(2005) requires the establishment of real time event management systems for addressing public health risks and emergencies of international concern which work alongside the updated permanent and routine IHR environmental and epidemiological provisions. This real time event management system relies on a variety of sources to identify potential public health emergencies of international concern, including unofficial and confidential notifications by Member States, by WHO partners such as nongovernmental organizations and research institutes as well as by the media.

### **Legal issues**

All activities and interventions about influenza will be carried out within the scope of the health regulations in force. The regulations to be referred when necessary are as follows:

1. Constitution of the Republic
2. Law on Organization and Duties of the Ministry of Health
3. Health Care Law
4. Hygiene –Epidemiological Law, Regulation, Ordinance

### **Ethical issues**

Public health interventions, such as quarantine or social distancing, that carry personal or societal burdens can only be justified when they are likely to be effective. Thus, such decisions must be based on the best available scientific evidence.

- Human rights norms – Any approach is likely to have an impact on human rights, trade, tourism and the overall economy. Public health interventions should take into account existing international human rights norms, including the right to health and the rights to privacy, security, and nondiscrimination.
- Risks to cohabitants – Isolating infected persons at home may delay the spread of the virus to other households, but, if done improperly, it may also increase the risk of

infection to other household members. Public health policies should ensure that all conditions of confinement are safe and humane.

- Access to vaccines and treatment – The fact that health-care and animal workers are likely to assume greater risks to their own health than other members of society is an argument in favor of giving them priority access to influenza vaccination to prevent infection and to antivirals if they become sick.

## **INFECTION CONTROL**

### 1. General information for infection control

Measures for the infection prevention

#### 1.1. Standard measures:

Standard measures are implemented for all patients in order to decrease the spread of microorganisms in hospitals.

#### A. Hand washing

- Always wash your hands after contacting with body fluid even if you wear gloves
- Wash your hands immediately after taking off your gloves.
- After contacting with patients, use plain soap not including antimicrobials to avoid spreading the virus to the environment and cross-contamination in the same patient.
- Use antiseptics, if necessary.

#### B. Wearing gloves

- Clean, non-sterile gloves are sufficient.
- Wear gloves before contacting with body fluids and contaminated material.
- Wear gloves before contacting with mucosal membrane and damaged skin.
- Take off your gloves for each procedure to avoid cross-contamination.
- Take off your gloves immediately after the procedure in order not to spread to decontaminated surfaces and things around.
- Take off your gloves before contacting with another patient.

#### C. Mask for protecting eyes and face

- To protect mucosal membranes in eyes, mouth and nose, use masks during patient care or other procedures.

#### D. Gown

- Wear a gown proper for the procedure and the material which can get contaminated, and take it off immediately after the procedure and wash your hands immediately.

#### E. Patient care equipment

- Ensure that materials contaminated and used during patient care are disposed of carefully without contacting with skin and mucosa, and disposable materials are not reused.

#### F. Environmental control

- Make sure that hospital perimeters, routine service units, beds, areas around the beds, surfaces frequently contacted are disinfected and disinfection procedures are followed.

### G. Covers

-Make sure that contaminated or used covers or bed sheets and clothes are carried and disinfected without contacting with skin and mucosa.

### H. Pathogens transmitting through blood, and work health

-Follow the measures to be followed during working with cutting equipments to prevent injuries during health service provision:

Do not close the tip of injections with your hands. If you work in a place requiring resuscitation, use proper materials not requiring direct contact.

### Y. Patient placing

-According to their transmission characteristics, place patients into rooms by consulting infection control specialists.

### 1.2. Measures against the spread of droplet infection

Influenza virus is spread air-drop way. Contaminated droplets are excreted through coughing, sneezing, speaking or bronchoscopy, and spread through contacting with mucosa and conjunctivas in the mouth or nose. Proximity of one meter is risky for spreading through contact. Because the agent cannot remain suspended in the air, disinfection measures against the air are not needed.

#### a. Patient placing

Place the patient in a private room. If there is not any private room, place the patient in the same room where there are patients infected by the same pathogen (cohorting). If this is not possible, ensure at least a distance of 1 meter between other patients – visitors. The door of the room can be left open.

#### b. Mask

If you do something in 1 meter area of a patient, use a mask (some hospitals may ask using masks when entering the room).

#### c. Patient transportation

Except for the compulsory situations, limit patient's going outs. If the patient has to go out, put a mask on the patient to decrease the spread of virus.

## PREVENTION OF TRANSMISSION OF INFLUENZA

- Sticking to infection control measures, especially hand hygiene
- Sticking to Standard infection control principles and droplet measures
- Administrative control for isolation and grouping of influenza patients
- Restricting the officials and visitors who were identified to have symptoms
- Training personnel, patients and visitors

## PREPAREDNESS PLAN FOR INFECTION CONTROL

- Influenza pandemic will not be an ordinary work for the national health services.
- The personnel should work flexibly to meet the high demands.
- It will be necessary to stock the personal protection equipment with a good planning.
- Risk assessment should be done to make the decision about current control measures. Managers of health facilities should make a planning in which they can make changes in the routine infection control measures. For example:
  - Health personnel who do not know droplet measures can be asked to look after influenza patients.
  - Waiting rooms in health facilities and private doctor clinics are not suitable for grouping of patients.
  - Personal protective equipment can be consumed within a limited time. Therefore, a good planning will be necessary to form and manage the adequate stock.

## HEALTH PERSONNEL PLANNING

- It is important to diagnose infected health personnel in prevention of spread of the pandemic.
- Infected health personnel should be kept away from the work, however some exceptions may be necessary.
- Health personnel under high risk as to influenza complications should not be involved in direct patient care.
- As a general principle, health personnel that are involved in care of influenza patients should not be involved in care of other patients, however some exceptions may be necessary.

### 1. Who should work?

Health personnel should know about the influenza symptoms and inform their administrator when symptoms occur. As a general principle, all health personnel with influenza symptoms should be kept away from their work to avoid transmission of the disease to patients, colleagues and others. Still, administrators may allow them to work in exceptional cases where there is lack of personnel.

Health personnel who feel well enough, who started to develop the symptoms just recently or those who recovered and still have mild symptoms can work in sections allocated for care of influenza patients by avoiding contact with sick personnel and patients who do not have influenza. This means that the personnel with symptoms should stay within the allocated sections throughout the working hours.

### 2. Placement of personnel

Health personnel working in treatment of influenza patients or in sections allocated for influenza patients should not work in treatment of other patients or in places where these patients are. For care of influenza patients, health personnel who caught and recovered from or has been vaccinated against influenza should primarily be preferred, as there is no probability they will develop or transmit influenza.

### 3. Health workers under risk due to influenza complications

Health workers under such a risk (pregnant women or people with a weak immune system) should work in other assignments away from direct patient care throughout the pandemic or until they get vaccinated.

## INFECTION CONTROL MEASURES

- It is very important to prevent hand hygiene and contact with respiratory secretions.
- Posters explaining influenza control measures should be put up in visible places in order to draw attention.
- All personnel should be informed about the importance of use of personal protective equipment.

### 1. Hand hygiene

Hand hygiene is the most important practice to mitigate transmission of contagious agents in health care practices and lays the basics of Standard infection control principles. Hand hygiene involves washing with water and soap, the drying and using alcohol based products that do not require use of water. If hands have visibly been dirty or contacted with respiratory secretions, they should be washed with water and soap and then dried. When hands are cleaned by alcohol wipes, dirty and organic material should not be contacted. Before and after contact with an infected patient and his/ her bed, hands should be cleaned and protective dressing and equipment should be clean. Following washing, hands should be dried with paper towel which is kept near the thrash. Thrashes should always be available with a cover operating with feet. Additionally, health personnel that are continuously moving can be distributed individual alcohol wipes. All health personnel working in entry and exit points of patients and visitors should be careful about cleaning their hands by washing with water and soap and drying or rubbing with alcohol wipes.

### 2. Management of coughing and sneezing patients

Just as visitors and personnel, patients should encourage sticking to the following hygiene measures in order to prevent transmission of a potential disease:

- Covering the mouth and the nose with single use wipes while coughing, sneezing and cleaning the nose.
- Throwing away the used wipes into the nearest thrash.
- Washing hands after coughing, sneezing, using a wipe, contacting with respiratory secretions and dirty surfaces.
- Keeping hands away from the eye and nose mucosa.

Patient masks: Coughing and sneezing patients should wear surgical masks to decrease environmental contamination and avoid transmission of respiratory secretions while they are in the waiting rooms and during transportation (when coming to hospitals from the public places or moving from one section of the hospital to another).

### 3. Personal protective equipment

Personal protective equipment (aprons, masks, gloves etc.) should be used to protect health personnel from body secretions and thus mitigate the risk of influenza transmission between patients and personnel and among patients. All contaminated clothes should be taken off before leaving the patient's room. Disposable surgical masks or those that can be eliminated after use would be enough.

Surgical masks:

Surgical mask can be worn by the personnel that will have a close contact with the patient. This will be setting a physical barrier and preventing droplet infection which is one of the important ways of transmission of influenza.

Surgical masks:

- Should cover the mouth and nose and should not be left around the neck after usage.
- Should be touched after worn.
- Should be changed if it gets dampened.
- After used, it should be separately collected as a medical waste.
- After the mask is taken off, hands should be disinfected.

FFP3 masks:

FFP3 masks that provide the highest possible protection should be worn by the health personnel during application of patient care procedures. FFP3 masks should be worn in such a way that they are air-tight from the sides. If breathing in and out gets difficult, it means the mask is worn, deformed or fouled with body fluids.

Procedures leading to aerosol output: Practices like intubation, nasopharyngeal aspiration, tracheostomy care, chest physiotherapy, bronchoscopy, nebulisator lead to aerosol output into the environment. These practices should be minimized in such a way that it does not endanger the health of patient. To avoid unnecessary contacts, no people other than health personnel should be around while fulfilling these procedures. Throughout these procedures, goggles should be worn in addition to mask to avoid close contact of eyes with the infected material.

Gloves:

Gloves are not a must during the routine care of influenza patients. Standard infection control principles require use of gloves in invasive procedures, in cases of close contact with the sterile area and while touching the harmed and open skin and in situations where there will be contact with mucosa, blood or body fluids. After used, gloves should be thrown away as medical waste and then hands should be cleaned. If, in the event of pandemic, the stock of gloves is restricted, there may be a need for prioritizing the use of gloves. In such cases, the priority will be for invasive procedures and contact with sterile area and blood and body fluids.

Single use aprons:

Single use aprons should be worn in cases where personal clothes or uniforms will contact blood, body secretions and fluids and be thrown away as medical waste after single use in patient care.

Aprons:

Aprons are not necessary for routine treatment of influenza patients. However, in cases where personal clothes can get dirty or there is a possibility of blood splash, aprons should be worn. They should be worn in practices like intubation as well. Liquid-tight aprons should be preferred. If it is not liquid-tight, a plastic apron should be worn beneath.

Aprons:

- Should completely cover the area to be protected.
- Should be worn only once and put into the dirty laundry. Then hands should be cleaned.

Goggles:

If the eyes will be subject to splashes and big droplets, goggles should be used. In procedures leading to aerosol output, goggles should certainly be used.

- a. Standard infection control principles should always be applied.
- b. Practices like intubation, nasopharyngeal aspiration, tracheostomy care, chest physiotherapy, bronchoscopy, nebulisator lead to aerosol output into the environment.
- c. Practices that lead to aerosol output should be fulfilled with minimum number of health personnel.
- d. Gloves and aprons should be used in some cleaning procedures.
- e. Gloves should be worn in compliance with the standard infection control principles. If the number of gloves is limited, this recommendation may not be applied. In case of contact with blood and body fluid, in invasive procedures and sterile areas, gloves should be worn.
- f. Single-use aprons may be considered in cases where the clothes would get very dirty or there is contact with blood or skin contaminated with blood and other body fluids.
- g. If the apron to be used is fluid-permeable, a plastic apron should be used beneath.

## ENVIRONMENTAL INFECTION CONTROL

### 1. Medical and non-medical wastes

Medical and non-medical wastes contaminated with influenza virus should be eliminated in parallel with the standard influenza control principles. Liquid wastes like urine and feces should be safely discharged to the sewer system. Waste collection bags should be tightly tied before taken from the area of the patients. Gloves should be used while touching all wastes. Hands should be cleaned when gloves are taken off.

### 2. Laundry and laundry room

Clothes used by the patients should safely be cleaned according to the standard infection control principles. While touching or carrying these clothes, the skin and mucosa should be protected.

- Clothes should immediately be put into the suitable dirty laundry after use.
- Laundry bags should be tightly tied while being taken away from the area of influenza patients.
- Gloves and apron should be worn while touching dirty laundry.
- After taking off the gloves used to contact with dirty laundry and laundry rooms, hands should certainly be cleaned.

Hospitals: After dehospitalization of the patient, all bedclothes should be changed.

Primary level: In patient care, paper bed sheets should be used and changed after each patient.

Laundry personnel: Personnel should be trained including hand hygiene and use of proper protective clothes.

### 3. Personnel aprons

Throughout the pandemic, health personnel should be provided with a room where they can change their clothes when they come to work. If laundry services are available in the hospital, aprons should be washed. If not, aprons should be washed in washing machines at an adequate temperature after being carried to home in a closed bag. This laundry should be washed separately from other laundry and at least half of the machine capacity should not be used so that rinsing can be done properly.

### 4. Equipment and material

Other than Standard Infection Control Principles, no special measure is recommended for eating equipment used by influenza patients. Dishes are washed in hot water. No need to use disposable plates.

#### 5. Environmental hygiene and disinfection

The sections allocated for influenza patients should be cleaned at least once a day. Cleaning program may change.

- Hospitals: should be cleaned at least once a day and after discharging of patient.
- Polyclinics: should be cleaned at least once a day preferably at the outset and end of the day. If after the influenza patient, another patient will be examined, the room should be cleaned again.
- Frequently touched surfaces (medical equipment/ door handles) should be cleaned at least twice a day.

Newly prepared water should be used in cleaning which involves natural detergent.

Rather than dry dusting, wet dusting should be preferred to avoid spreading of dust in the environment. Vacuum cleaner should not be used.

The equipment used should be those allocated to the section or disposable. Equipment like non-disposable mop heads should be washed after use.

Cleaning personnel should not change their places among different sections of the hospital. They should wear gloves and masks during work.

#### 6. Patient care equipment

Effective cleaning of patient care equipment is possible with disinfection and sterilization.

- Contact of equipment with skin, mucosa, dirt of environment and clothes should be prevented.
- If the equipment is very dirty, it should not be taken away from the examination room without cleaning by natural detergent and hot water.

Multi-use equipments like stethoscope should be elaborately cleaned after each patient.

- Other material in the patient rooms and x-ray equipment should be elaborately cleaned. Equipment that provide air circulation should be avoided.

#### 7. Furniture

Soft furniture and all unnecessary goods especially in the doctor clinics and waiting rooms should be removed. Other furniture should be easily cleanable and should not have a characteristic of hiding the dirt. Toys, books and newspapers should be removed from the waiting rooms.

### 6. Anti-epidemic measures

**The main objective** of conducting anti-epidemic measures under conditions of seasonal influenza epidemic or pandemic is limiting to the maximum possible extent of the possibilities for spreading of the influenza virus in society thus achieving delay in the progressing of the epidemic/pandemic and decrease in its intensity in order to create prerequisites for more efficient use of the available means for specific prevention and treatment.

### **6.1. Measures regarding influenza patients**

- the medical services to individuals affected by influenza and acute respiratory diseases should be carried out mostly in their homes;
- isolation at home is recommended for persons with light and medium acuteness of influenza forms and to persons with respiratory disease symptoms – they should stay isolated at home and treat themselves, and medical, and if necessary social services should be provided for them;
- the patients with acute influenza forms, with complications or higher risk of complications due to presence of accompanying diseases (cardio-vascular, metabolism diseases, such as diabetes, etc) should be isolated in healthcare hospital establishments;
- for protection of the persons in contact with them the influenza patients should wear masks, in case there are no medical contraindications for that.

### **6.2. Measures regarding the persons in contact with influenza patients**

- searching the persons exposed to infection, epidemiological survey and medical monitoring;
- the persons in contact with influenza patients should wear masks covering their nose and mouth (contact persons at home, the medical staff and the other patients with acute respiratory diseases (ARD) sitting in the waiting rooms in healthcare establishments for outpatient or hospital care);
- the relatives in contact with people having a pandemic influenza should also be left in isolation at home, including those contact persons, who receive anti-virus prophylactic preparations as an urgent prevention measure;
- the contact persons should be instructed to monitor themselves for occurrence of influenza symptoms;
- limiting the trips of persons in contact with influenza patients, especially to areas where no influenza infections have been registered yet.

### **6.3. Measures limiting the transmission and spreading of influenza viruses (non-pharmaceutical measures)**

- limiting trips – business and private, international and domestic, if they are not of pressing need;
- suspension of medical check-ups, planned consultations of healthy pregnant women and nurslings, planned operations ;
- suspension of visits to patients in hospitals and soldiers in the army;
- suspension of lessons at schools and universities, temporary closing down of kindergartens and crèche;
- limiting the extra-mural activities and gatherings of children and youth;
- limiting all mass events where many people gather together, especially in closed premises (visiting sports, cultural and other mass events, performances to be cancelled);
- leaves for certain professional groups;
- masks to be worn by the staff in public transport, public catering establishments and shops, the staff in establishments for children;
- sick children not to be let to enter children establishments and schools after morning examination upon entry ("filter").

#### **6.4. Disinfection measures**

- hand washing;
- disinfection of hands and surfaces;
- current disinfection in the homes of families with infection;
- wet cleaning, regular airing of the premises.

#### **6.5. Advice regarding international and domestic trips**

- in order to avoid trips to regions and areas where there is a high risk of infection, current epidemiological information should be provided about infected regions and countries;
- trips to be undertaken if necessary;
- information to be provided to the travelers about the symptoms of influenza and the occurrence of which people can monitor themselves, as well as information when medical care should be sought and where the affected persons can go for help.

### **7. Communications**

The communication strategy in case of danger of influenza pandemic or after an influenza pandemic has occurred is targeted towards ensuring information **adequate** for every type of audience, and **specific** about each phase of the influenza pandemic.

Specialized information is required for the medical staff, while the public needs to be informed in general about the risks of contamination and the measures that may be taken for avoiding the risks, e.g. advice about the universal sanitation measures.

#### **A Set of Fundamental Principles**

The main principles that should be observed especially in a situation of fear or even panic about the occurrence of epidemic are the following:

- the information should be timely, up-to-date, true, specific and understandable;
- the information distributed by all sources should be as consistent and non-contradicting as possible, which requires continuous coordination among the central level bodies and the bodies at regional level;
- it is necessary to identify precisely the responsibilities of the relevant administration about the contents and quality of the information distributed at each level;
- precise definition of the media responsibility – to distribute only true information and not to allow any information from unauthorized sources on matters related to the advancement of the pandemic to appear in the media.

#### **Information content**

The content of each piece of information should be determined on the basis of the subject matter, but in general basic data need to be distributed, such as:

- advancement of the pandemic in the country, the neighboring countries and the world;
- level and dynamics of the morbidity rate in Azerbaijan;
- most strongly affected population groups;
- clinical features of the disease – especially its acuteness;

- availability of vaccines, antiviral preparations, antibiotics, and other medicines, and how the access to them is arranged;
- how and when to consult a doctor and which hospitals patients with complications should be directed to;
- provision of information on next phase of pandemic, preparations and measures taken which are of great importance

**Channels for information distribution**

Information is distributed at national, regional and local level to:

- **doctors and other medical staff** (reports, fax, telephone, Internet, printed media, radio, TV, etc.);
- Website of the Ministry of health (where the official government information is published and where also the information about the influenza pandemic will be published) and also mass-media (printed and electronic media, radio, TV, etc.)

**Responsibilities**

At central level the Ministry of Health is responsible about information spread about the influenza pandemic.

At regional level responsibilities about information spread will be defined after receiving the comments and suggestions of the ministries

**8. Implementation of the National Influenza Pandemic Preparedness Plan**

**8.1. List of the main healthcare establishments in the country, which will deliver services to patients with severe complications during an influenza pandemic**

**Table 1.**

**MAIN HEALTHCARE ESTABLISHMENTS, WHICH WILL DELIVER SERVICES TO PATIENTS WITH SEVERE COMPLICATIONS DURING INFLUENZA PANDEMIC**

NAME	ADDRESS, TELEPHONE, FAX
BAKU	
1.	

## 8.2. Regional influenza pandemic preparedness plans

The high morbidity rate concentrated within a short period of time is a serious challenge for the healthcare system in any country, because it presupposes sharp increase of the needs of the population of outpatient and hospital care and absence of some of the staff, and a relative shortage of hospital beds. This requires the preparation also of Regional Plans for Readiness for Influenza Pandemic, which take into account the concrete possibilities and specificities of each region. Such plans have to be prepared by the Regional SES and should be coordinated with the National Plan and the Ministry of Health.

Some of the main components of the regional plan are:

- Planning a possibility for opening additional stationary-isolation units, e.g. in the buildings of hostels, boarding schools, etc. in case of pandemic or a very intensive epidemic;
- Annual complex planning of the regional activities for the supervision and control of seasonal influenza epidemics;
- Planning of a regional information strategy – a large part of the information about the whole country will be submitted by the Ministry of Health either directly to the public. It is of importance the administrative districts to have a system in place for transfer of the information from the central level to the public in the region, as well as for preparation and distribution of regional information. The Regional SES should provide to the whole public information through the local media about the progress of the pandemic in their region, and they are also obliged to submit to the health workers in the region the required professional information about the situation;
- **Plans for outpatient medical services to the population**, which include:
  1. Organization and conducting of training for all HCW, so that they are prepared to provide optimal service to the influenza patients in the conditions of a pandemic;
  2. Preparation of the doctors for conducting diagnostics, treatment, anti-epidemic and prevention activities in the homes of the citizens;
  3. Planning of schedules and schemes for out-hospital services for the population in case of increased number of home visits and decreased medical staff due to sick leaves;
  4. Preparation of a plan for ensuring additional staff, e.g. by mobilization when necessary of retired health workers and medical students in order to increase the capacity of the outpatient medical units, or by having somebody undertake the responsibility of the healthcare workers in sick leave;
  5. Planning of the provision of vehicles for performance of home visits, the number of which would be increased considerably;
  6. Preparation of the pharmacies' network for increased demand of antibiotics, antipyretics and other therapeutic means, and for servicing a larger number of customers. It is necessary to forecast the approximate amount of medicines that will be necessary and to arrange for a reserve of means for prevention and treatment;

**Plans for execution of treatment in hospitals:**

Hospitals should make their own action plans for operation in conditions of influenza pandemic; in these plans the main functions should be assigned to the infectious wards, the internal diseases wards, pediatric wards, pulmonology wards, microbiology and clinical laboratories and the X-ray unit. The plans should contain the following main elements:

1. Precise definition of the functions and responsibilities of the management staff;
2. Layout and responsibilities for ensuring reliable information to the public jointly with the Regional SES and for providing information to the hospital staff;
3. The methods of notifying the staff about occurrence of a crisis, layout for the distribution of such information, including the respective persons in charge, determining a place for Gathering of additional staff, reserve plans for duty shifts with more staff in the internal diseases wards, pediatric wards, pulmonology wards, microbiology and clinical laboratories and the X-ray unit;
4. Planning of interaction with the civil protection units, the Azerbaijan Red Crescent and other organizations and bodies, which can take part in provision of healthcare services to the population;
5. Approval of standard instructions for diagnostics, hospitalization and treatment of influenza patients, including anti-virus preparations, instructions for diagnostics, treatment and hospitalization of patients with influenza-related complications, conducting prevention immunizations with pandemic vaccine, including immunizations of the hospital medical staff;
6. Establishing a separate "allocation sector" with teams trained to examine groups of influenza patients, which will also allocate the patients: for home treatment or for emergency hospitalization, and in the latter case – allocation to the different wards;
7. For treatment in hospital the following will be admitted: patients with complications, with acute forms of influenza and patients with chronic diseases (lungs, cardio-vascular, diabetes, etc.), for whom there is a higher risk of unfavorable outcome of the influenza;
8. Monitoring of the morbidity rate of ARD among the staff;
9. Ensuring stock s of medications for treatment of influenza patients and patients with complications (antibiotics, antipyretics, analgetics and others.);
10. Ensuring the required consumables and reagents for microbiological and biochemical laboratory and the x-ray department;
11. Measures for strengthening the control over infections and limiting the possibility for in-hospital spreading of the influenza among patients, staff and visitors (planned operations are canceled, no visits to the patients, etc.);
12. Ensuring sufficient quantity of masks for the staff, patients and visitors;
13. Ensuring a possibility for expanding the number of beds (primarily for internal diseases wards) and possibility for opening additional wards for isolation with additional number of beds with a view to admitting a larger number of patients with influenza or complications;
14. Training of the medical staff – getting acquainted with the novelties in flue diagnostics, treatment and prevention and reanimation of patients in severe condition and patients with complications;
15. Transportation and identification of casualties

## **SURVEILLANCE**

### 1. Global Influenza Surveillance:

Surveillance is of high importance in identifying new virus chains in inter-pandemic periods and efficacy of control measures and ensuring appropriate use of resources.

Today, 114 National Influenza Centers operating in 85 countries have been implementing the global influenza programme with coordination of World Health Organization. Among these, 4 laboratories in Atlanta-U.S.A., London-England, Melbourne-Australia and Tokyo-Japan have been functioning as Influenza Reference Laboratories. These laboratories are inter-connected with a web-based network FLUNET. This network monitors the influenza activity on the world and sends the virus isolates to the WHO Cooperation Center and ensures early recognition of new chains. Northern hemisphere isolates are published in February every year while southern in September. Thus, recommendations are developed annually for vaccination studies for the following year.

In our country, the role of national reference laboratory plays the Influenza laboratory of the Republican Anti-Plague Station in Baku. When a new virus chain is recognized in this laboratory, virus isolate is sent to the Cooperation Center in London - England.

Reference laboratories are responsible for virological distinctions and confirmed diagnosis in surveillance. Therefore, their duties in surveillance are:

- to ensure virus identifications, which involves identification of new pandemic subtypes
- to determine drug resistance with genotypic analyses
- to collect information about national and international influenza epidemiology
- to make notification to and counseling for the WHO in case of a different virus chain.

### 2. Influenza surveillance during inter-pandemic period

Surveillance in the inter-pandemic period will be done within the routine notification system. Especially during the influenza season (during the 40th and 20th weeks), a rapid assessment will be done on the system and data collected.

#### 2.1. Republican Center of Hygiene and Epidemiology:

This Center will monitor the epidemiological situation during the epidemic or pandemic influenza or influenza-like diseases and ensure the implementation of immediate operational response measures.

#### 2.2. Surveillance applied centers and ways of application:

Influenza will be monitored by routine surveillance as follows

Short description of the surveillance scheme in pandemic period

#### **2.3. Case definition:**

Clinical description:

Illness characterized by the abrupt onset of temperature ( $>38^{\circ}\text{C}$ ) and coughs and/or soar throat.

Laboratory criteria for diagnosis:

Influenza virus isolation from nasopharyngeal swab or aspiration specimen or showing the existence of viral antigen.

Case classification:

Possible case: Case consistent with clinical description

Confirmed case: Possible case confirmed by laboratory criteria

#### 2.4. Basic information for clinical specimens to be analyzed

Nasal and throat swab specimen and nasopharyngeal aspirate should be taken from the culture for isolation. For avian influenza A diagnosis, first of all, nasopharyngeal aspirate should be sent to laboratory by taking serum in the acute and convalescent period within the framework of the rules mentioned.

#### 2.5. Analysis on days of absence in schools:

If, in all regions more than 10% of the school population are absent in school due to influenza-like illnesses within the same week, this situation will be perceived as a pandemic and all cases will be notified.

### 3. Influenza surveillance in Azerbaijan in case of influenza pandemic in other countries

The first response to give in case of influenza pandemic in other countries will be to revise the current national pandemic plan considering the specific characteristics of the virus subtype that causes the pandemic. Then surveillance activities will be increased to identify a possible pandemic in our country at the earliest phase.

Provision of laboratory tools, preparation of training programmes and rapid diagnostic facilities are important in the struggle against a pandemic. Surveillance activities should be kept functional with all its components during inter-pandemic period.

During the pandemic period, it is more advisable to monitor the increasing cases by adapting the current system on all regions rather than establishing a brand new surveillance system.

- The Ministry of Health will rapidly evaluate the situation in regions and disseminate the Surveillance results to the necessary units.
- The Ministry of Health will provide sufficient and coordinated information for the health facilities and the public as to pandemic development.
- Clinical characteristics of the pandemic virus and the problems in surveillance will be monitored on a continuous basis.
- The Ministry of Health will monitor the clinical and virological surveillance activities including pandemic virus activity and mortality data, and ensure rapid dissemination of the current information to the relevant bodies.
- During the pandemic, the Ministry of Health will notify the possible case definition to health facilities, considering the case definition specified and updated by the World Health Organization.
- The Ministry of Health and Regional Centers of Hygiene and Epidemiology will monitor the number of possible and confirmed influenza cases and cases hospitalized/dehospitalized due to pneumonia.
- Situation of the cases hospitalized/ dehospitalized in/ from the selected health facilities with a diagnosis of influenza / pneumonia will be monitored to obtain some data that can reveal the characteristic of the surveillance system and evaluate the pandemic within the scope of specified criteria.
- Absenteeism in schools and at work will be identified and notified to the Ministry of Health on an updated basis.

### 4. Influenza surveillance in case of pandemic existence in Azerbaijan

- When a pandemic influenza is identified within our country, information will be obtained on the number of possible cases and deaths from all health facilities and efforts to monitor virus activity will be increased.

- Information as to influenza activity in public sub-groups and country- wide will be collected and systematically monitored.
- Those who contacted with influenza cases under analysis will be monitored.
- Efficacy of the measures taken will be analyzed with clinical and microbiological results.
- Virological results will be compared to those of other pandemic countries.
- Identification and analysis of hospital-based cases will be prioritized.
- Surveillance of secondary bacteriological infections will be continued to sharpen the antibiotic treatment policy.
- Mortality due to any cause and mortality from influenza specific pneumonia/ acute respiratory disease will be evaluated.
- Medication sales and distribution that shows increased use of influenza like illnesses on the health facility and public level will be analyzed.

## **INFLUENZA CLINICAL CASE MANAGEMENT**

### **General information about the treatment**

The objective of using antiviral drugs during pandemic influenza is to reduce disease burden, to minimize the social damage and to alleviate the economic impact. Effective use of antiviral drugs depends on well determination of using strategies, identification of priority patient groups, and supply and distribution of antibiotics. It is known that efficacy of antiviral treatment is good in the case of early start for treatment (within first 48 hours), therefore rapid access to antiviral drugs are very crucial. If drugs are administered to patients who apply to hospitals first regardless of their priority, stockpile of drugs will deplete early and antiviral treatment would not be administered for patients in the need of these drugs very much. Keeping drugs only for patients at high risk will ensure having stocks for a long time; however, in this situation, reduction of morbidity in otherwise healthy people will be impossible.

Today, antiviral production and stocks are limited. To increase the production of antiviral require a long time because of its multi-stage production. Under these circumstances, it is impossible to increase the antiviral production, even though the need for antiviral drugs increases several times during a pandemic than inter-pandemic phases. Because the effect of antiviral treatment is limited, antiviral treatment needs early administration, causes side effects and develops resistance, antiviral drugs should be stored for specific patient groups.

### **Risk groups**

Groups which will have antiviral treatment priority during pandemics and objectives of treatment for each group can be listed as below:

#### **1. Essential service providers:**

The objective of treatment in this group is to maintain the sustainability of essential services during pandemics. This group includes healthcare professionals, security and military personnel and personnel in electricity, water and food supply. Healthcare professionals are a special group because they provide essential services such as care and treatment of patients and have the risk of being infected and transmitting the infection to other patients due to close contact with patients, therefore they have the highest priority in terms of treatment.

#### **2. Patients who are expected to have severe influenza or complications due to influenza**

- a. Patients with serious cardiac or pulmonary diseases
- b. Patients with immunity deficiency (malign diseases such as HIV infection, AIDS, leukemia, lymphoma, and patients with organ transplantation)

The objective of the treatment in this group is to reduce the mortality and serious morbidity.

Antiviral treatment in people who do not have risk factors in terms of influenza complications can be used in order to reduce morbidity and to avoid overuse of health resources (including antibiotics); however implementing such a strategy is difficult and costly, because it requires stockpiling of large amounts of antiviral drugs and rapid access to services.

### **Use of treatment in different phases**

Antiviral drugs can be used under three conditions. The first condition is that antiviral treatment is administered in the phase when the new strain emerges in order to prevent infected people to spread the virus to themselves and those whom they are in close contact with such as family members and healthcare professionals.

The second condition of antiviral treatment is the situations in which the surveillance indicates that spreading of the virus will increase. Treatment of all the members of a group where case cluster arises will stop or delay the spread.

When pandemic is announced, antiviral treatment administration, until a vaccine is developed against the new origin, will be the strategy to reduce the morbidity and mortality. At this phase, antiviral treatment should be administered considering the priority groups defined above.

### **Use of Drugs**

Osetamivir is recommended for people >1. The doses should be adjusted according to body weight and age, as shown below:

- Children >1
  - o 15 kg body weight 30 mg x 2
  - o >15–23 kg body weight 45 mg x 2
  - o >23–40 kg body weight 60 mg x 2
  - o >40 kg 75 mg x 2
- Children >13
  - o 75 kg x 2

Zanamivir is recommended for people >7, and is administered as 20 mg/day (5 mg twice per 12 hours) doses through inhalation.

In order to get effective results from drug, it should be administered within 48 hours after the onset of symptoms.

There is no sufficient data on the use of oseltamivir and zanamivir during a pandemic. Preclinical data implies that sufficient antiviral efficacy can be provided against a new origin, it should be considered that higher and/or longer treatments might be required because immunization may not develop or may develop in a low level against pandemic origins in the society.

### **Drug Supply**

Drug supply during a pandemic is possible if drugs have been stockpiled before.

Ministry of Health is responsible for the stockpiling of drugs and the distribution of stockpiled drugs in a proper way.

## **Recommendations for Influenza Case Management in Primary Level Health Facilities**

Recommendations in this part are valid only for pandemic and are not advised for seasonal influenza.

### **Clinical Characteristics of Pandemic Influenza:**

Influenza does not have a reliable diagnostic characteristic. Therefore, a highly probable case definition confirmed by the laboratory should be used. Although seasonal influenza tend to be seen in especially children and the elderly, pandemic influenza can be seen in all age groups, it can seriously affect even healthy adults.

Clinical characteristics of influenza cases where no complication developed are shown below. Clinical characteristics may show some differences when compared to seasonal influenza, depending on the pandemic influenza strain.

### **Incidence of symptoms related to influenza infection with no complication:**

Cough :	85 %
Fatigue :	80 %
Chill - trembling :	70 %
Headache :	65 %
Loss of appetite :	60 %
Symptoms of cold :	60 %
Muscle pain :	53 %
Soar throat :	50 %

### **Severe Influenza with Complication :**

When the chronic neurologic diseases like asthma, chronic obstructive lung disease, cardiac failure, atrial fibrillation, coronary heart failure, DM and multiple sclerosis, epilepsy accompany influenza infection, the situation of the patients may worsen.

The most common specific complication of influenza infection in adults is respiratory system complications like acute bronchitis and pneumonia. The most commonly seen bacterial super infection complication in influenza infection of children is otitis. Influenza related pneumonia may develop primarily by an influenza virus or as a result of a secondary bacterial infection.

### **Management of Suspicious Pandemic Influenza Cases:**

Early Preparations and General Precautions

Isolation: Demand increase should be waited for taking information and consultation. Various applications may be recommended:

- Isolation and information can be done on the phone.
- Isolation and information while accepting the patients,
- For patients refraining from applying to the health facility, household visit and examination.

Risk group: The risk group should be administered annual routine influenza vaccine.

General recommendations for patients:

- Until the moment your fever drops, rest at home and avoid contact with others.
- For fever, headache and myalgia, take appropriate medication.
- As long as acute symptoms last, rest if possible.
- Drink a lot of liquid.

- Avoid smoking.

### **Antiviral treatment**

Ideally, everybody above the age of 1 with the following symptoms should get antiviral treatment:

1. Those with a disease like acute influenza
2. Adults with a fever of 38 °C, children with fever of 38.5 38 °C.
3. Those with symptoms which started within the last 48 hours.

There is no information about the benefit of antiviral treatment 48 hours after the onset of symptoms. However, antiviral treatment should still be provided after 48 hours considering that it will benefit the patients with a suppressed immune system.

Where antiviral drugs are limited, the Ministry of Health will identify the priority people to be administered the treatment. Epidemiologic situation of the current pandemic and the effect of antiviral treatment in various groups will be considered while making the decision.

Adverse effects of antiviral drugs: The most common adverse effect of Oseltamivirin is nausea. It can be prevented by light antiemetics.

### **Antibiotic treatment**

Who should be administered with antibiotic treatment?

1. In patients within the risk group of with severe and complicated influenza, the risk of secondary bacterial infection is high. These patients are recommended prophylactic antibiotics to decrease the burden of primary level health facilities.
2. Patients with influenza related pneumonia and acute bacterial otitis media
3. Patients with significantly worsening symptoms

### **General Examinations**

If full blood count, urea and electrolytes, liver function tests, lung graph, EKG and influenza related pneumonia are suspicious among the hospitalized patients, routine examinations should be done such as C-reactive protein. Decision about any further examinations should be made by the specialist doctor applying the treatment.

### **Microbiological Examinations**

Decision about necessary microbiological examinations should be made by the specialist doctor. However, virological tests are not recommended on a routine basis in the pandemic period.

#### Antiviral Use

Antiviral treatment should be provided only under the following conditions:

- Disease similar to acute influenza
- Fever 38 °C or higher
- It has been less than 2 days since the onset of the symptoms

### **Recommendations for Child Patients**

#### Clinical Picture in Children

The most widespread symptoms of influenza during an epidemic are fever, cough, nasal discharge and pharyngitis and headache in elder children. The disease progresses severely in children with respiratory tract or cardiac disease and those with suppressed immune system.

Severe and life-threatening complications of influenza are bacterial influenza, bacterial pneumonia, ARDS, encephalitis or encephalopathy. Hospital care is not necessary in influenza infections without complication. Although coughing, weakness, fatigue continue, these patients would generally recover within 7 days.

#### Evaluation in Children

Cough and mild fever: Home treatment by the family is possible with antipyretics and fluids.  
High fever ( $>38.5\text{ }^{\circ}\text{C}$ ) and cough or influenza –like symptoms: If the patient is not in the risk group as to complications, oseltamivir treatment should be administered along with antipyretic and a lot of fluid. If the child’s age is 1 or younger and in the risk group as to complications, this case should be evaluated by a doctor.

High fever ( $>38.5\text{ }^{\circ}\text{C}$ ) and cough or influenza –like symptoms plus being in the risk group: This should be evaluated by a specialist doctor.

Cough, fever (or influenza –like disease) and fever  $>38.5\text{ }^{\circ}\text{C}$

AND

Having a chronic disease

OR

having one of the following:

- Difficulty in respiration
- Severe ear ache
- Vomiting for more than 24 hours
- Nausea

It should be considered that these children are under risk as to complications. They should be administered with antibiotics in addition to oseltamivir and recommended to take antipyretics and a lot of fluid. If none of the symptoms above are seen in children below the age of 1, they should be treated with antipyretics and fluid support.

#### **When to refer to hospital?**

- Respiratory distress symptoms
- Cyanosis
- Severe dehydration
- Confusion
- Complicated or long-lasting seizure
- Symptoms of septicemia

#### Antiviral Treatment in Children

Antiviral treatment should be provided only under the following conditions:

- Disease similar to acute influenza
- Fever  $38\text{ }^{\circ}\text{C}$  or higher
- It has been less than 2 days since the onset of the symptoms

### **8.3. Activities during the different phases of the pandemic, and institutions in charge of those activities**

#### **INTERPANDEMIC PERIOD**

##### **PHASE 1**

###### ***ALERT LEVEL 1 AND 2***

###### **1. MINISTRY OF HEALTH**

- . Preparation of the pandemic plans
- . Conducting the training activities
- . Planning of the laboratory services
- . Capacity building for laboratories at central and provincial levels
- . Data evaluation
- . Cooperating with the institutions and organizations of the other countries in accordance with the new International Health Regulations

###### **2. MINISTRY OF AGRICULTURE**

- . Conducting training facilities
- . Training the public
- . Evaluation of data
- . Ensuring information exchange with the Ministry of Health

##### **PHASE 2**

###### ***ALERT LEVEL 1 AND 2***

###### **1. MINISTRY OF HEALTH**

- . Training of the personnel who work at border gates
- . Sending relevant warning and information to Regional Health Facilities and local authorities.

###### **2. MINISTRY OF AGRICULTURE**

- . Determining and implementing the precautions about the entrance of animals and animal products to the country
- . Determination and planning of the logistic needs
- . Continuing cooperation with the international organizations

#### **PANDEMIC PERIOD**

##### **PHASE 3**

###### ***ALERT LEVEL 1 AND 2***

###### **1. MINISTRY OF HEALTH**

- . Planning the duties of relevant institutions
- . Ensuring continuous planning
- . Preparing laboratory guidelines
- . Taking the necessary precautions at border gates

- . Preparing brochures for people entering or exiting through the border gates
- . Providing communication with international institutions
- . Coordinating the relations with foreign countries
- . Making the preparations at provincial level

## 2. MINISTRY OF AGRICULTURE

- . Provision of the logistic needs
- . Preparing detailed implementation guidelines

### **PHASE 4**

#### ***ALERT LEVEL 1 AND 2***

## 1. MINISTRY OF HEALTH AND REGIONAL ORGANIZATIONS

- . Implementation tasks
- . Providing leadership and coordination in the provision of services
- . Completing the hospital preparations
- . Ensuring that the intensive care units are prepared
- . Readiness of personnel for the pandemic
- . Regulating the procedures about calling the retired personnel and volunteers for duty on shift
- . Completing the purchasing procedures for provision of the necessary materials for pandemic
- . Creating a data collection system
- . Preparing an action plan for communication with press and the public
- . Implementation of referral chain and triage
- . Organizing the hospitals
- . Planning and implementing inpatient care services
- . Planning of in-hospital services

## 2. MINISTRY OF AGRICULTURE

- . Implementation of pandemic control measures
- . Informing the public through press bulletins
- . Preparing posters and brochures
- . Providing cooperation with the poultry sector

## 3. MINISTRY OF EDUCATION

- . Providing trainings at schools

## 4. LOCAL AUTHORITIES OFFICES

- . Establishing Regional State commissions
- . Planning the duties of institutions at regional level
- . Implementing the decisions of SCPAPI
- . Providing the necessary support in security
- . Providing logistic and administrative support

### **PHASE 5**

#### ***ALERT LEVEL 1 AND 2***

## 1. MINISTRY OF HEALTH AND REGIONAL ORGANIZATIONS

- . Establishing cooperation with high-level ministry and SCPAPI
- . Organizing trainings
- . Taking the necessary health measures at border gates
- . Creating a referral system
- . Organizing the hospitals
- . Completing the hospital preparations
- . Ensuring that the intensive care units are prepared
- . Determining the logistic needs of mobile hospitals and public buildings
- . Creating a data collection system
- . Providing availability of an updated web page, implementation of Hot-line in order to inform the public

## 2. MINISTRY OF EMERGENCY SITUATIONS

- . Participation in SCPAPI and conducting its secretariat
- . Providing coordination between institutions

## 3. MINISTRY OF INTERNAL AFFAIRS

- . Coordinating the duties of the local administrations at regional level
- . Providing administrative support to the health organization

## **PHASE 6**

### ***ALERT LEVEL 1 AND 2***

#### 1. MINISTRY OF HEALTH AND REGIONAL ORGANIZATIONS

- . Providing leadership and coordination in the provision of services
- . Creating an answering system for informing the public
- . Organization of the press meetings
- . Preparing press bulletins
- . Organizing television programs
- . Provision of institutional health services
- . Implementation of referral chain and triage
- . Implementation of patient diagnosis and treatment procedures
- . Conducting in-facility infection control practices
- . Implementation of pandemic control measures
- . Data collection

#### 2. MINISTRY OF EMERGENCY SITUATIONS

- . Provision of coordination between the institutions
- . Informing the President's office, Prime Ministry and other ministries
- . Setting up a mutual activities process with the Ministry of Health within the scope of crisis management

#### 3. MINISTRY OF INTERNAL AFFAIRS

- . Coordination of the duties of the local administrations at regional level
- . Rendering security- related services
- . Fulfilling practices such as isolation and quarantine

- . Setting up a mutual activities process with the Ministry of Health within the scope of crisis management

#### 4. MINISTRY OF EDUCATION

- . Providing training at schools
- . Announcing holidays for schools when necessary
- . Setting up a mutual activities process with the Ministry of Health within the scope of crisis management

#### 5. VOLUNTARY INSTITUTIONS

- . Training the public within the standards set by the Ministry of Health
- . Provision of voluntary personnel when necessary
- . Providing support if the Ministry of Health demands

#### 6. OTHER INSTITUTIONS AND ORGANIZATIONS

- . Helping with the provision of any sort of personnel, equipment and materials when necessary
- . Giving messages informing the public
- . Announcing holiday for public and private institutions and organizations in order to prevent pandemic
- . Setting up a mutual activities process with the Ministry of Health within the scope of crisis management

### **PHASE 6**

#### ***ALERT LEVEL 3***

##### 1. MINISTRY OF HEALTH AND REGIONAL ORGANZATIONS

- . Leading the provision of services and providing coordination
- . Creating an answering system for informing the public
- . Organization of the press meetings
- . Preparing the press bulletins
- . Organizing the television programs
- . Provision of institutional health services
- . Implementation of referral chain and triage
- . Implementation of patient diagnosis and treatment procedures
- . Conducting the infection control practices inside the institutions
- . Implementation of the pandemic control measurements
- . Collecting data

##### 2. MINISTRY OF EMERGENCY SITUATIONS

- . Conducting the secretariat of SCPAPI
- . Provision of coordination between the institutions
- . Informing the President's office, Prime Ministry and other ministries
- . Setting up a mutual activities process with the Ministry of Health within the scope of crisis management

##### 3. MINISTRY OF INTERNAL AFFAIRS

- . Coordination of the duties of THE local administrations at regional level

- . Conduction of the security services
- . Conduction of practices such as isolation and quarantine
- . Setting up a mutual activities process with the Ministry of Health within the scope of crisis management

#### 4. MINISTRY OF EDUCATION

- . Providing training at schools
- . Announcing holiday for schools when necessary
- . Setting up a mutual activities process with the Ministry of Health within the scope of crisis management

#### 5. VOLUNTARY INSTITUTIONS

- . Training the public within the standards set by the Ministry of Health
- . Meeting the needs of mobile hospitals and hospitals when necessary
- . Providing the necessary support in case of demand by the Ministry of Health

#### 6. OTHER INSTITUTIONS AND ORGANIZATIONS

- . Helping with the provision of any sort of personnel, equipment and materials when necessary
- . Giving messages informing the public
- . Announcing holidays for public and private institutions and organizations in order to prevent pandemic
- . Setting up a mutual activities process with the Ministry of Health within the scope of crisis management

### **PHASE 6**

#### ***ALERT LEVEL 4***

##### 1. MINISTRY OF HEALTH AND PROVINCIAL ORGANIZATIONS

- . Providing leadership and coordination in the provision of services
- . Creating an answering system for informing the public
- . Organization of the press meetings
- . Preparing press bulletins
- . Organizing television programs
- . Provision of institutional health services
- . Implementation of referral chain and triage
- . Implementation of patient diagnosis and treatment procedures
- . Conducting in-facility infection control practices
- . Implementation of pandemic control measures
- . Data collection

##### 2. MINISTRY OF EMERGENCY SITUATIONS

- . Provision of coordination between the institutions
- . Informing the President's office, Prime Ministry and other ministries
- . Setting up a mutual activities process with the Ministry of Health within the scope of crisis management

##### 3. MINISTRY OF INTERNAL AFFAIRS

- . Coordination of the duties of the local administrations at regional level
- . Rendering security- related services
- . Fulfilling practices such as isolation and quarantine
- . Setting up a mutual activities process with the Ministry of Health within the scope of crisis management

#### 4. MINISTRY OF EDUCATION

- . Providing training at schools
- . Announcing holidays for schools when necessary
- . Setting up a mutual activities process with the Ministry of Health within the scope of crisis management

#### 5. VOLUNTARY INSTITUTIONS

- . Training the public within the standards set by the Ministry of Health
- . Provision of voluntary personnel when necessary
- . Providing support if the Ministry of Health demands so
- . Giving messages informing the public
- . Announcing holiday for public and private institutions and organizations in order to prevent pandemic
- . Setting up a mutual activities process with the Ministry of Health within the scope of crisis management

#### **POSTPANDEMIC PERIOD**

Going back to the inter-pandemic period.

## ANNEX 1

### GUIDELINE FOR INFECTION CONTROL IN HOSPITALS

1. Entry procedures: Keep records at the entry of the section. Ensure that all health personnel and visitors put their sign. Number of personnel should be limited with the necessary amount needed for patient care and treatment.

Infection control measures: Standard infection control principles should be applied with droplet measures. Droplet measures should be taken for all patients in the allocated section.

Ward furniture: At the entry, establish an equipment section for personal protective equipment. Furniture should be easily cleanable and not obscuring the dirt.

Patient section: Distance between the beds should not be closer than 1 meter which is the foreseen procedure in the droplet measures. The number of personal belongings of patients should be minimum. There should be a jug, glass, tissues, disposable bags and other necessary material needed for the hygiene of patients.

Medical equipment: If possible use single-use equipment. You should clean the multi-use equipment.

Rooms / halls used on a daily basis: Halls that have a risk of being used by all patients should be considered.

Cleaning: Areas should be elaborately cleaned at least once a day. It is a must to pay close attention to cleaning and order services.

#### 2. Patient transfer /transportation/hospital daily care procedures /hospital transfers

Hospital transfers:

Patient transfer should be minimized. Transfers should be made to hospitals which were planned before and which would serve only to influenza patients.

In-hospital transfers:

Equipments such as EKG and x-ray should be assigned to the allocated areas, thus all procedures and research can be done here. Patients should leave this area only in case of emergency and important procedures. If a patient needs to go to another area:

- The section should be informed in the best way.
- The patient should directly go to the relevant section without wandering around in the public places.

• Following any procedure, these patients should be added at the end of the list for disinfection. In some practices (radiology section), a room should be allocated for influenza patients and this room should be cleaned on a regular basis. Influenza patients should wear masks during transfers to avoid transmission of big droplets. If mask is not suitable (due to the age of the patient, or for the purposes of respiratory conditions), the most practical way can be chosen (tissues). Before leaving their rooms, patients should wash their hands there.

Hospital daily care procedures:

Things to do for influenza patients that have a chronic disease requiring follow-up:

- Delay the follow-up if possible and re-organize the appointment.
- Refer them to fully-equipped hospitals that can assign special sections for influenza patients and establish barriers in special units to isolate influenza patients.

### 3. Special conditions: accidents and emergency

- Among the applicants to the emergency care, rapidly observe and define those who have influenza symptoms.
- Keep the patients that have symptoms of the disease away from others to decrease the risk of disease transmission.
- Make the decision about intervention necessary for the patients as soon as possible.

#### Elimination and separation:

Signs should be displayed at the entry of emergency service to indicate patient admission. One doctor should be assigned at the patient admission point and pre-selection should be done here. The public should be informed about influenza symptoms and warned against keeping the clinics busy in vain. Monitoring the people coming for influenza symptoms can be done either passively (with signs in the entry) or actively (direct questions).

#### Procedures for patient admission:

Patients with influenza symptoms should be transferred to an allocated waiting or assessment section. They should sit there and be informed that they should not wander around in the other sections, hospital and cafeteria. Signs and physical barriers can be used appropriately. If it is not possible to form a special section for influenza patients, it should at least be formed for the high risk group, involving dialysis patients, patients with a transplantation story and chemotherapy patients. Attention of public should be drawn to hygiene through posters by providing hand washing facilities, tissues and thrash bins. Soft furniture and unnecessary things like books, magazines and toys should be removed.

#### Infection control procedures in the waiting rooms:

Patients, personnel and visitors should be encouraged to decrease the transmission risk of influenza by means of good hygiene measures. These measures are as follows:

- Covering the mouth and nose while coughing, sneezing and cleaning the nose by means of single use tissues
- Throwing the used tissues to the nearest thrash bin
- Washing hands after coughing, sneezing or using tissues or contact with dirty objects
- Keeping hands away from eye and nose mucosa
- Some patients (the elderly, children) may need help about respiratory secretions; plastic bags will be needed for throwing away the tissues and wastes used by such patients.

Patient masks: As the waiting rooms get crowded, the people carrying symptoms are expected to wear masks. This would minimize the environmental contamination and contact with respiratory secretions.

#### Infection control procedures in rooms:

Rooms: All unnecessary furniture and goods should be removed. Consumption material stocks should be near the examination rooms rather than inside.

Patients and masks: Coughing and sneezing patients should wear masks to minimize the environmental contamination. Patients should stay in their rooms and leave only for basic needs.

Cleaning: Areas having contact with hands should be cleaned on a regular basis.

#### 4. Special practices: Children

Some problems may occur in pediatric section due to hygienic norms not being followed. Children may also spread virus for a longer period than adults and sometimes this may take weeks.

Patient placement:

The following points should be taken into consideration while grouping children:

- Different age groups (babies, children, young people)
- Their situation about routine childhood vaccination
- Cases where the immune system gets weak
- Pathogens accompanying influenza: Such children should be kept separately.

Respiratory hygiene:

It is important to train children and their families in issues like throwing away the tissues used, covering the mouth while coughing and sneezing, washing hands after these procedures, keeping hands away from the eye and nose mucosa to minimize transmission of the disease.

Personal protective equipment:

If close contact is needed in care of newborn and young babies, aprons should be worn.

Environmental problems:

Public places like schools and kindergartens should be closed. Toys should not be shared. All toys should be hygienic and cleaned on a regular basis. Cleaning of the environment should be increased.

#### 5. Intensive care units

Unit design - if the unit does not have an additional room, the main section should be divided into two parts for patients carrying influenza virus and for others. If possible, health personnel should work in one of these parts.

Respiratory equipment

- Disposable respiratory equipment should be used whenever possible. Reusable ones should be disinfected according to the producer guide and hospital rules.
- Wherever possible, closed systems should be used (For instance, aspiration, closed humidification machine).
- Ventilation circuit should run except for exceptional cases.
- Non-invasive positive- pressure ventilation equipment should be avoided.
- Humidification with water should be avoided.

Respiratory procedures

- Only minimum number of necessary health personnel should go into the room of the patient.
- Personal protective equipment should be worn while dealing with the patient and in practices especially about respiratory tract.

#### 6. Funerals of persons who died of disease

Religious officials should be warned to wear Personal Protective Equipment in parallel with the standard infection control principles and droplet measures.

#### Last missions

Health personnel should abide by the standard infection control principles while applying the last missions to the dead. Surgical masks should be worn. All body should be wrapped up in a cloth. The patient should be transferred to a morgue as soon as he/she dies. If the family wants to see the dead patient, they should be allowed to do so by wearing Protective Equipment.

#### Morgue and funeral officials

The morgue officials and the person responsible for the corpse should be informed that the person who died had influenza. Standard infection control principles should be followed. There is no risk for air-drop infection transmission anymore.

### 7. Visitors

#### Family visitors

Visitors in all areas should be kept at minimum level during the pandemic. Visitors entering into the wards of influenza patients should be informed about hand hygiene and other protective clothes. In case of limited number of health personnel, help of family members and volunteers in patient care is very important. In such cases where visitors are taking care of the patient, they should be provided with Personal Protective Equipment.

## ANNEX 2

### GUIDELINE FOR THE PRIMARY HEALTH CARE FACILITIES

Since the first application point of patients may vary, a planning is necessary for these places as well.

- Primary health care facilities (polyclinics, health centers, dispensaries, etc.)
- Home care services
- Private health facilities
- Ambulances
- Clinics of prisons / schools etc.

#### 1. Patient placement, isolation and grouping

There should be two main objectives in the event of pandemic: Identification of the influenza patients among the patients applying to the health facility and minimization of the transmission risk of influenza to others.

Infection control measures: Standard infection control principles and droplet measures should be applied during patient examination in primary level health facility and throughout household visits.

Medical equipment: Clean the equipment (like stethoscope) that will be used on patients again. If it is not possible to set an isolated area, make sure that all personnel are informed about the standard infection control principles and measures against air-drop spread of infection. Pay attention to hand hygiene and additional cleaning of the rooms after they are used by the influenza patients.

Cleaning: Cleaning of the waiting room and polyclinics should be carried out once a day and the polyclinic room should be cleaned once again after examination of the patient diagnosed with influenza. Hand washing facilities should be provided within the health facility. Local administration should be contacted for this. Personal protective equipment, hand hygiene products and cleaning material should be available. If hand hygiene facilities are not good enough, alcohol wipes may be distributed among the personnel.

2. Patient transfer/ transportation/ hospital daily care procedures/ hospital transfers - See Additional Guideline for Hospitals.

#### 3. Ambulance services

- Standard infection control principles and measures against air-drop spread of infection should be available under all conditions.
- Ambulance personnel should have taken the personal protection measures.
- Equipment to be carried should be kept at minimum level.

After transfer of influenza patients, the ambulance should be completely cleaned and disinfected with detergent and hot water for next uses. All garbage should be thrown away as medical waste. Waste bags should be sealed, tagged and sent for combustion.

If possible coughing and sneezing patients should be transferred alone. Patients with symptoms should be encouraged to wear surgical masks to prevent their respiratory secretions and decrease the contamination they will lead to in the environment of ambulance.

#### 4. Household visits:

Health personnel conducting household visits should have personal protective equipment with them. Household visits to people that do not have influenza risk should be continued as long as possible. However, if needed, household visits may be cancelled. Alternative arrangements (telephone connection, etc.) should be made to establish connection. On the other hand, in case of household visits that cannot be cancelled (baby follow-up, vaccination, etc.), personal protective equipment should be used.

#### 5. Dentists

It can be a measure to cancel all routine dentist appointments throughout the pandemic. Before entering into the clinical area, patients with influenza symptoms should be eliminated and dental applications should be done afterwards. Unless there is a suspicion about a dental emergency, patients with influenza symptoms should be refused. Personal Protective Equipment should be used during the treatment.