

Pandemic Plan of the Czech Republic

Foreword

The knowledge acquired over the course of the 20th century pandemics led the Czech government, as early as 2001, to draw up the first plan for facing an influenza epidemic if such a need arose again. This document is the 4th edition of the pandemic plan and an update of the Pandemic Plan for the Czech Republic (PP CR) from 2006. The update presented here was instigated, among other reasons, by the experience gained from the 2009/2010 pandemic. At the same time, it takes into consideration new findings regarding the spread of the influenza virus, the genesis of new pandemic variants as well as current recommendations from the World Health Organization (WHO) and the implementation of International Health Regulations (IHR (2005)). Experience has also shown that the threat of new infectious diseases (such as SARS) requires the implementation of measures to a large extent identical to those applied during influenza virus pandemics. Thus, the pandemic plan has been adapted so that it may be applied as necessary in such situations. The PP CR reflects the current WHO recommendations – “Pandemic Influenza Preparedness and Response – a WHO guidance document” (2009), the recommendations of the European Union (EU) for national pandemic planning – especially the Communication of the Commission to the Council of Europe, the European Parliament, the European Economic and Social Committee and the Committee of the Regions on “Pandemic Influenza Preparedness and Response Planning in the European Community” and on “strengthening coordination on generic preparedness planning for public health emergencies at EU level”, COM (2005) 607 and COM (2005) 605. At the same time, according to these recommendations each state is to retain the right to adopt specific measures that will be most effective during a pandemic in the context of the national legal environment. The PP CR represents the basic document for resolving pandemic situations in the Czech Republic, while individual pandemic plans are drawn up to manage the concrete tasks set by the PP CR. The extent of information contained in these plans corresponds to the need to maintain the basic functions of a given department or administrative territory during a pandemic. The issue of pandemic preparedness is not the responsibility of a single department – it should be the responsibility of society as a whole! Nearly all departments, including their essential public services, are involved in the process of planning strategies to manage a potential influenza pandemic. It is also necessary, over the long-term, to work on a communication campaign which, in accordance with WHO and European Commission (EC) recommendations, will also involve individuals, families and communities and will increase awareness about the pandemic and the importance of each individual’s behavior in such situations. In this updated version of the pandemic plan, each ministry specifies the measures within its jurisdiction – this is why this plan is multi-sectoral. Apart from medical and healthcare challenges, it strives to preserve the continuity of all socio-economic life, which must function normally if the damage caused by the pandemic is to remain minimal. As no country can face the consequences of a pandemic alone, the goal of this plan is also to stress international coordination. In view of the existence of free movement of persons and goods in accordance with the IHR (2005) in EU territory as well as worldwide, additional coordination at EU and worldwide level is necessary.

1. Introduction

Definition of a pandemic

A pandemic is an epidemic extending over a wide geographic area, affecting whole continents. It involves the high incidence of a disease over a large territory (continent) over a specific period of time. According to the WHO definition, an influenza pandemic is characterized by the spread of a pandemic virus within communities in at least 2 countries of a single WHO region and at least one other country in another WHO region.

Definition of the new variant of the influenza virus

This is a type A influenza virus with completely new antigenic properties given by the exchange of one or two of the principle surface antigens (i.e. hemagglutinin and/or neuraminidase) or the reappearance of a subtype that had already once circulated within a population and then disappeared and for a long time failed to assert itself as a human pathogen.

Development of an influenza virus with pandemic potential

The influenza virus is represented by the genera A, B and C. Influenza as such represents a unique type of viral illness, principally characterized by the continuous evolution of its underlying agent. From an epidemiological aspect, the type A virus is clinically the most significant of these viruses, as it is the only one to have an animal reservoir. It is no coincidence that the first isolated influenza virus was an animal virus in 1902. Though it was classified taxonomically only much later, this isolate was labeled according to the original year of its discovery - A/Chicken/Brescia/1902 H7. The first swine strain was then isolated in 1930 (A/Iowa/1/30 (Hsw1N1). The human virus was only isolated in 1933 and subsequently labeled A/Puerto Rico 8/34. Thus, apart from humans, the influenza virus is capable of infecting other animals. This especially applies to type A influenza, which may rightly be perceived as a zoonotic infection. The segmented genome of this virus, together with the plentiful reservoir of further subtypes especially in the population of migrating water birds, is the reason for the great genetic instability and variability of the influenza virus as such, with all the resulting consequences. It has been repeatedly and precisely documented that the pandemic strains from 1957 (H2N2 – Asian flu) and 1968 (H3N2 – Hong Kong flu) developed due to the introduction of an avian virus gene into the originally circulating human strain. Since 1997, the H5N1 subtype (so-called avian flu) has shown itself to be a pathogen capable of infecting humans. The clinical forms of infection caused by this virus are usually very serious and the infection was fatal in more than 50% of recorded cases. In the case of this virus, no adaptation to humans has occurred as yet. Thus, influenza A (H5N1) fortunately has not spread and is still not spreading within communities, and human-to-human transmission on close contact between people has been rare. It is impossible, however, to estimate future development and it is still absolutely necessary to carefully monitor its incidence. 2003 saw several extensive influenza H7N7 epizootics at a number of poultry farms in Holland. More than 30 million chickens were affected or put down. The virus was rapidly transmitted to the staff, in contrast to the H5N1 subtype; both secondary and tertiary transmissions were also documented, especially in family epicenters. Conjunctivitis, a characteristic of this subtype, was a typical clinical symptom. In contrast to the H5N1 subtype, only one person succumbed to this infection. The transmissibility of this virus was significantly higher, though, and its tendency to spread in the human population relatively substantial. Several clinically very mild ARI were caused in humans by the subtypes H9 and H10. These were sporadic cases and the virus never spread any further among humans. Its detection was more or less random, usually as part of enhanced influenza surveillance.

Although the A(H5N1)virus was considered in recent years as the most probable candidate for a pandemic strain, the first pandemic of the 21st century was caused, against all expectations, by a reassortant strain of a human, swine and avian virus designated as “Pandemic (H1N1) 2009” influenza.

The pandemic virus may form in two various ways:

- So-called **re-assortment**, whereby certain RNA segments within the circulating human strain are exchanged for segments from the animal reservoir (Asian flu 1957, Hong Kong flu 1968 and Pandemic (H1N1) 2009)
- A rarer possibility is the process of so-called **adaptive mutations**, whereby the original, usually avian, virus humanizes and gradually acquires the capability to massively spread and

infect humans (the most probable example of such viral introduction into the population is the Spanish flu virus - H1N1 in 1918)

Pandemics characterized by rapid disease spread into all parts of the world and a rapid rise in morbidity and mortality have been credibly documented since the 16th century, appearing at intervals of 10 to 50 years. In view of the genetic instability of the influenza virus and its animal reservoir, pandemics must be taken as a fact that society must face. The precise timing, severity and impact of the next influenza pandemic remain great unknowns. Timely planning and preparedness are thus utterly essential in order to limit the impact and consequences of a global pandemic on society.

Tab. No. 1: Characteristics of pandemics in the 20th and 21st centuries

Period of viral spread	Site of origin of the pandemic strain	Virus subtype and designation of pandemic	Worldwide deaths	Most affected age group
1918-1919	Still much discussed, probably France, the Western Front	Spanish flu H1N1	20-50 million	Young adults
1957-1958	South China	Asian flu H2N2	1-4 million	Children
1968-1969	South China	Hong Kong flu H3N2	1-4 million	All age groups
2009-2010	Mexico	Pandemic (H1N1) 2009	Not determined as yet	Young adults

The spread of a pandemic virus is characterized by:

- Rapid progression of infection with very little time for implementing the necessary measures ad hoc
- Overload and overwork of healthcare institutions due to the increasing demand for medical care and the lack of specialized healthcare personnel
- Delayed and limited availability of pandemic influenza vaccines, limited availability of antivirals and antibiotics as well as of therapeutic products necessary for the treatment of other diseases
- Potentially serious shortages of personnel and products because of interruption of key infrastructure and services as well as the disrupted continuity of all commercial and government sectors
- Negative impact on the social and economic activities of communities, which may persist long after the pandemic period has passed
- National preparedness under the constant scrutiny of the public, government agencies and media
- The global state of emergency limits the potential of international help

*“Most experts agree that it is not a question of **whether** another severe influenza pandemic will occur but rather of **when**...”*

In the case of seasonal epidemics of common influenza, 5% to 10% of the population is affected. However, influenza pandemics that occurred in the 20th century affected a much greater number of inhabitants than such seasonal epidemics, namely 30% to 50% of the population. The first pandemic of the 21st century had a milder course and consequences than had been expected at its onset and its

morbidity was comparable to that of common seasonal influenza. Nonetheless, the course of this pandemic was associated, in a significant number of persons, with severe course of the infection as well as death. Within the EU, 80% of deaths were documented in persons younger than 65 years (in the case of seasonal influenza, 90% of deaths occur in persons over the age of 65 years), with 30% of these deaths involving completely healthy persons. A significant proportion of deaths and serious medical conditions was due to acute respiratory distress syndrome (ARDS), which only rarely occurs in common seasonal influenza. This severe disease course of pandemic influenza highlighted a fundamental limitation relating to patient care – namely the availability of intensive care in such cases. This represents a relatively new issue that the preparedness plans for the next pandemic must adequately take into consideration.

2. The principal objectives of the Pandemic Plan of the Czech Republic

The Pandemic Plan of the Czech Republic is a document that sets out procedures and the basic response system of the Czech Republic to an influenza pandemic caused by a new type of influenza virus. The principal objective of the plan in the case of an influenza pandemic is to mitigate its expected medical, social and economic consequences. The main objectives of the PP CR include:

- Reinforcing the national early warning and rapid response system for the timely detection of a disease possibly induced by the pandemic strain,
- Rapid identification of new variants of the influenza virus in poultry, birds or other animals,
- Rapid detection of the genesis of a new subtype of the influenza virus in the population,
- Minimizing the spread of the new virus and precluding the development of a pandemic, if possible,
- Continuous evaluation of the epidemiological situation, analysis of incidence and implementation of immediate anti-epidemic measures,
- Ensuring treatment of patients and their complications,
- Ensuring burial of the dead,
- Ensuring that healthcare personnel and the public are kept informed,
- Overseeing the observation of recommended measures,
- Reducing the impact of the pandemic on society,
- Minimizing economic losses.

3. The main principles of the Pandemic Plan of the Czech Republic

a. The role of all sectors of society

The key principles of the PP CR include, in accordance with the recommendations of the WHO, EC, the European Centre for Disease Prevention and Control (ECDC), a “whole of society” approach that stresses not only the central role of the healthcare sector, but also the important roles of all sectors of society.

- **The government** coordinates; takes decisions regarding human, economic and material resources for optimal pandemic preparedness and the improvement of capacities; and sets out measures across all sectors
- **The healthcare sector** (including medical services providers, health insurance companies and public health bodies) provides essential epidemiological, clinical and virological information and information regarding the risk, severity and course of the pandemic that influences the measures for reducing pandemic virus spread and the associated morbidity and mortality. It informs about the effectiveness of interventions used in the pandemic. In cooperation with other sectors and supported by the national inter-sectoral leadership, it plays a leading role, recommending the necessary steps and increasing awareness regarding the risk and potential impact of the pandemic on population health. It sets measures for promoting medical care; it orders steps to be taken to limit spread within communities and healthcare institutions; and it protects and supports healthcare personnel during the pandemic.
- **The sector of essential public services** must provide essential activities and services during the pandemic in order to minimize the impact on the population’s health, and social and economic consequences. If society is not effectively prepared, there is a risk of social and economic disruption; the continuity of essential public services is threatened; production falls; there are problems with distribution and basic products become scarce. Power cuts, for example, may lead to the inability of the healthcare sector to provide standard care. Commercial outages may significantly contribute to the economic consequences of a pandemic. Certain commercial sectors are more vulnerable and, similarly, certain groups of inhabitants may also be more affected than others. Other measures include planning the allocation of resources for protecting employees and customers; communication with employees regarding their protection and the measures that will be implemented and

contributing towards these plans, thus promoting the continued functioning of society. Essential public services in the power industry, water industry, food industry and agriculture, the healthcare sector, transportation sector, communication and information systems sector, financial and monetary markets, emergency and social services and public administration, as well as internal and external state security and foreign policy will be factually set out by the corresponding departments and regions in their respective pandemic plans.

- **The media** play an important role in communicating not only with the lay public but also with experts. The regular presentation of news regarding the pandemic, the risks of pandemic influenza, the current epidemiological situation, the national and international measures and other news are crucial for how the lay and expert public will approach the given situation and subsequently behave. Adequate awareness of the public and panic prevention require the use of credible sources.
- **Civilian organizations and associations** with close relations to communities may often increase awareness about the given issue, transmit the necessary information, rebut false and untrue information, provide necessary services and cooperate with the government during the crisis. Such groups should assess their strength and potential and plan their roles during the pandemic in collaboration with local authorities or other organizations. They may, for example, reinforce organizations in other sectors such as by providing support to family members of patients being cared for at home.
- **Families and individuals** may help limit the spread of the pandemic virus by adhering to non-pharmacological measures– using handkerchiefs when coughing or blowing their noses, washing their hands and voluntarily isolating themselves in the event of symptoms of respiratory illness. During a pandemic it is important for family members to ensure that they have access to the correct information, food, water and medication. Information from local and national authorities is essential. Individuals, especially those who have already recovered from pandemic influenza, may consider working as volunteers for organized groups helping other members of the community.

b. Ensuring the ethicalness of pandemic preparedness and response

An influenza pandemic, similarly to any emergency situation in the field of public health, requires making decisions that imply a balancing act between potential conflicts of interest involving individuals on the one hand and the community on the other. The persons responsible for this process may use ethical principles as tools for evaluating and balancing this conflict between interests and values. The ethical approach does not provide a previously set procedure. Rather, it applies principles such as equality, benefit/efficacy, freedom, reciprocity and solidarity. These principles may be used as the basic framework for evaluating and balancing the range of interests in order to achieve the set goal (such as the protection of human rights and the specific needs of vulnerable and minority groups).

c. Integration of pandemic preparedness within crisis management

The activities of pandemic preparedness rank among national as well as international priorities. Financial as well as human resources are, however, limited. In view of the fundamental uncertainty regarding the timing of the next pandemic, steps ensuring the long-term sustainability of pandemic preparedness are absolutely necessary and should include:

- Integrating pandemic preparedness in crisis management plans and crisis preparedness plans
- Applying pandemic preparedness activities in order to reinforce basic and emergency capacities associated with health (such as the primary care system, the surveillance of respiratory diseases and laboratory diagnostic capacities)
- Applying pandemic preparedness activities in the active building of communication channels between sectors and communities
- Developing or modifying plans specifically drawn up for cases of pandemic influenza and
- Periodically re-evaluating and updating existing plans on the basis of developments and new findings acquired e.g. through exercises or real situations.

4. Influenza

4.1. Characteristics of influenza as a disease

4.1.1. Clinical symptoms of influenza

Influenza is an acute viral infection of the respiratory tract with a short incubation period (18 to 48 hours). Transmission of this infection is mainly airborne via small droplets. Indirect transmission via the hands is also frequent. Transmission via contaminated objects is possible but less frequent. Typically, the onset of systemic signs is sudden and swift (fever 38 to 41 °C, chills, diffuse pain around the whole body, joints and muscles, weakness, lassitude, anorexia, headache, dry irritating cough).

According to data from pandemics that have occurred in the past, in the case of pandemic influenza we must also expect clinical symptoms and complications outside the respiratory tract (CNS, cardiovascular system, GIT, etc.) as well as a frequent incidence of attendant bacterial complications (*Streptococcus pneumoniae*, *Staphylococcus aureus*, *Haemophilus influenzae* etc.), which is not usual in the case of common influenza epidemics.

The clinical course depends on many variables: the virulence of the infectious agent, patient age, immunity status, any potential underlying chronic diseases, especially those involving the heart and lungs. Type A influenza cannot be distinguished from type B without laboratory tests. **The disease course tends to be especially severe in pregnant women and significantly overweight persons .**

- Uncomplicated influenza in adults. A fever not lasting more than 5 days. A non-productive cough is an early symptom along with nasal congestion, throat pain and retro-sternal pain associated with coughing. The symptoms recede within 3 to 5 days, although the cough, weakness and fatigue may persist for as long as several weeks.
- Influenza in children. Acute stenosing laryngotracheobronchitis is especially dangerous for infants and toddlers. This is characterized by a typical inspiratory stridor, irritating cough, dysphonia or even aphonia. In small children up to the age of 4, insomnia comes as no surprise. Compared to adult patients, children more frequently experience GIT symptoms (nausea, vomiting, abdominal pain, diarrhea). Acute otitis media represents the most common complication (*Streptococcus pneumoniae*, *Haemophilus influenzae*).
- Influenza in old age. This always carries a more serious prognosis, including a worse survival prognosis. It is associated with the more frequent incidence of bacterial super-infections, a higher incidence of lower respiratory tract symptoms (sputum production, cough, chest pain). One complication that must always be kept in mind is pneumonia, both primary- interstitial and secondary- bacterial (*Streptococcus pneumoniae*, *Staphylococcus aureus*). GIT symptoms are present more often than in younger patients (abdominal pain, constipation or diarrhea).

The danger of influenza lies on the one hand in its more severe course and on the other in its complications, both primarily induced by the influenza virus itself (laryngotracheobronchitis, bronchiolitis, and influenza induced interstitial pneumonia) and secondarily by bacteria (pulmonary inflammation, sometimes associated with pleural effusion, and lung abscess). Complications also include exacerbation of COPD, chronic bronchitis, and bronchial asthma as well as non-respiratory complications.

4.1.2. Complications of influenza

- Primary influenza-induced pneumonia. The typical onset of influenza is followed on the 2nd to 3rd day by a worsening cough, chest pain and respiratory distress. The minimal auscultatory findings are associated with dyspnea, tachypnea, cyanosis and sometimes hemoptysis. This state rapidly evolves into terminal pulmonary edema. The chest X-ray demonstrates diffuse interstitial infiltrates, present either independently or as signs of respiratory distress syndrome (RDS). Oxygen saturation is usually lower. Patients with heart disease, especially mitral stenosis, are most susceptible to this type of pneumonia. Primary influenza-induced pneumonia is less common but is clinically a more severe complication compared to secondary bacterial pneumonia.
- Secondary bacterial bronchopneumonia. This most often manifests during the period when general symptoms are receding. In the early convalescence period, on the 7th to 10th day from the onset of influenza, fever returns, associated with a productive cough and physical signs of

pneumonia. The usual pathogens are *Streptococcus pneumoniae*, *Staphylococcus aureus*, and *Haemophilus influenzae*. Pneumococcal pneumonias are most frequent, while staphylococcal pneumonias are rarer, but their course is more severe with a tendency to form abscesses. Haemophilus pneumonias can usually be treated in the outpatient setting. Persons with chronic lung or cardiac disease are most at risk.

There also exist mixed pneumonias that demonstrate the signs and clinical symptoms of both these distinctive types of pneumonia.

Experience from the Pandemic (H1N1)2009 has confirmed that pregnant women in the second and third trimester as well as significantly overweight persons are much more susceptible to severe pulmonary complications.

Patients receiving immunosuppressive therapy or, generally, patients with significantly impaired immunity including patients with HIV/AIDS are more susceptible to a possible severe course of the infection. These groups of persons run a high risk of fatal viral pneumonia. Immunocompromised patients may transmit the influenza virus for more than 5 months!

Reye's syndrome (hepato-cerebral syndrome) has been observed in 2- to 16-year-old patients as a serious, life-threatening complication of type B influenza and, rarely, of type A influenza. An epidemiological association has been observed between Reye's syndrome and the use of acetylsalicylic acid as an antipyretic. The syndrome develops over one to two days with nausea, vomiting, possibly loss of consciousness, seizures, and cerebral edema. Increased liver aminotransferase and serum ammoniac levels are present and hepatomegaly is common. Bilirubin values are usually normal.

4.1.3. Other manifestations

- Neurological and psychiatric manifestations. Fever, hypoxia, and pH abnormalities associated with influenza are usually responsible for toxic encephalopathy in certain patients, while others develop viral encephalitis, sometimes of a hemorrhagic character. Acute psychotic states with auditory or visual hallucinations have also been described. Hyperthermia may induce seizures, especially in children (toxo-infectious encephalopathy).
- Myocardium involvement. Most infected persons, including those without cardiac symptoms, may have changes on the ECG. These abnormalities are usually transitory and only exceptionally last more than 24 hours. If they persist for months or years, they may be the cause of fatal arrhythmias or cardiomyopathy. Influenza-associated myocarditis is usually asymptomatic.
- Myositis with subsequent rhabdomyolysis and myoglobinemia and acute renal failure represents a rare complication in young persons with type A influenza.
- Disseminated intravascular coagulation (DIC) may occur in both influenza type A and B. Patients may have the following manifestations: hemoptysis, hematemesis, melena, hematuria, vaginal bleeding, purpura, renal failure and jaundice.
- In transplant recipients, both influenza type A and B lead to graft rejection.
- Toxic shock syndrome. This is an unusual complication of influenza (more often of type B) due to a secondary staphylococcal infection, and is associated with high mortality.

Tab. No. 2: Overview of the most frequent complications of influenza

OVERVIEW OF THE MOST FREQUENT COMPLICATIONS OF INFLUENZA	
<u>PRIMARY (viral)</u>	<u>SECONDARY (bacterial)</u>
Interstitial pneumonia	Bronchopneumonia
Acute laryngotracheobronchitis	Otitis media, sinusitis
Myocarditis	Acute exacerbation of chronic bronchitis
Encephalitis	Acute bronchitis associated with COPD

4.2. Treatment of patients suffering from influenza

4.2.1. Symptomatic treatment

Uncomplicated influenza is treated symptomatically. Bed rest is important. Antipyretics are administered in the case of fever exceeding 38.5 °C. Paracetamol or non-steroidal anti-inflammatory drugs are administered to children, as acetylsalicylic acid presents a risk of Reye's syndrome. Fever may also be reduced with the help of physical methods, e.g. cold packs. High temperatures also present a significant loss of fluids, which is why adequate hydration must be maintained.

Primary viral infection is not treated with antibiotics. The clinical manifestations of influenza often include acute tracheitis or tracheobronchitis and the drugs of choice are only anti-tussive or mucolytic agents.

Antibiotics are indicated only in bacterial complications of influenza. The most frequent agents inducing bacterial pulmonary inflammation are *Streptococcus pneumoniae*, *Staphylococcus aureus* and *Haemophilus influenzae*. In the case of diagnosed, confirmed as well as suspected pneumonia, it is imperative to start antibiotic treatment, optimally according to the results of bacteriological examinations including antibiotic susceptibility testing. In the case of COPD, which is often exacerbated by influenza, the rule should be that antibiotics are started if at least one of the following three conditions is met: worsening of dyspnea, increased sputum volume and viscosity, purulent sputum.

Patients with a more severe clinical course or with more serious complications, especially high risk patients, are referred for hospitalization.

4.2.2. Causal treatment

Currently, the antivirals available are the neuraminidase inhibitors **zanamivir** and **oseltamivir**. Both are effective against influenza A and B. Amantadine and rimantadine are effective only against influenza A, but resistance of the influenza virus to these preparations has been reported. The intravenous virostatics peramivir and zanamivir are currently undergoing clinical testing. This application form is absolutely necessary for patients in intensive care.

Treatment with virostatics must be started no later than 48 hours from the onset of the first symptoms. They shorten the symptomatic period as well as the viral shedding period and thus infection transmission. Virostatics do not interfere with vaccine antibody response; they are specific and safe. Administration of these preparations must be in accordance with the package information leaflet, especially the information regarding dosage and patient age, which may change as the preparation is used in clinical practice and new preparations or new commercial names appear.

4.3. Laboratory diagnosis of the influenza virus in respiratory and extra-respiratory disease

4.3.1. Laboratory diagnosis of the influenza virus in respiratory disease

Laboratory diagnosis of the influenza virus from samples of clinical material is performed in virological laboratories using standard procedures - see Table No. 3. The optimal specimen is a nasopharyngeal swab or aspirate in the acute phase of infection, i.e. in the first three days following the development of clinical symptoms. In patients with lower respiratory tract symptoms and suspected pneumonia, testing requires either a sample of sputum or optimally of bronchoalveolar lavage. In deceased persons, sections of the trachea with hemorrhagic foci or from the bifurcation site or sections of lung tissue from the edge of the pneumonic focus are taken post mortem during the autopsy. It is also possible to perform a serological examination of acute (together with the swab) and convalescent blood samples (at an interval of 14 to 21 days).

4.3.2. Laboratory diagnosis of the influenza virus in extra-respiratory disease

The antigen may be detected in vascular endothelium, in the heart muscle (myocardium) and pericardial fluid (in the case of cardiovascular system involvement, myocarditis, pericarditis); in ependymal cells, the cerebrospinal fluid, the brain (in the case of CNS involvement, encephalopathy, encephalitis); in muscle biopsies and post mortem muscle samples (in the case of myopathy and renal dysfunctions; myositis, myoglobinuria); and in stools (in the case of GIT symptoms). Serological tests may be performed in the case of extra-respiratory disease if both acute and convalescent phase sera are available.

In all these cases of influenza complications, samples of similar clinical material may also be taken concurrently as in the case of common respiratory diseases, if this coincides with the acute phase of influenza.

Tab. No. 3: Laboratory methods suitable for detection of the influenza virus in respiratory and extra-respiratory systems

LABORATORY METHODS:	
a) RETROSPECTIVE (classical virological methods)	<u>Virus isolation</u> – use chicken embryo, cell lines <u>Serology</u> – CFR (applicable in all virological laboratories in the Czech Republic), VNT, HIT (NRL for influenza)
b) RAPID <u>NOT DISTINGUISHING SUBTYPE</u> (in clinical material, during first passages of isolation, partially in autopsy material)	<u>ELISA, IF, IPT, bedside tests*</u> (minimally one of these methods is available in every virological laboratory in the Czech Republic) <u>Electron microscopy</u> (only in specialized laboratories)
c) RAPID <u>DISTINGUISHING SUBTYPE</u> direct detection in clinical material:	PCR in a suitable modification Sequential analysis

* suitable for the outpatient setting or field work - rapid confirmation of influenza during a pandemic

The type of laboratory test is determined by the appropriate virological laboratory according to the type of sample collected, the data on the request form and, potentially, based on agreement with the attending physician. In cases of illness with an atypical clinical course or in exceptional epidemiological situations, differential diagnosis of other respiratory diseases of a presumed viral or other etiology must start immediately.

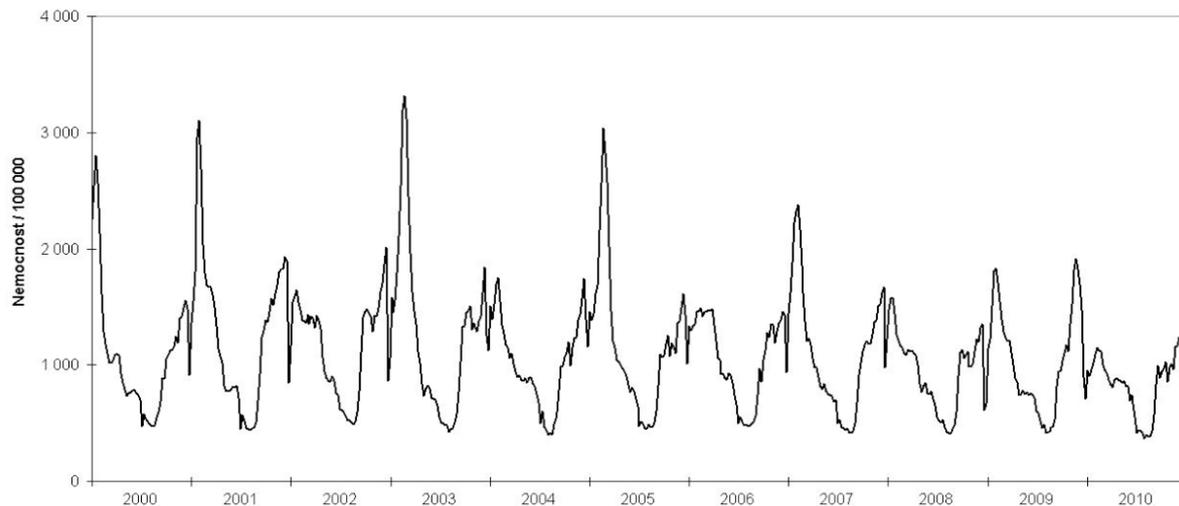
The optimal diagnostic procedure is recommended by the National Reference Laboratory for Influenza (NRL) on the basis of World Health Organization instructions.

4.4. Surveillance of influenza in the Czech Republic and worldwide

Influenza occurs worldwide and causes epidemics of various extent, ranging from small local epidemics in schools and groups of children to nationwide epidemics. More than 1 million cases of influenza and influenza-like illnesses are recorded annually in the Czech Republic. When epidemics occur they usually affect the whole country. The beginnings of influenza surveillance date back to 1954, when the then Czechoslovak Republic was among the first states to begin cooperation with the worldwide influenza program coordinated by the WHO. In 1957, the NRL for Influenza was set up as part of the National Institute of Public Health in Prague.

Surveillance of influenza in the Czech Republic involves the monitoring of both virological and epidemiological or if need be epizootological data. A number of institutions outside Prague as well as medical outpatient clinics are involved in the collection of data and material for the virological and epidemiological program. Virological surveillance involves sending, in accordance with the instructions of the Czech Chief Public Health Officer, samples to the NRL for Influenza from each region over a defined period of time - usually from the 40th calendar week to the 20th calendar week. These samples always include 2 samples of nasopharyngeal secretions weekly from patients with defined diagnoses. This material, together with a wide range of material collected directly by the NRL for Influenza, helps monitor the circulating respiratory viruses. The reporting of the number of patients with ARI and ILI (epidemiological program) then forms the basis for evaluating the trend of morbidity.

Surveillance of influenza and influenza-like illnesses is conducted throughout the year. In the climatic zone where the Czech Republic lies, influenza has a seasonal character. The influenza season in the northern hemisphere is usually denoted by the period of cold months from the 40th calendar week of the current year to the 18th calendar week of the following year. Based on long-standing monitoring and observation, the first, usually mild increase in disease incidence is expected in December. This is usually interrupted by the Christmas holidays, then the number of recorded illnesses gradually increases in the course of January, usually peaks at the end of January and culminates into an epidemic at the beginning of February, gradually involving the whole territory of the Czech Republic. In the past ten years, between 1.5 and 3.5 million persons have annually suffered from influenza or influenza-like illnesses (see Graph No. 1).



Graph No.1: Weekly morbidity of influenza and other acute respiratory infections in the Czech Republic, 2000 to 2010

National surveillance results are regularly submitted to the ECDC (TESSy) and WHO (FLU-NET).

4.5. Prevention of influenza

4.5.1. Pharmacological measures

As the potential pandemic strain of the influenza virus always differs from the seasonal influenza virus strain that commonly circulates in the population, it is necessary to manufacture a pandemic vaccine against the new viral subtype during a pandemic. This is only possible, though, once this subtype has been identified. The WHO then selects the pandemic vaccine strain and recommends the timing of pandemic vaccine production. Though work on the manufacture of a “mock-up” pandemic vaccine has been underway for a number of years, it must be kept in mind that a period of up to several months (minimally 3 but more likely 6 months) may elapse between the appearance of a new pandemic influenza virus and the manufacture of the first doses of a vaccine. This means that vaccinations might not be available for the first wave of the pandemic.

4.5.2. Non-pharmacological measures

In view of the possibly restricted capacity and problematic timely availability of the aforementioned pharmacological measures during a pandemic, strict and thorough adherence to non-pharmacological measures must be vehemently stressed. These measures include, for example, the thorough washing of hands, voluntary isolation of patients, effective location of contacts, restriction of public transportation use and mass gatherings, all of which in the initial phases of a pandemic outbreak help gain the time necessary for acquiring more data regarding the course of the disease caused by the pandemic virus and for the pandemic vaccine to become available.

5. Pandemic

5.1. Possible impact of influenza pandemics

5.1.1. Possible impact of influenza pandemics on health

The effects of a pandemic on society are unavoidable. Nonetheless, effective preparedness and response planning may contribute towards reducing a pandemic's extent and impact. Planning for a potential pandemic is a complex issue, as only limited data regarding its probable impact exists: the information available is uncertain and lacks common features. Using information from previous pandemics, consultations with experts and theoretical modeling, most national preparedness plans are based on the following assumptions:

Clinical disease attack rate: i.e. the proportion of inhabitants who will develop the clinical stage of influenza during the pandemic. It is presumed that in the Czech Republic up to **30%** of the population could become ill between 9 to 15 weeks from the onset of the pandemic, i.e. more than 3 million persons. The disease attack rate and severity may possibly differ in individual age groups. A more severe course and higher mortality rate is expected than in the case of common "seasonal" influenza, as the whole population will not be immune to the new influenza virus.

Influenza mortality: this is the ratio between the number of deaths as a consequence of influenza and the total number of patients. Most national plans base their assumptions on an estimate that takes into consideration experience from the 1957/58 pandemic. Thus, it is estimated that **0.37%** of the population could die during the pandemic period, which in the Czech Republic represents almost 12 000 persons.

Outpatient visits: it is expected that **50%** of those who will fall ill will seek professional medical care, primarily from general practitioners.

Number of hospitalized persons: it is moreover expected that **1%** of those who will fall ill will be hospitalized for acute respiratory and related complaints, i.e. approx. 30 000 persons.

ICU care: it is expected that **15%** of patients hospitalized as a consequence of an influenza-like illness will require intensive care and that **50%** of these may require mechanical ventilation.

Absenteeism from work: for planning purposes it should be presumed that during the three months from the onset of the pandemic a total of **30%** of the workforce will not be present at work because of illness for a period of five to eight working days. Influenza transmission will accelerate in schools and other closed communities, so that it may become necessary to close such institutions. This, together with disruption of transport and the need for the employed to care for family members and other persons, will further increase absenteeism.

Two key methods of medical intervention are capable of significantly ameliorating the impact on health: vaccination and the correct administration of antivirals. Both must be conducted in the most effective manner possible and in accordance with EC/ECDC/WHO recommendations, taking into consideration national conditions.

Fortunately, the estimated impact on health did not come to pass during the 2009 pandemic. Nonetheless, pandemic preparedness must be generally designed in such a way as to ensure sufficient flexibility of the system in every situation.

5.1.2. Estimates of possible economic impact of the pandemic

From the aspect of employment in individual branches of the national economy, various degrees of contagiousness (50%, 45%, 40%, 35%) as well as various degrees of importance from the aspect of the functioning of the economy and state security must be differentiated. With parameters thus set, up to **40% of employees in the group at highest risk** (first-line physicians, public transport) could fall ill **within 10 days**. Similarly, up to 27% in the group at risk and those important for the functioning of the economy and state security (physicians, transport employees, employees in the commercial sector, state administration and defense sector), 12% in the group at less risk (other production branches of the national economy - even strategically important ones but with lower concentrations of people, e.g.

the energy sector) and 4% in the groups at lowest risk (other public services, financial services, agriculture, forestry) could be affected. Overall, this represents **up to 10 days** of morbidity in around 10% of the employed. If we were also to project the lowest level of contagiousness for the rest of the population, around 7% of the population could fall ill within 10 days. Economic losses due to absenteeism correspond not only to the number of persons who are actually ill, but also include e.g. absences when people are taking care of ill family members.

From a macroeconomic aspect, we estimate that a pandemic which can be expected to subside after around 90 days could lead to a fall in economic productivity (measured as the annual gross domestic product) by 1.5% to 2.0%. In the event of insufficient planning and a prepared effective response to the pandemic, the fall in annual GDP as a consequence of morbidity could be at least 2.5% to 3.0%.

These estimates do not allow for damage to health or death that would have a long-term effect on the fall in economic activity. These would be naturally more significant in the absence of effective measures.

5.2. Description of the pandemic phases according to the WHO

In Stockholm in September 2006, the ECDC working party issued recommendations for EU Member States to redefine and adapt pandemic plans to the WHO global plan so as to avoid misunderstandings when declaring the individual phases of a pandemic. This would also enable the transmission of correct information within a given country and between Member States and institutions set up by the EU and WHO and the transmission of undistorted information via the media. The individual phases of a pandemic alert are declared by the WHO.

Tab. No. 4: Description of pandemic phases according to the WHO

Phase	Description
1	No viruses circulating among animals have been reported to cause infections in humans.
2	An animal influenza virus circulating among domesticated or wild animals is known to have caused infection in humans, and is therefore considered a potential pandemic threat.
3	An animal or human-animal influenza reassortant virus has caused sporadic cases or small clusters of disease in people, but has not resulted in human-to-human transmission sufficient to sustain community-level outbreaks.
4	Verified human-to-human transmission of an animal or human-animal influenza reassortant virus able to cause "community-level outbreaks"
5	Community-level epidemics in at least two countries in one WHO region
6	Community-level epidemics in at least two countries in one WHO region and moreover in at least one country in another WHO region.
Post-peak phase	Pandemic disease levels in most countries with adequate surveillance have dropped below peak observed levels.
Possible new wave	Pandemic disease levels in most countries with adequate surveillance have returned to peak observed levels.
Post-pandemic phase	Pandemic disease levels in most countries with adequate surveillance have returned to the levels of seasonal influenza.

5.3. Reaction of the state to a pandemic

Pandemic alertness is declared by the WHO. In view of the fact that Member States may experience different threat levels according to the period and extent of involvement the PP CR divides the individual phases into variant A - the country is not affected, and variant B - the country is affected.

In general, the state's reaction to a pandemic is divided into individual phases that copy the aforementioned WHO phases, with each phase further divided into 6 basic groups that are then further developed:

- 1) Planning and coordination
- 2) Monitoring and assessment of the situation

- 3) Reducing the spread of disease
- 4) Ensuring continued functioning of the healthcare system
- 5) Communication
- 6) Inter-sectoral cooperation

The transition between individual phases is declared by the WHO based on the evaluation of the situation and, last but not least, on information from individual Member States (MS). The WHO evaluates key epidemiological, virological and clinical factors and the seriousness of the pandemic and helps national authorities take decisions regarding the optimal response to the given situation. It provides recommendations and, potentially, technical assistance. A similar role within the EU is played by the EC/ECDC, which enables the sharing of information and coordination on the narrower European scale, which is of key importance for the conduct of individual EU MS.

The state's reaction begins with measures that must be implemented before the onset of the pandemic. It subsequently designates the necessary steps to be taken during the main pandemic wave and does not forget to designate subsequent measures intended for the convalescence of society and the economy as a whole. The primary objective of these preparations is to reduce the loss of human lives associated with the pandemic, to minimize the impact on the population's health as a whole, to reduce the possible financial impact in all sectors of the national economy and, last but not least, to renew human and material resources.

5.4. Containment and mitigation measures

As soon as it is possible, the EC/ECDC/WHO provides an evaluation of the impact of the pandemic on the population's health in order to help MS governments determine the appropriate level of response to the pandemic. Previous pandemics have been characterized by various rates of morbidity and mortality. The evaluation may be based on medical or economic factors. As economic factors may differ dramatically in individual countries, the WHO plans to evaluate the impact of the pandemic on the basis of its consequences with regard to the population's health, as these may be monitored.

This evaluation will help MS:

- Decide whether to implement containment measures (restricting or rather slowing the spread of the pandemic virus)/mitigation measures (limiting the impact of the pandemic),
- Take decisions regarding the use of antivirals, vaccines and other medical intervention
- Manage the impact on healthcare provision,
- Communicate with the media and public when answering their queries.

Pandemic phase 4-5 according to the WHO is of essential importance, whereby rapidly coordinated local and global actions may stop or limit the spread of a new variant of the virus. For national authorities, the aim of rapid containment measures during a pandemic is to limit or rather slow the spread of a virus with pandemic potential as fast as possible once it has been detected – this is done with the support of the WHO and EC/ECDC. This involves unique measures in the field of public health protection that basically do not differ from the routine response to infectious diseases, yet which exceed this in their extent. Rapid containment is an important challenge for planning, organization and coordination. Emphasis is placed on systematically conducting the program of surveillance, as the success of planned measures depends on it to a great extent. If it is decided to apply containment measures, the WHO and EC/ECDC provide, if necessary, support to the affected countries in the area of management and technical factors.

To activate containment measures the national authority, the WHO and EC/ECDC require the common and rapid evaluation of technical, operational and medical factors in order to determine whether:

- It is reasonable to believe that an influenza virus with pandemic potential is capable of effective human-to-human transmission at community level,
- There are persuasive reasons why containment measures should not be envisaged. Rapid containment measures are not applied if it has been demonstrated that a virus with pandemic potential is too widespread or that it is no longer possible to slow its spread. In this phase, measures are re-directed to mitigation with the aim of limiting the pandemic's impact on society.

EC/ECDC/WHO recommendations depend on the evaluation of the situation by experts, on scientific sources and feasibility factors. The final decision as to whether to implement concrete measures, though, depends on the MS. Continuous communication and a flexible approach to developments by both the MS and EC/ECDC/WHO are essential.

5.5. Lessons learnt from the last influenza pandemic in 2009/2010

The worldwide experience with the 2009/2010 pandemic has provided invaluable information for planning the national and global response to pandemics and has concurrently confirmed the unpredictability of influenza virus behavior, as at the moment when the world was preparing itself for the threat of avian influenza (H5N1), a new pandemic virus unexpectedly appeared. This showed that vigilance must not be relaxed and pandemic preparedness must continue. Thanks to such continual preparations, the world has been well prepared in recent years. Nonetheless, it was shown that certain critical areas of pandemic preparedness must be reinforced. These especially include:

- Communication, not only with the public but also with experts and the media (the need to provide clear, precise information regarding measures and to clearly formulate the set recommendations),
- The multi-sectorial conception of the fight against the pandemic,
- The effective and meaningful planning of antiviral and pandemic vaccine use from an international aspect, cooperation of EU MS in this area and cooperation with the WHO.

6. Contact persons who will provide information during an influenza pandemic in the Czech Republic:

The Minister of Health of the Czech Republic

The Chief Public Health Officer of the Czech Republic or his/her statutory representative from the public health protection section of the Czech Ministry of Health

The Press Secretary of the Czech Ministry of Health (MH) in cooperation with the press secretaries of the other departments and ministries

The press secretaries of Regional Public Health Offices and inpatient healthcare institutions

The representatives of the NRL for Influenza, the NIPH, and the State Institute for Drug Control

Experts designated by the Ministry of Health

7. The Commission for dealing with the incidence of serious infectious diseases in the Czech Republic

The Commission for dealing with the incidence of serious infectious diseases in the Czech Republic ("The Central Epidemiology Commission", hereinafter the "CEC") is a working body of the Czech government, which approves its statute. Its principle tasks include:

- a) Informing the government about the course and consequences of serious infectious diseases, including the incidence of influenza caused by a new variant of the influenza virus in the event of an influenza pandemic,
- b) Coordinating and managing the activities of Regional Commissions for resolving the incidence of serious infectious diseases, including the incidence of influenza caused by a new variant of the influenza virus in the event of an influenza pandemic,
- c) Evaluating developments in the epidemiological situation,
- d) Recommending to the government the approval of appropriate anti-epidemic measures with nationwide authority.

As part of its activities, it submits reports to the government regarding developments in the epidemiological situation and proposes essential measures in the area of public health protection in order to ensure the readiness of various departments and the public services under their authority to take action.

Regional council presidents establish, at regional level, a similar commission for resolving the incidence of serious infectious diseases, including the incidence of influenza caused by a new variant of the influenza virus in the event of an influenza pandemic. At the same time, they set the statute of such commissions taking into consideration the specificities of the individual regions of the Czech Republic.

If necessary, the CEC initiates the convening of team of selected experts, whereby the representation of individual departments depends on the current situation and needs.

8. Detailed description of the pandemic phases according to the WHO

INTERPANDEMIC PERIOD – uncertain probability of a pandemic

PHASE 1

No viruses circulating among animals have been reported to cause infections in humans. In this phase, no new subtypes of the influenza virus in humans have been detected.

The principle aim in the field of public health in this phase is to reinforce influenza pandemic preparedness at all levels - global, national and regional.

INTERPANDEMIC PERIOD – uncertain probability of a pandemic

PHASE 2

An animal influenza virus circulating among domesticated or wild animals is known to have caused infection in humans, and is therefore considered a potential pandemic threat.

The main aim in the field of public health in this phase is to reinforce influenza pandemic preparedness at all levels - global, national and regional.

PHASE 2A – the country is not affected

PHASE 2B – the country is affected

INTERPANDEMIC PERIOD – uncertain probability of a pandemic

PHASE 3

An animal or human-animal influenza reassortant virus has caused sporadic cases or small clusters of disease in people, but has not resulted in human-to-human transmission sufficient to sustain community-level outbreaks.

The main aim in the field of public health in this phase is to reinforce influenza pandemic preparedness at all levels - global, national and regional; to rapidly uncover the characteristics of the new agent and to ensure early detection, reporting and reaction to other cases of the disease.

PHASE 3A – the country is not affected

PHASE 3B – the country is affected

PERIOD OF PANDEMIC ALERT – intermediate to high probability of a pandemic

PHASE 4

Verified human-to-human transmission of an animal or human-animal influenza reassortant virus able to cause "community-level outbreaks"

Small foci with restricted human-to-human transmission, but spread is highly localized, which indicates that the virus is not sufficiently adapted to human-to-human transmission.

The main aim in the field of public health is to maintain the new virus in restricted foci or to delay its spread in order to gain time for implementing preparedness measures, including the development of a vaccine.

PHASE 4A – the country is not affected

PHASE 4B – the country is affected

PERIOD OF PANDEMIC ALERT – high probability of a pandemic

PHASE 5

Community-level epidemics in at least two countries in one WHO region

Larger foci of infection appear, but human-to-human spread of the infection is thus far localized.

The main aim in the field of public health (especially in phase 5A) is to exert maximal efforts to limit or delay the spread of the infection and to gain time in order to implement measures in reaction to the pandemic, including the development of a vaccine.

Activities are re-directed (especially in phase 5B) from preparedness to response at a global level in order to maximally reduce the pandemic's impact on society.

PHASE 5A – the country is not affected

PHASE 5B – the country is affected

PANDEMIC PERIOD

PHASE 6

Community-level epidemics in at least two countries in one WHO region and moreover in at least one country in another WHO region

The main aim in the field of public health is to reduce as much as possible the pandemic's impact on society.

A pandemic is an extensive epidemic affecting whole continents. It thus involves the high incidence of a disease in a large territory (continent) over a specific period of time. This level does not designate the level of the disease's clinical severity. Rather, it means that the disease (infection) has already affected a number of continents. Activities focus on reducing the pandemic's impact on society.

In the past there have been e.g. pandemics of the plague, cholera, smallpox, diphtheria, pertussis, influenza, poliomyelitis and other diseases.

PHASE 6A – the country is not affected

PHASE 6B – the country is affected

POST – PEAK PERIOD

Pandemic disease levels in most countries with adequate surveillance have dropped below peak observed levels.

The main aim in the field of public health is to concentrate all activities on the medical and social consequences of the pandemic and on preparing for a potential new wave of the pandemic.

POSSIBLE NEW WAVE

Pandemic disease levels in most countries with adequate surveillance have returned to peak observed levels.

POST-PANDEMIC PERIOD

Pandemic disease levels in most countries with adequate surveillance have returned to the levels of seasonal influenza.

The main aim in the field of public health is to concentrate all activities on the long-term medical and social consequences of the epidemic and on restoring the normal functioning of the healthcare and social system.

PHASE 1-3	MEASURES	JURISDICTION
PLANNING AND COORDINATION	<ul style="list-style-type: none"> Regular meetings of the CEC; cooperation and mutual exchange of information with the Central Administrative Authorities (CAA) and regions 	<u>MH, CAA, regions</u>
	<ul style="list-style-type: none"> Conducting exercises focusing on verifying the quality of pandemic preparedness at all levels 	<u>Crisis management bodies, essential public services</u>
	<ul style="list-style-type: none"> Periodic revision of the pandemic plan at least 1x every 2 years or as necessary – assessment of capacities and identification of the priorities of pandemic preparedness and response planning at national and regional level in cooperation with all partners involved 	<u>Crisis management bodies</u>
	<ul style="list-style-type: none"> Selecting essential public services to ensure their activities in relation to the declaration of phases 4 – 6 	<u>CAA, regions</u>
	<ul style="list-style-type: none"> Updating legislation with regard to the needs for pandemic preparedness for all proposed measures 	<u>CAA</u>
	<ul style="list-style-type: none"> Integrating pandemic plans into existing crisis plans and crisis preparedness plans 	<u>Crisis management bodies, affected subjects</u>
	<ul style="list-style-type: none"> Evaluating needs and finding financial as well as human resources necessary for implementing the proposed measures at national and regional level and their integration within pandemic plans 	<u>Crisis management bodies, affected subjects</u>
	<ul style="list-style-type: none"> Cooperation with the WHO and EC/ECDC, NATO and potentially other international institutions 	<u>MH</u>
	<ul style="list-style-type: none"> Estimating and planning the purchase and distribution of personal protective equipment for protecting employees 	<u>Affected subjects</u>
	<ul style="list-style-type: none"> Estimating and planning the purchase and distribution of pre-pandemic or pandemic vaccine for selected target groups of patients 	<u>MH</u>
	<ul style="list-style-type: none"> Estimating and planning the purchase and distribution of pre-pandemic or pandemic vaccine for the protection of employees essential for public services 	<u>MH and CAA</u>
	<ul style="list-style-type: none"> Estimating and planning the purchase and distribution of medicinal products (antivirals) - coordination of accessibility and possibility of rapid use 	<u>MH</u>
	<ul style="list-style-type: none"> Planning the implementation of containment measures 	<u>MH, affected departments and subjects</u>
	MONITORING AND ASSESSMENT OF THE	<ul style="list-style-type: none"> Support and development of the national surveillance system (cooperation especially of

SITUATION	the healthcare and veterinary sector) enabling the acquisition of current clinical, virological and epidemiological data regarding the trends in the incidence of human infections with seasonal influenza viruses, which may also help estimate potential needs during the pandemic.	<u>HF</u>
	<ul style="list-style-type: none"> • Detecting and investigating unusual clusters of influenza-like respiratory diseases or deaths and assessment of human-to-human transmission 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> • Detection of animal influenza virus infections, potential sources of human infection, preparing documentation for the collection, storage and transport of samples and result reporting 	<u>MA/SVA</u>
	<ul style="list-style-type: none"> • Detecting and reporting suspected or laboratory-confirmed human cases of these diseases on the territory of the Czech Republic and sharing this information with the WHO and EC via the IHR and EWRS respectively; preparing documentation for the collection, storage and transport of samples and result reporting 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> • Cooperation between the PHPB and veterinary authority; regular reporting to the CEC 	<u>MH, MA, MI, MD</u>
	<ul style="list-style-type: none"> • Information regarding evaluation of the risk of transmission of an animal virus to the human population 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> • Reinforcing the national capacity of laboratory diagnosis and analysis in the fields of both animal and human infections induced by influenza and influenza-like viruses, including the securing of sufficient human and financial resources 	<u>MH/NIPH, MA/SVA</u>
	<ul style="list-style-type: none"> • Cooperation and mutual exchange of information with the WHO and EU/ECDC (support of international institutions when drawing up case definition for the purpose of reporting to the MS; and when investigating disease cases and epidemiological circumstances and determining risk groups) 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> • Characterizing and sharing animal and human influenza virus isolates and informing relevant international agencies (WHO, EC/ECDC) with the aim of developing diagnostic reagents, candidate vaccine viruses and monitoring antiviral resistance 	<u>MH/NIPH, MA/SVA</u>
	REDUCING THE SPREAD OF DISEASE	<ul style="list-style-type: none"> • Selecting multi-sectoral experts in order to prepare for an epidemic of influenza with pandemic potential; activating the said team of multi-sectoral experts from phase 3
<ul style="list-style-type: none"> • Preventing virus transmission from animals to humans – veterinary measures 		<u>MA/SVA, affected subjects</u>
<ul style="list-style-type: none"> • Promoting preventive anti-epidemic measures as prevention against infection spread within the population 		<u>MH/NIPH, rPHO</u>
<ul style="list-style-type: none"> • Defining social-hygienic measures (closing 		<u>MH, affected</u>

In the event of phase 2B, 3B	schools, banning visitors in hospitals etc.)	<u>departments, regions, rPHO</u>
	<ul style="list-style-type: none"> Cooperation with international organizations (WHO, EC/ECDC) and the MS on the issue of effective vaccine availability 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Monitoring WHO and EC/ECDC recommendations 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Discussing potential measures relating to the International Health Regulations 	<u>MH, affected departments</u>
	<ul style="list-style-type: none"> Epidemiological investigation of disease cases and epidemiological circumstances of infection, determining risk groups within the population and immediate reporting of results to the WHO, EC/ECDC 	<u>MH, rPHO</u>
ENSURING CONTINUED FUNCTIONING OF THE HEALTHCARE SYSTEM (preparedness of the healthcare system for the increased demand for medical care)	<ul style="list-style-type: none"> Reviewing and updating the readiness of the healthcare system to take action at nation-wide and regional level in the event of increased demands on the volume of medical care 	<u>MH, affected departments, regions, HF</u>
	<ul style="list-style-type: none"> Promoting common principles for diagnosis and treatment, measures restricting infection spread and relating to the safe handling of biological material samples and hazardous waste 	<u>MH/NIPH, affected departments, regions, HF</u>
	<ul style="list-style-type: none"> Preparing healthcare documentation and algorithms relating to patient examination and medical care provision 	<u>MH/NIPH, HF, regions</u>
	<ul style="list-style-type: none"> Verifying the functionality of the Pandemie IS at both national and regional level 	<u>MH, HF, rPHO</u>
	<ul style="list-style-type: none"> Reinforcing good laboratory practice including laboratory safety and safe sample storage and transport as well as safe waste disposal 	<u>MH/NIPH, MA/SVA</u>
	<ul style="list-style-type: none"> Ensuring the reinforcement of rapid reporting and treatment of human cases of infections with pandemic potential 	<u>MH/NIPH, rPHO, regions, HF</u>
	<ul style="list-style-type: none"> Developing the capacity of rapid disease diagnostics as soon as relevant tests are available 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Monitoring WHO, EC/ECDC, NATO recommendations 	<u>MH/ NIPH</u>
	COMMUNICATION	<ul style="list-style-type: none"> Initiating communication activities with the media, professional and lay public regarding the potential and real risks of pandemic influenza
<ul style="list-style-type: none"> Monitoring WHO, EC/ECDC recommendations 		<u>MH/NIPH</u>
<ul style="list-style-type: none"> Determining the principles and goals of the communication strategy 		<u>MH, affected departments</u>
<ul style="list-style-type: none"> Appointing a working party for communication; activation of the said working party from phase 3 		<u>MH, affected departments</u>
<ul style="list-style-type: none"> Building long-term cooperation with the media at national and regional level with the aim of ensuring they are sufficiently informed on the issue of the pandemic 		<u>MH, regions, rPHO</u>
<ul style="list-style-type: none"> Developing an effective dialogue with the 		<u>MH, regions,</u>

From phase 2B also:	public with the aim of ensuring it is sufficiently informed on the issue of the pandemic	<u>rPHO</u>
	<ul style="list-style-type: none"> Increasing public awareness regarding the measures that may be available in order to reduce the risk of pandemic influenza spread; promoting personal hygiene as a means of protection against infection 	<u>MH/NIPH, regions, HF, rPHO</u>
	<ul style="list-style-type: none"> Creating special channels of information for hard to reach groups of the population 	<u>MH, regions</u>
	<ul style="list-style-type: none"> Conducting exercises to test communication capabilities at least once per year or more often if necessary 	<u>MH, Crisis management bodies</u>
	<ul style="list-style-type: none"> Updating communication strategies in accordance with feedback from the public and partner organizations - collecting and analyzing information 	<u>MH, regions</u>
	<ul style="list-style-type: none"> Using the disease case definitions as agreed by the WHO/EU for reporting purposes 	<u>MH, MA</u>
	<ul style="list-style-type: none"> Exchanging information relating to the efficacy of recommended measures at international level (WHO, EC/ECDC, MS) 	<u>MH, MA</u>
	<ul style="list-style-type: none"> Exchanging information relating to the efficacy of recommended measures at national level 	<u>MH, MA, regions</u>
	<ul style="list-style-type: none"> Ensuring that information regarding the infection of persons with a new strain of the influenza virus is provided rapidly at both national and international level using IHR, EWRS 	<u>MH</u>
	<ul style="list-style-type: none"> Monitoring the worldwide epidemiological situation and disease characteristics according to WHO, EC/ECDC reports 	<u>MH/NIPH</u>
<ul style="list-style-type: none"> Cooperation with the WHO, EC/ECDC and the MS on the enforcement of unified and precise reporting on the disease and epidemiological situation 	<u>MH</u>	
INTER-SECTORAL COOPERATION	<ul style="list-style-type: none"> Defining the responsibilities of individual Central Administrative Authorities (CAA), regions and other affected subjects 	<u>CAA, regions, affected subjects</u>
	<ul style="list-style-type: none"> Planning measures to be implemented at consulates and embassies abroad 	<u>MFA, MH</u>
	<ul style="list-style-type: none"> Preparing information for Czech citizens abroad and the means of providing state aid during the pandemic; informing the public in the Czech Republic about the situation of Czech citizens in the affected country 	<u>MFA, MH</u>
	<ul style="list-style-type: none"> Preparing and planning aid provided by the state to Czech citizens abroad in order to protect their lives and health (providing information) 	<u>MFA, MH</u>
	<ul style="list-style-type: none"> Preparing conditions for ensuring the organization of emergency supplies to the population 	<u>MI, regions</u>
	<ul style="list-style-type: none"> Preparing measures for supervising that public order and security are upheld 	<u>MI</u>
	<ul style="list-style-type: none"> Preparing measures for adapting procedures at entry points in accordance with the IHR (2005) 	<u>MH, affected CAA, rPHO</u>

<ul style="list-style-type: none"> Drawing up plans for the reaction of international transportation to events that may represent a threat of international significance to public health 	<u>MT, affected subjects</u>
<ul style="list-style-type: none"> Preparing measures relating to international transport for persons, baggage, freight, containers and transportation means in order to forestall or limit disease spread in the international context and to avoid unnecessary disruption of international operations, applied in accordance with the IHR (2005) and recommendations issued by the WHO and international transportation organizations 	<u>MT, affected subjects</u>
<ul style="list-style-type: none"> Preparing the deployment of 5th and 6th year medical students studying general medicine as assistants at healthcare facilities 	<u>MH, MEYS, MLSA, regions, HF</u>
<ul style="list-style-type: none"> Preparing the deployment of students studying general medicine from the 3rd year onward in a nursing capacity 	<u>MH, MEYS, MLSA, regions, HF</u>
<ul style="list-style-type: none"> Implementing CEC recommendations regarding the reimbursement of costs that will impact the state budget and that are associated with the influenza pandemic in the Czech Republic 	<u>Government, MF</u>
<ul style="list-style-type: none"> Preparing measures in facilities providing social and social-medical services 	<u>MH, MLSA, regions, affected subjects</u>
<ul style="list-style-type: none"> Preparing non-governmental organizations to help in the process of providing medical care and social services to the population 	<u>MH, regions, HF, NGOs</u>
<ul style="list-style-type: none"> Preparing measures to ensure the continued functioning of essential public services 	<u>Essential public services</u>
<ul style="list-style-type: none"> Preparing volunteers who will help provide care in inpatient healthcare facilities, where patients will be hospitalized 	<u>MH, regions, NGOs, HF</u>
<ul style="list-style-type: none"> Preparing procedures for resolving critical situations associated with burial of the dead 	<u>MRD, MH, regions</u>
<ul style="list-style-type: none"> Preparing procedures for applying regulatory measures when a state of crisis is declared 	<u>ASMR, CAA, regions</u>
<ul style="list-style-type: none"> Preparing measures for changing the operation of educational institutions that fall under the jurisdiction of regions 	<u>MEYS, regions</u>
<ul style="list-style-type: none"> Preparing measures for changing the operation of inpatient healthcare facilities and outpatient general practitioner clinics (adult and pediatric) 	<u>MH, regions, HF, GP, GP (AC)</u>
<ul style="list-style-type: none"> Preparing measures to ensure the operation of public transportation 	<u>MT, regions</u>

PHASE 4A	MEASURES	JURISDICTION
PLANNING AND COORDINATION	<ul style="list-style-type: none"> Regular meetings of the CEC; cooperation and mutual exchange of information with the Central Administrative Authorities (CAA) and regions 	<u>MH, CAA, regions</u>
	<ul style="list-style-type: none"> Defining concrete posts and positions in the sector of essential public services in order to ensure the continuity of their activities 	<u>Essential public services</u>
	<ul style="list-style-type: none"> Reviewing and updating the pandemic plan in accordance with developments relating to cases of infection 	<u>Crisis management bodies, affected subjects</u>
	<ul style="list-style-type: none"> Setting necessary protection levels and conditions for using personal protective equipment for the protection of employees 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> Specifying requirements for the purchase of personal protective equipment for the protection of employees 	<u>Affected subjects</u>
	<ul style="list-style-type: none"> Specifying the requirements for the purchase and distribution of pre-pandemic or pandemic vaccine for selected target patient groups 	<u>MH</u>
	<ul style="list-style-type: none"> Specifying the requirements for the purchase and distribution of pre-pandemic or pandemic vaccine for the protection of employees of essential public services 	<u>MH, CAA, regions</u>
	<ul style="list-style-type: none"> Specifying the requirements for the purchase and distribution of medicinal products (antivirotics) - coordination of availability and possible rapid use 	<u>MH</u>
	<ul style="list-style-type: none"> Finalizing preparations for the pandemic - activating internal measures 	<u>Affected subjects</u>
	MONITORING AND ASSESSMENT OF THE SITUATION	<ul style="list-style-type: none"> Support and development of the national surveillance system enabling the acquisition of current clinical, virological and epidemiological data regarding the trends in the incidence of human infections with seasonal influenza viruses, which may also help estimate potential needs during the pandemic
<ul style="list-style-type: none"> Reinforcing surveillance and monitoring of measures designated to limit the spread of infection 		<u>MH/NIPH, rPHO, HF</u>
<ul style="list-style-type: none"> Reinforcing virological and epidemiological surveillance for the detection of possible cases and clusters of infection, especially in the case of travel or commercial contacts with affected countries 		<u>MH/NIPH, rPHO, HF</u>
<ul style="list-style-type: none"> Monitoring WHO and ECDC/EC reports regarding measures taken in the area of increased surveillance and evaluation of the efficacy of these measures 		<u>MH/NIPH</u>
<ul style="list-style-type: none"> International exchange of information regarding tighter control of the incidence of infection in high risk groups of the population 		<u>MH/NIPH</u>

	and regarding the efficacy of the measures introduced to limit the spread of infection	
	<ul style="list-style-type: none"> • Detecting and reporting suspected or laboratory-confirmed cases of the disease on the territory of the Czech Republic and sharing this information with the WHO, EC/ECDC via IHR, respectively the EWRS 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> • Verifying the documentation prepared for the collection, storage and transport of samples and for the reporting of results 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> • Detecting and investigating any unusual incidence of influenza-like respiratory illnesses or deaths due to these and assessing the transmission of the respiratory infections in the population 	<u>MH/NIPH, rPHO, HF</u>
	<ul style="list-style-type: none"> • Cooperation and mutual exchange of information with the WHO and EU/ECDC (support of international institutions when drawing up definitions of disease cases for the purpose of reporting to the MS; when investigating cases of disease and epidemiological circumstances and determining risk groups within the population) 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> • Reinforcing the national capacity of laboratory diagnosis and analysis both in the field of animal and human infections induced by influenza and influenza viruses, including the securing of sufficient human and financial resources 	<u>MH/NIPH, MA/SVA</u>
	<ul style="list-style-type: none"> • Characterizing and sharing animal and human influenza virus isolates and informing relevant international agencies (WHO, EC/ECDC) with the aim of developing diagnostic reagents, candidate vaccine viruses and monitoring antiviral resistance 	<u>MH/NIPH, MA/SVA</u>
REDUCING THE SPREAD OF DISEASE	<ul style="list-style-type: none"> • Convening a team of multi-sectoral experts in order to prepare for an epidemic of influenza with pandemic potential 	<u>MH/NIPH, CAA, selected experts</u>
	<ul style="list-style-type: none"> • Implementing containment measures (to limit the spread of infection or to at least delay the spread of infection), taking into consideration WHO, EC/ECDC recommendations and the current epidemiological situation 	<u>MH/NIPH, affected departments and subjects, rPHO</u>
	<ul style="list-style-type: none"> • Promoting personal hygiene as a means of protection against infection 	<u>MH, regions, HF, rPHO</u>
	<ul style="list-style-type: none"> • Preparing social-hygienic measures (closing schools, banning visitors in hospitals etc.) 	<u>MH, MEYS, MLSA, regions, rPHO, HF</u>
	<ul style="list-style-type: none"> • Cooperation with international organizations (WHO, EC/ECDC) and the MS on the issue of effective vaccine availability 	<u>MH</u>
	<ul style="list-style-type: none"> • Monitoring WHO and EC/ECDC recommendations 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> • Discussing potential measures in relation to International Health Regulations 	<u>MH, affected departments</u>
	<ul style="list-style-type: none"> • Consulting with other MS or WHO MS regarding the potential planning of other 	<u>MH, MFA</u>

	measures to limit the spread of infection	
ENSURING CONTINUED FUNCTIONING OF THE HEALTHCARE SYSTEM		
(preparedness of the healthcare system for the increased demand for medical care)	<ul style="list-style-type: none"> Reviewing and updating the readiness of the healthcare system to take action at nation-wide and regional level in the event of increased demands on the volume of medical care and laboratory diagnostics 	<u>MH, affected departments, regions, HF</u>
	<ul style="list-style-type: none"> Promoting common principles for diagnosis and treatment, measures restricting infection spread and relating to the safe handling of biological material samples and hazardous waste 	<u>MH, HF, rPHO</u>
	<ul style="list-style-type: none"> Finalizing protocols and algorithms for infection localization, clinical care and treatment of cases 	<u>MH, HF</u>
	<ul style="list-style-type: none"> Verifying the functionality of the Pandemie IS at national level 	<u>MH, rPHO</u>
	<ul style="list-style-type: none"> Reinforcing routine laboratory safety and safe sample storage and transport as well as safe waste disposal 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Ensuring the reinforcement of rapid reporting and treatment of human cases of infection with pandemic potential 	<u>MH, HF, rPHO, MH/NIPH</u>
	<ul style="list-style-type: none"> Developing the capacity of rapid disease diagnostics as soon as relevant tests are available 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Checking the capacity of the healthcare system with regard to the detection and management of influenza incidence at inpatient healthcare facilities 	<u>MH, regions, HF</u>
	<ul style="list-style-type: none"> Recommendation for healthcare personnel to consider the diagnosis of influenza in cases of ARI, especially if the patient has returned from affected regions or has been in contact with persons from affected regions 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Infection control (barrier measures) at healthcare facilities 	<u>MH, rPHO, HF</u>
	<ul style="list-style-type: none"> Monitoring WHO, EC/ECDC, NATO recommendations 	<u>MH/NIPH</u>
COMMUNICATION		
	<ul style="list-style-type: none"> Initiating communication activities with the media, professional and lay public regarding the potential and real risks of pandemic influenza 	<u>MH, affected departments, regions, rPHO</u>
	<ul style="list-style-type: none"> Monitoring WHO and EC/ECDC recommendations 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Finalized communication strategy 	<u>MH</u>
	<ul style="list-style-type: none"> Active working party for communication 	<u>MH</u>
	<ul style="list-style-type: none"> Building long-term cooperation with the media at national and regional level with the aim of ensuring that they are sufficiently informed on the issue of the pandemic 	<u>MH, regions, rPHO</u>
	<ul style="list-style-type: none"> Developing an effective dialogue with the public with the aim of ensuring it is sufficiently informed on the issue of the pandemic 	<u>MH, regions, rPHO</u>
	<ul style="list-style-type: none"> Creating special channels of information for hard to reach groups of the population 	<u>MH, regions</u>

	<ul style="list-style-type: none"> Increasing public awareness regarding the measures that may be available in order to reduce the risk of pandemic influenza spread; promoting personal hygiene as a means of protection against infection 	<u>MH/NIPH, regions, rPHO</u>	
	<ul style="list-style-type: none"> Conducting exercises to test communication capabilities at least once per year or more often if necessary 	<u>MH, Crisis management bodies</u>	
	<ul style="list-style-type: none"> Updating communication strategies in accordance with feedback from the public and partner organizations - collecting and analyzing information 	<u>MH, regions</u>	
	<ul style="list-style-type: none"> Using disease case definitions as agreed by the WHO/EU for reporting purposes 	<u>MH, MA</u>	
	<ul style="list-style-type: none"> Exchanging information relating to the efficacy of recommended measures at international level (WHO, EC/ECDC, MS) 	<u>MH, MA</u>	
	<ul style="list-style-type: none"> Exchanging information relating to the efficacy of recommended measures at national level 	<u>MH, MA, regions</u>	
	<ul style="list-style-type: none"> Monitoring the worldwide epidemiological situation and disease characteristics according to WHO, EC/ECDC reports 	<u>MH</u>	
	<ul style="list-style-type: none"> Cooperation with the WHO, EC/ECDC and the MS on the enforcement of unified and precise reporting on the disease and epidemiological situation 	<u>MH</u>	
	<ul style="list-style-type: none"> Holding frequent and previously announced briefings via the popular media - web, TV, radio as well as press conferences, with the aim of containing panic and dispelling rumors 	<u>MH</u>	
	<ul style="list-style-type: none"> Exchanging reports intended for the public and educational materials with other MS, EC/ECDC 	<u>MH</u>	
	INTER-SECTORAL COOPERATION	<ul style="list-style-type: none"> Detailing the planned measures to ensure the activities of individual CAA, and other affected subjects and regions within the scope of their authority and reflecting developments in the epidemiological situation within the relevant pandemic plans 	<u>Crisis management bodies</u>
		<ul style="list-style-type: none"> Updating planned measures to ensure the continuity of essential public services 	<u>Essential public services</u>
		<ul style="list-style-type: none"> Updating planned measures to ensure the continuity of activities of inpatient healthcare facilities 	<u>HF</u>
		<ul style="list-style-type: none"> Updating planned measures to ensure the continuity of social and social-medical services 	<u>Regions, affected subjects</u>

PHASE 4B	MEASURES	JURISDICTION
PLANNING AND COORDINATION	<ul style="list-style-type: none"> Regular meetings of the CEC; cooperation and mutual exchange of information with CAA and regions 	<u>MH, CAA, regions</u>
	<ul style="list-style-type: none"> Defining concrete posts and positions in the sector of essential public services in order to ensure the continuity of their activities 	<u>Essential public services</u>
	<ul style="list-style-type: none"> Reviewing and updating the pandemic plan in accordance with developments relating to cases and the course of the infection in humans 	<u>Crisis management bodies, affected subjects</u>
	<ul style="list-style-type: none"> Considering the declaration of a state of crisis according to needs and the situation, including the implementation of crisis measures 	<u>regions, government</u>
	<ul style="list-style-type: none"> Commencing activities in accordance with the pandemic plan, focusing on ensuring essential public services 	<u>Crisis management bodies, essential public services</u>
	<ul style="list-style-type: none"> Finalizing preparations for a possible pandemic – activating internal measures, mobilizing and reinforcing the workforce in essential public services 	<u>CAA, regions, essential public services</u>
	<ul style="list-style-type: none"> Specifying necessary protection levels and conditions for using personal protective equipment for the protection of employees 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> Finalizing preparations for a possible pandemic, including finalizing the purchase of supplies of protective equipment set out in the pandemic plan for the protection of employees 	<u>Affected subjects</u>
	<ul style="list-style-type: none"> Finalizing preparations for a possible pandemic, including finalizing the purchase of medicinal product supplies 	<u>MH</u>
	<ul style="list-style-type: none"> Finalizing preparations for a pandemic, including finalizing the distribution of medicinal product supplies- coordination of availability and possible rapid use 	<u>MH</u>
	<ul style="list-style-type: none"> Specifying the requirements for the purchase and distribution of pre-pandemic or pandemic vaccine for selected target patient groups 	<u>MH</u>
	<ul style="list-style-type: none"> Specifying the requirements for the purchase and distribution of pre-pandemic or pandemic vaccine for the protection of employees of essential public services 	<u>MH, CAA, regions</u>
	MONITORING AND ASSESSMENT OF THE SITUATION	<ul style="list-style-type: none"> Support and development of the national surveillance system (cooperation especially with the healthcare and veterinary sector) enabling the acquisition of current clinical, virological and epidemiological data regarding the trends in the incidence of human infections with seasonal influenza viruses,

	which may also help estimate potential needs during the pandemic	
	<ul style="list-style-type: none"> Reinforcing surveillance – rapid detection and reporting of new cases in the population 	<u>MH/NIPH, rPHO, HF</u>
	<ul style="list-style-type: none"> Reinforcing virological and epidemiological surveillance for the detection of possible cases and clusters of infection– collection of clinical and epidemiological data in the greatest extent possible 	<u>MH/NIPH, rPHO, HF</u>
	<ul style="list-style-type: none"> Monitoring of measures implemented to limit the spread of infection in the population 	<u>MH</u>
	<ul style="list-style-type: none"> Monitoring WHO and ECDC/EC reports regarding measures taken in the area of increased surveillance and evaluation of the efficacy of these measures 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> International exchange of information regarding increased epidemiological surveillance of high risk groups of the population and regarding the efficacy of the measures introduced to limit the spread of infection 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Detecting and reporting suspected or laboratory-confirmed cases of the disease on the territory of the Czech Republic and sharing this information with the WHO, EC/ECDC via IHR respectively EWRS 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> Collection, storage and transport of samples in accordance with the prepared documentation 	<u>HF</u>
	<ul style="list-style-type: none"> Detecting and investigating any unusual incidence of influenza-like respiratory illnesses or deaths due to these and assessment of transmission among humans 	<u>MH/NIPH, rPHO, HF</u>
	<ul style="list-style-type: none"> Cooperation and mutual exchange of information with the WHO and EC/ECDC (support of international institutions when drawing up definitions of disease cases for the purpose of reporting to the MS; and when investigating cases of disease and epidemiological circumstances and determining risk groups within the population) 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Reinforcing the national capacity of laboratory diagnosis and analysis both in the field of animal and human infections, including the securing of sufficient human and financial resources 	<u>MH/NIPH, MA/SVA</u>
	<ul style="list-style-type: none"> Characterizing and sharing animal and human influenza virus isolates and informing relevant international agencies (WHO, EC/ECDC) with the aim of developing diagnostic reagents, candidate vaccine viruses and monitoring antiviral resistance 	<u>MH/NIPH, MA/SVA</u>
REDUCING THE SPREAD OF DISEASE	<ul style="list-style-type: none"> Direct and coordinated steps taken by the team of multi-sectoral experts when finalizing preparations for the epidemic of influenza with pandemic potential, focusing on limiting the 	<u>MH/NIPH, CAA, selected experts</u>

	spread of infection (or at least delaying it)	
	<ul style="list-style-type: none"> Promoting personal hygiene as a means of protection against infection 	<u>MH/NIPH, regions, HF, rPHO</u>
	<ul style="list-style-type: none"> Implementing social-hygienic measures (closing schools, banning visitors in hospitals etc.) on the basis of developments in the epidemiological situation 	<u>MH/NIPH, MEYS, MLSA, regions, rPHO, HF</u>
	<ul style="list-style-type: none"> Cooperation with international organizations (WHO, EC/ECDC) and the MS on the issue of effective vaccine availability 	<u>MH</u>
	<ul style="list-style-type: none"> Monitoring WHO and EC/ECDC recommendations 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Implementing potential measures relating to international travel – IHR 	<u>MH, affected departments, affected subjects</u>
	<ul style="list-style-type: none"> Investigating disease cases and the epidemiological circumstances of infection and determining the groups at risk as well as immediate reporting of results to the WHO, EC/ECDC 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> Implementing containment measures (to limit the spread of infection or at least delay the spread of infection), taking into consideration WHO, EC/ECDC recommendations and the current epidemiological situation 	<u>MH, affected departments and subjects, rPHO</u>
	<ul style="list-style-type: none"> Increasing stocks of medication and medical materials in accordance with the pandemic plan based on the current developments in the epidemiological situation 	<u>HF</u>
	<ul style="list-style-type: none"> Ensuring the accessibility and possible rapid use of medicinal products (antivirotics) from state stocks 	<u>MH, ASMR, MF</u>
	<ul style="list-style-type: none"> Planning the use of vaccines – assessing the advantages and disadvantages of vaccinating persons who are at risk of infection at work or during other activities using vaccines against seasonal influenza and potential planning of the vaccination program 	<u>MH, SIDC</u>
	<ul style="list-style-type: none"> Consultations with other EU MS and EC regarding the potential planning of other measures to limit the spread of infection 	<u>MH</u>
	<ul style="list-style-type: none"> Regular reporting of the current epidemiological status and number of cases to the WHO, EC/ECDC 	<u>MH</u>
<p>ENSURING CONTINUED FUNCTIONING OF THE HEALTHCARE SYSTEM</p> <p>(preparedness of the healthcare system for the increased demand for medical care)</p>	<ul style="list-style-type: none"> Readiness of the healthcare system at nationwide and regional level to face increased demands on medical services, including laboratory services 	<u>MH/NIPH, regions, HF</u>
	<ul style="list-style-type: none"> Promoting common principles for diagnosis and treatment, measures restricting infection spread and relating to the safe handling of biological material samples and hazardous waste 	<u>MH/NIPH, HF, rPHO</u>
	<ul style="list-style-type: none"> Applying protocols and algorithms for infection localization, care and treatment of cases 	<u>rPHO, NIPH, HF</u>
	<ul style="list-style-type: none"> Activating the Pandemie IS at national level 	<u>MH</u>
	<ul style="list-style-type: none"> Operating the Pandemie IS and data analysis 	<u>MH/NIPH, rPHO</u>

COMMUNICATION	<ul style="list-style-type: none"> Applying the principles of laboratory safety and safe sample storage and transport as well as safe waste disposal 	<u>HF, rPHO</u>
	<ul style="list-style-type: none"> Ensuring the rapid reporting and treatment of human cases of infections with pandemic potential 	<u>MH/NIPH, rPHO, HF</u>
	<ul style="list-style-type: none"> Ensuring sufficient capacities for rapid disease diagnostics as soon as relevant tests are available 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Readiness of the healthcare system with regard to the detection and management of influenza incidence in inpatient healthcare facilities 	<u>MH, regions, HF</u>
	<ul style="list-style-type: none"> Recommendation for healthcare personnel to consider the diagnosis of influenza in cases of ARI, especially if the patient has returned from affected regions or has been in contact with persons from affected regions 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> Implementing infection control measures (barrier measures) at healthcare facilities 	<u>HF, rPHO</u>
	<ul style="list-style-type: none"> Monitoring WHO, EC/ECDC recommendations 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Information and consultations regarding preparations for the next phase of the pandemic 	<u>MH, regions, selected experts</u>
	<ul style="list-style-type: none"> Activating alternative plans for ensuring isolation and providing medical care, if developments so require 	<u>HF</u>
	<ul style="list-style-type: none"> Actively developing communication activities with the media, professional and lay public regarding the potential and real risks of pandemic influenza. Activating communication mechanisms to ensure the widest possible dissemination of information 	<u>MH, affected departments, regions, rPHO</u>
	<ul style="list-style-type: none"> Monitoring WHO and EC/ECDC recommendations 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Applying the communication strategy 	<u>MH</u>
	<ul style="list-style-type: none"> Regular meetings of the working party for communication 	<u>MH</u>
	<ul style="list-style-type: none"> Evaluating the global and national pandemic risk 	<u>MH, selected experts</u>
	<ul style="list-style-type: none"> Building long-term cooperation with the media at national and regional level with the aim of ensuring they are sufficiently informed on the issue of the pandemic 	<u>MH, regions, rPHO</u>
	<ul style="list-style-type: none"> Developing an effective dialogue with the public with the aim of ensuring it is sufficiently informed on the issue of the pandemic 	<u>MH, regions, rPHO</u>
<ul style="list-style-type: none"> Increasing public awareness regarding the measures that may be available in order to reduce the risk of pandemic influenza spread; the promotion of personal hygiene as a means of protection against infection 	<u>MH/NIPH, regions, rPHO</u>	
<ul style="list-style-type: none"> Applying special channels of information for hard to reach groups of the population 	<u>MH, regions</u>	
<ul style="list-style-type: none"> Updating communication strategies in 	<u>MH, regions</u>	

	accordance with feedback from the public and partner organizations - collection and analysis of information	
	<ul style="list-style-type: none"> Using the disease case definitions as agreed by the WHO/EU for reporting purposes 	<u>MH, MA</u>
	<ul style="list-style-type: none"> Exchanging information relating to the efficacy of recommended measures at international level 	<u>MH, MA</u>
	<ul style="list-style-type: none"> Exchanging information relating to the efficacy of recommended measures at national level 	<u>MH, MA</u>
	<ul style="list-style-type: none"> Ensuring the rapid transmission of information regarding human infection with a new strain of the influenza virus at national and international level using the IHR, EWRS 	<u>MH, rPHO</u>
	<ul style="list-style-type: none"> Monitoring the worldwide epidemiological situation and disease characteristics according to WHO, EC/ECDC reports 	<u>MH</u>
	<ul style="list-style-type: none"> Cooperation with the WHO, EC/ECDC and the MS on the enforcement of unified and precise reporting on the disease and epidemiological situation 	<u>MH</u>
	<ul style="list-style-type: none"> Holding frequent and previously announced briefings via the popular media - web, TV, radio as well as press conferences, with the aim of containing panic and dispelling rumors 	<u>MH</u>
	<ul style="list-style-type: none"> Exchanging reports intended for the public and educational materials with other MS, EC/ECDC 	<u>MH</u>
	<ul style="list-style-type: none"> Ensuring rapid transmission of information regarding laboratory-confirmed human infection via a network of reference laboratories 	<u>MH, rPHO</u>
	<ul style="list-style-type: none"> Setting up procedures to be followed by all spokespersons to provide consistent information 	<u>MH, CAA, regions</u>
	<ul style="list-style-type: none"> Regular communication using set mechanisms ✓ What we know or do not know about the virus, the epidemiological situation, the implementation and efficacy of measures and the probable subsequent steps ✓ The importance of restricting the non-essential movement of persons to and from a designated region where containment measures are in force and of the relevant screening procedures at transit sites ✓ The importance of compliance with recommended measures in order to limit further spread of the disease ✓ How to access drugs, basic services and supplies in the containment region 	<u>MH, regions, HF, rPHO</u>
INTER-SECTORAL COOPERATION	<ul style="list-style-type: none"> Finalizing the responsibilities of individual CAA, and other affected subjects and regions within the scope of their authority, reflecting developments in the epidemiological situation within the relevant pandemic plans. 	<u>Crisis management bodies, affected subjects</u>
	<ul style="list-style-type: none"> Updating planned measures to ensure the 	<u>Essential public</u>

	continuity of essential public services	<u>services</u>
	<ul style="list-style-type: none"> Updating planned measures to ensure the continuity of activities of inpatient healthcare facilities 	<u>HF</u>
	<ul style="list-style-type: none"> Updating planned measures to ensure the continuity of social and social-medical services 	<u>Regions, affected subjects</u>

PHASES 5A a 6A	MEASURES	JURISDICTION	
PLANNING AND COORDINATION	<ul style="list-style-type: none"> Regular meetings of the CEC; cooperation and mutual exchange of information with CAA and regions 	<u>MH, CAA, regions</u>	
	<ul style="list-style-type: none"> If necessary, updating recommendations for the public, taking into account the situation regarding the incidence of infection and information coming from abroad (especially from affected regions) 	<u>MH/NIPH</u>	
	<ul style="list-style-type: none"> Finalizing preparations for a pandemic – activating internal measures, mobilizing and reinforcing the workforce in essential public services 	<u>Crisis management bodies, essential public services</u>	
	<ul style="list-style-type: none"> Considering the declaration of a state of crisis according to needs and the situation, including the implementation of crisis measures 	<u>regions, government</u>	
	<ul style="list-style-type: none"> Continued activities in accordance with the pandemic plan, focusing on ensuring essential public services 	<u>Crisis management bodies, essential public services</u>	
	<ul style="list-style-type: none"> Supporting and maintaining confidence across all agencies, organizations and the public via the transparency and credibility of the steps taken 	<u>Government, MH, selected experts</u>	
	<ul style="list-style-type: none"> Finalizing preparations for a pandemic, including the purchase and distribution of medicinal products - coordination of availability and possible rapid use 	<u>MH</u>	
	<ul style="list-style-type: none"> Specifying the required level of protection and conditions for the use of personal protective equipment for the protection of employees 	<u>MH/NIPH, rPHO</u>	
	<ul style="list-style-type: none"> Finalizing preparations for a pandemic, including the purchase and distribution of protective equipment for the protection of employees as set out in the pandemic plan 	<u>Affected subjects</u>	
	<ul style="list-style-type: none"> Finalizing requirements for the purchase and distribution of pre-pandemic or pandemic vaccine for selected target patient groups 	<u>MH, government</u>	
	<ul style="list-style-type: none"> Finalizing requirements for the purchase and distribution of pre-pandemic or pandemic vaccine for the protection of employees of essential public services 	<u>MH, CAA, government</u>	
	From phase 6	<ul style="list-style-type: none"> Purchase, distribution and application of pre-pandemic or pandemic vaccine for the protection of employees of essential public services 	<u>MH, CAA, government, MF</u>
	From phase 6	<ul style="list-style-type: none"> Purchase, distribution and application of pre-pandemic or pandemic vaccine for selected target patient groups 	<u>MH, government, MF</u>
	MONITORING AND ASSESSMENT OF THE SITUATION	<ul style="list-style-type: none"> Readiness of the national surveillance system enabling the acquisition of current clinical, virological and epidemiological data regarding the trends in the incidence of human infections with seasonal influenza viruses, which may 	<u>MH/NIPH, rPHO, HF</u>

	also help estimate potential needs during the pandemic		
	<ul style="list-style-type: none"> Surveillance and monitoring measures implemented to limit the spread of infection in the population 	<u>MH/NIPH, rPHO</u>	
	<ul style="list-style-type: none"> Virological and epidemiological surveillance for the detection of possible cases and clusters of infection, especially in the case of travel or commercial contacts with affected countries 	<u>MH/NIPH, rPHO, HF</u>	
	<ul style="list-style-type: none"> Monitoring WHO and ECDC/EC reports regarding measures taken in the area of increased surveillance and evaluation of the efficacy of these measures 	<u>MH/NIPH</u>	
	<ul style="list-style-type: none"> International exchange of information regarding increased surveillance of high risk groups and regarding the efficacy of the measures introduced to limit the spread of infection 	<u>MH/NIPH</u>	
	<ul style="list-style-type: none"> Detecting and reporting suspected or laboratory-confirmed cases of the disease on the territory of the Czech Republic and sharing this information with the WHO, EC/ECDC via the IHR, respectively EWRS 	<u>MH/NIPH, rPHO</u>	
	<ul style="list-style-type: none"> Collection, storage and transport of samples in accordance with the prepared documentation 	<u>HF</u>	
	<ul style="list-style-type: none"> Detecting and investigating any unusual incidence of influenza-like respiratory diseases or deaths due to these and assessment of transmission among humans 	<u>MH/NIPH, rPHO, HF</u>	
	<ul style="list-style-type: none"> Cooperation and mutual exchange of information with the WHO and EC/ECDC (when investigating disease cases and epidemiological circumstances of the infection, when determining risk groups, and in the development of disease characteristics and severity); monitoring their recommendations 	<u>MH/NIPH</u>	
	<ul style="list-style-type: none"> Ensuring the sufficient capacity of laboratory diagnosis and analysis, including securing sufficient human and financial resources 	<u>MH/NIPH</u>	
	<ul style="list-style-type: none"> Characterizing and sharing animal and human influenza virus isolates and informing relevant international agencies (WHO, EC/ECDC) with the aim of developing diagnostic reagents, candidate vaccine viruses and monitoring antiviral resistance 	<u>MH/NIPH, MA/SVA</u>	
	REDUCING THE SPREAD OF DISEASE	<ul style="list-style-type: none"> Direct and coordinated steps taken by the team of multi-sectoral experts to resolve the epidemic of influenza with pandemic potential, focusing on limiting the spread of infection (or at least delaying it) 	<u>MH/NIPH, CAA, selected experts</u>
		<ul style="list-style-type: none"> Promoting personal hygiene as a means of protection against infection 	<u>MH/NIPH, regions, HF, rPHO</u>
	<ul style="list-style-type: none"> Implementing social-hygienic measures (closing schools, banning visitors in hospitals etc.) on the basis of developments in the epidemiological situation 	<u>MH/NIPH, MEYS, MLSA, regions, rPHO, HF</u>	

ENSURING CONTINUED FUNCTIONING OF THE HEALTHCARE SYSTEM (preparedness of the healthcare system for the increased demand for medical care)	<ul style="list-style-type: none"> Cooperation with international organizations (WHO, EC/ECDC) and the MS on the issue of effective vaccine availability 	<u>MH</u>
	<ul style="list-style-type: none"> Monitoring WHO and EC/ECDC recommendations 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Implementing containment measures (to limit the spread of infection or at least delay the spread of infection), taking into consideration WHO, EC/ECDC recommendations; cooperation with the WHO and EC/ECDC 	<u>MH, affected departments and subjects, rPHO</u>
	<ul style="list-style-type: none"> Considering screening at international border entry points 	<u>MH, affected departments</u>
	<ul style="list-style-type: none"> Consultations with other EU MS and EC regarding the potential planning of other measures to limit the spread of infection 	<u>MH</u>
	<ul style="list-style-type: none"> Incorporating WHO recommendations and information when designing travel recommendations and health warnings 	<u>MH, affected departments</u>
	<ul style="list-style-type: none"> Discussing potential measures relating to international travel – IHR 	<u>MH, affected departments and subjects</u>
	<ul style="list-style-type: none"> Updating recommendations regarding the planning of interventions on the basis of experience and information from affected countries 	<u>MH, MFA, affected departments</u>
	<ul style="list-style-type: none"> Ensuring the accessibility and possible rapid use of medicinal products (antivirotics) from state stocks 	<u>MH, ASMR, MF</u>
	<ul style="list-style-type: none"> Planning the use of vaccines – assessing the advantages and disadvantages of vaccinating persons who are at risk of infection at work or during other activities using vaccines against seasonal influenza and the potential planning of the vaccination program 	<u>MH, SIDC</u>
	<ul style="list-style-type: none"> Readiness of the healthcare system at nationwide and regional level to face increased demands for medical and laboratory services 	<u>MH/NIPH, regions, HF</u>
	<ul style="list-style-type: none"> Promoting common principles for diagnosis and treatment, measures restricting infection spread and relating to the safe handling of biological material samples and hazardous waste 	<u>MH, HF, rPHO</u>
	<ul style="list-style-type: none"> Applying protocols and algorithms for infection localization, care and treatment of cases 	<u>rPHO, NIPH, HF</u>
	<ul style="list-style-type: none"> Activating the Pandemie IS at national level 	<u>MH</u>
<ul style="list-style-type: none"> Applying the principles of laboratory safety and safe sample storage and transport to laboratories as well as safe waste disposal 	<u>NIPH, rPHO, HF</u>	
<ul style="list-style-type: none"> Ensuring the rapid reporting and treatment of human cases of infection with pandemic potential 	<u>MH/NIPH, rPHO, HF</u>	
<ul style="list-style-type: none"> Ensuring sufficient capacities for rapid disease diagnostics as soon as relevant tests are available 	<u>MH/NIPH</u>	
<ul style="list-style-type: none"> Readiness of the healthcare system with regard to the detection and management of influenza incidence in inpatient healthcare 	<u>MH, regions, HF</u>	

COMMUNICATION

facilities	
<ul style="list-style-type: none"> Recommendation for healthcare personnel to consider the diagnosis of influenza in cases of ARI, especially if the patient has returned from affected regions or has been in contact with persons from affected regions 	<u>MH/NIPH, rPHO</u>
<ul style="list-style-type: none"> Implementing infection control measures (barrier measures) at healthcare facilities 	<u>HF, rPHO</u>
<ul style="list-style-type: none"> Monitoring WHO, EC/ECDC recommendations 	<u>MH/NIPH</u>
<ul style="list-style-type: none"> Monitoring updated WHO, EC/ECDC recommendations regarding the clinical course, diagnosis and reporting of cases 	<u>MH</u>
<ul style="list-style-type: none"> Active development of communication activities with the media, professional and lay public regarding the potential and real risks of pandemic influenza 	<u>MH, affected departments, regions, rPHO</u>
<ul style="list-style-type: none"> Monitoring WHO and EC/ECDC recommendations 	<u>MH/NIPH</u>
<ul style="list-style-type: none"> Applying the communication strategy 	<u>MH</u>
<ul style="list-style-type: none"> Regular meetings of the working party for communication 	<u>MH</u>
<ul style="list-style-type: none"> Evaluating the global and national pandemic risk 	<u>MH, selected experts</u>
<ul style="list-style-type: none"> Building long-term cooperation with the media at national and regional level with the aim of ensuring they are sufficiently informed on the issue of the pandemic 	<u>MH, regions, rPHO</u>
<ul style="list-style-type: none"> Developing an effective dialogue with the public with the aim of ensuring it is sufficiently informed on the issue of the pandemic 	<u>MH, regions, rPHO</u>
<ul style="list-style-type: none"> Increasing public awareness regarding the measures that may be available in order to reduce the risk of pandemic influenza spread; promotion of personal hygiene as a means of protection against infection 	<u>MH/NIPH, regions, rPHO</u>
<ul style="list-style-type: none"> Applying special channels of information for hard to reach groups of the population 	<u>MH, regions</u>
<ul style="list-style-type: none"> Updating communication strategies in accordance with feedback from the public and partner organizations - collecting and analyzing information 	<u>MH, regions</u>
<ul style="list-style-type: none"> Using disease case definitions agreed on by the WHO / EU for reporting purposes 	<u>MH, MA</u>
<ul style="list-style-type: none"> Exchange of information relating to the efficacy of recommended measures at international level (WHO, EC/ECDC, MS) 	<u>MH, MA</u>
<ul style="list-style-type: none"> Exchange of information relating to the efficacy of recommended measures at national level 	<u>MH, MA</u>
<ul style="list-style-type: none"> Ensuring rapid transmission of information regarding human infection with a new strain of the influenza virus at national and international level using the IHR, EWRS 	<u>MH, rPHO</u>
<ul style="list-style-type: none"> Monitoring the worldwide epidemiological situation and disease characteristics 	<u>MH</u>

	according to WHO, EC/ECDC reports	
	<ul style="list-style-type: none"> Cooperation with the WHO, EC/ECDC and the MS on the enforcement of unified and precise reporting on the disease and epidemiological situation 	<u>MH</u>
	<ul style="list-style-type: none"> Holding frequent and previously announced briefings via the popular media - web, TV, radio as well as press conferences, with the aim of containing panic and dispelling rumors 	<u>MH</u>
	<ul style="list-style-type: none"> Exchanging reports intended for the public and educational materials with other MS, EC/ECDC 	<u>MH</u>
	<ul style="list-style-type: none"> Regularly updating and informing the public about what is known and not known about the pandemic disease, including routes of transmission, clinical severity, treatment and possibilities of prophylaxis 	<u>MH, rPHO, selected experts</u>
	<ul style="list-style-type: none"> Providing regular information targeting social issues such as travel alerts, closure of borders etc. 	<u>MH, selected experts, affected departments</u>
	<ul style="list-style-type: none"> Setting up procedures to be followed by all spokespersons to provide consistent information regarding developments 	<u>MH, CAA, regions</u>
	<ul style="list-style-type: none"> Regular communication using set mechanisms ✓ What we know or do not know about the virus, the epidemiological situation, the application and efficacy of measures and the probable subsequent steps ✓ The importance of restricting the non-essential movement of persons to and from a designated region where containment measures are in force and of the relevant screening procedures at transit sites ✓ The importance of compliance with recommended measures in order to limit further spread of the disease ✓ How to access drugs, basic services and supplies in the containment region 	<u>MH, regions, affected departments</u>
INTER-SECTORAL COOPERATION	<ul style="list-style-type: none"> Implementing the duties of individual CAA, other affected subjects and regions within the scope of their authority, reflecting developments in the epidemiological situation as per the pandemic plans 	<u>Crisis management bodies, affected subjects</u>
	<ul style="list-style-type: none"> Implementing planned measures to ensure the continuity of essential public services 	<u>Essential public services</u>
	<ul style="list-style-type: none"> Implementing planned measures to ensure the continuity of activities of inpatient healthcare facilities 	<u>HF</u>
	<ul style="list-style-type: none"> Implementing planned measures to ensure the continuity of social and social-medical services 	<u>Regions, affected subjects</u>

PHASE 5 B and 6 B	MEASURES	JURISDICTION	
PLANNING AND COORDINATION	<ul style="list-style-type: none"> Regular meetings of the CEC; cooperation and mutual exchange of information with CAA and regions 	<u>MH, CAA, regions</u>	
	<ul style="list-style-type: none"> If necessary, updating recommendations for the public, taking into account the situation regarding the incidence of infection and information coming from abroad (especially from the most affected regions) 	<u>MH/NIPH</u>	
	<ul style="list-style-type: none"> Finalizing preparations for a pandemic – activating internal measures, mobilizing and reinforcing the workforce in essential public services 	<u>Crisis management bodies, essential public services</u>	
	<ul style="list-style-type: none"> Considering the declaration of a state of crisis according to needs and the situation, including the implementation of necessary measures 	<u>regions, government</u>	
	<ul style="list-style-type: none"> Maintaining confidence across all agencies, organizations and the public via the transparency and credibility of the steps taken 	<u>Government, MH, selected experts</u>	
	<ul style="list-style-type: none"> Setting procedures and targets aiming at a rational, ethical and transparent approach to human, material and economic resources 	<u>MH, CAA, regions, selected experts</u>	
	<ul style="list-style-type: none"> Evaluating the need of international help 	<u>MH, MFA, government</u>	
	<ul style="list-style-type: none"> Defining the required level of protection and conditions for the use of personal protective equipment for the protection of employees 	<u>MH/NIPH, rPHO</u>	
	<ul style="list-style-type: none"> Distributing protective equipment supplies in accordance with the pandemic plan for the protection of employees 	<u>Affected subjects</u>	
	<ul style="list-style-type: none"> Distributing medicinal products (antivirals) - coordination of availability and possible rapid use 	<u>MH</u>	
	<u>In phase 5 B</u>	<ul style="list-style-type: none"> Finalizing requirements for the purchase and distribution of pre-pandemic or pandemic vaccine for selected target patient groups 	<u>Government, MF, MH</u>
	<u>In phase 5 B</u>	<ul style="list-style-type: none"> Finalizing requirements for the purchase and distribution of pre-pandemic or pandemic vaccine for the protection of employees of essential public services 	<u>Government, MF, MH, CAA</u>
	<u>From phase 6</u>	<ul style="list-style-type: none"> Purchase, distribution and application of pre-pandemic or pandemic vaccine to the target group of patients 	<u>Government, MF, MH</u>
	<u>From phase 6</u>	<ul style="list-style-type: none"> Purchase, distribution and application of pre-pandemic or pandemic vaccine to the employees of essential public services 	<u>Government, MF, MH, CAA</u>
	MONITORING AND ASSESSMENT OF THE SITUATION	<ul style="list-style-type: none"> Reporting the number of cases on the territory of the Czech Republic and sharing this information with the WHO and EC/ECDC via the IHR, respectively EWRS 	<u>MH/NIPH, rPHO</u>
<ul style="list-style-type: none"> Collection, storage and transport of samples and reporting results in accordance with the prepared documentation 		<u>HF</u>	

REDUCING THE SPREAD OF DISEASE	<ul style="list-style-type: none"> Detecting and investigating any unusual incidence of influenza-like respiratory diseases or deaths from these and evaluation of human-to-human transmission 	<u>MH, rPHO, HF</u>
	<u>In the area of surveillance</u>	
	<ul style="list-style-type: none"> Evaluating the efficacy of implemented measures 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> Monitoring morbidity and mortality 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> Comprehensively evaluating the earliest cases of pandemic influenza 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> Documenting the developing pandemic, including its geographic spread, trends and impact 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> Documenting every change in the epidemiological and clinical characteristics of the virus 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> Maintaining adequate virological surveillance for the detection of antigenic and genetic changes as well as changes in viral sensitivity to antivirals and pathogenicity 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> Modifying the case definition and updating clinical and laboratory algorithms for diagnosis, as necessary 	<u>MH/NIPH, rPHO</u>
	<u>In the area of monitoring</u>	
	<ul style="list-style-type: none"> Monitoring essential resources such as: the supply of medical materials, antivirals, vaccines and other drugs; the availability of healthcare workers; bed occupancy in inpatient healthcare facilities; the utilization of alternative healthcare facilities; the supplies of laboratory materials; and the capacities of funeral services 	<u>MH, MRD, regions, HF</u>
	<ul style="list-style-type: none"> Monitoring and evaluating the national impact using criteria such as absenteeism (work, school), affected regions, the most affected groups and the availability of essential workers 	<u>CAA, regions, essential public services</u>
	<ul style="list-style-type: none"> Evaluating the effect and impact of implemented motivational measures 	<u>CAA, regions, essential public services</u>
	<ul style="list-style-type: none"> Estimating the pandemic's economic impact, if possible 	<u>MF, MH, CAA, regions, government</u>
	<ul style="list-style-type: none"> Direct and coordinated steps taken by the team of multi-sectoral experts to deal with the influenza pandemic, focusing on limiting the impact of the pandemic 	<u>MH, CAA, selected experts</u>
	<ul style="list-style-type: none"> Consultations with other EU MS and EC regarding the potential planning of other measures to limit the spread of infection 	<u>MH</u>
	<ul style="list-style-type: none"> Transition from containment to mitigation measures in accordance with WHO and EC/ECDC recommendations; cooperation with the WHO and EC/ECDC 	<u>MH, affected departments, HF</u>
<ul style="list-style-type: none"> Active approach to personal hygiene as a 	<u>MH/NIPH, regions,</u>	

From phase 6	means of protection against infection	<u>HF, rPHO</u>
	<ul style="list-style-type: none"> Implementing social-hygienic measures (closing schools, banning visitors in hospitals etc.) on the basis of developments in the epidemiological situation 	<u>MH/NIPH, MEYS, MLSA, regions, HF, rPHO</u>
	<ul style="list-style-type: none"> Cooperation with international organizations (WHO, EC/ECDC) and the MS on the issue of effective vaccine availability 	<u>MH</u>
	<ul style="list-style-type: none"> Monitoring WHO and EC/ECDC recommendations 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Applying potential measures related to international travel – IHR 	<u>MH, affected departments and subjects</u>
	<ul style="list-style-type: none"> Investigating atypical cases of the disease and the epidemiological circumstances of infection; determining risk groups and immediate reporting of results to the WHO, EC/ECDC 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> Ensuring a sufficient supply of drugs and other materials for providing medical care in accordance with the pandemic plan on the basis of developments in the epidemiological situation 	<u>MH, regions, HF</u>
	<ul style="list-style-type: none"> Consultations with other EU MS and EC regarding potential other measures 	<u>MH</u>
	<ul style="list-style-type: none"> Incorporating WHO recommendations and information when preparing international recommendations for travel and health warnings 	<u>MH, affected departments</u>
	<ul style="list-style-type: none"> Updating recommendations regarding the planning of interventions on the basis of experience and information from affected countries 	<u>MH, MFA, selected experts</u>
	<ul style="list-style-type: none"> Recommending that persons suffering from ARI stay at home and minimize their contact with household members and other persons 	<u>MH/NIPH, rPHO, GP, GP (AC)</u>
	<ul style="list-style-type: none"> Recommending that household members minimize their level of interaction outside the home and isolate themselves once influenza symptoms appear 	<u>MH/NIPH, rPHO, GP, GP (AC)</u>
	<ul style="list-style-type: none"> Recommending the restriction of mass gatherings and reduction of travel, including public transportation 	<u>MH, regions, rPHO</u>
	<ul style="list-style-type: none"> Modifying strategies for the use of antivirotics on the basis of new information, if necessary 	<u>MH</u>
	<ul style="list-style-type: none"> Vaccination with the pandemic vaccine in accordance with the vaccination strategy, if a vaccine is available 	<u>HF, GP, GP (AC)</u>
	<ul style="list-style-type: none"> Participation in the monitoring of pandemic vaccine safety and efficacy 	<u>SIDC, HF, GP, GP (AC)</u>
	ENSURING CONTINUED FUNCTIONING OF THE HEALTHCARE SYSTEM	<ul style="list-style-type: none"> Readiness of the healthcare system at nationwide and regional level to face the increased demands on medical services and laboratory examinations
(preparedness of the healthcare system for the increased demand for	<ul style="list-style-type: none"> Promoting common principles for diagnosis and treatment; measures restricting infection spread and relating to the safe handling of 	<u>MH, HF, rPHO</u>

medical care)	biological material samples and hazardous waste	
	<ul style="list-style-type: none"> Applying protocols and algorithms for infection localization, clinical care and treatment of cases 	<u>rPHO, NIPH, HF</u>
	<ul style="list-style-type: none"> Using the Pandemie IS and data evaluation 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> Applying the principles of laboratory safety and safe sample storage and transport to laboratories as well as safe waste disposal 	<u>HF, rPHO</u>
	<ul style="list-style-type: none"> Ensuring the rapid reporting and treatment of suspected human cases of infection with pandemic potential 	<u>MH/NIPH, rPHO, HF</u>
	<ul style="list-style-type: none"> Ensuring sufficient capacities for rapid disease diagnostics as soon as relevant tests are available 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Readiness of the healthcare system with regard to the detection and management of influenza incidence in inpatient healthcare facilities 	<u>MH, regions, HF</u>
	<ul style="list-style-type: none"> Recommendation for healthcare personnel to consider the diagnosis of influenza in cases of ARI, especially if the patient has returned from affected regions or has been in contact with persons from affected regions 	<u>MH/NIPH, HF</u>
	<ul style="list-style-type: none"> Implementing infection control measures (barrier measures) at healthcare facilities 	<u>HF, rPHO</u>
	<ul style="list-style-type: none"> Monitoring WHO, EC/ECDC recommendations 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Monitoring updated WHO, EC/ECDC recommendations regarding the clinical course, diagnosis and reporting of cases 	<u>MH</u>
	<ul style="list-style-type: none"> Implementing pandemic plans for the full mobilization of the healthcare system, institutions and workers at national and regional level 	<u>Crisis management bodies, affected subjects</u>
	<ul style="list-style-type: none"> Activating alternative plans for ensuring isolation and provision of medical care, if the situation so demands 	<u>HF</u>
	<ul style="list-style-type: none"> Ensuring a sufficient amount of personal protective equipment in accordance with recommendations issued by the PHPB 	<u>Affected subjects</u>
	<ul style="list-style-type: none"> Providing medical and non-medical help to patients and their contacts at home and alternative institutions, if necessary 	<u>HF, regions, NNO</u>
	<ul style="list-style-type: none"> Providing social and psychological support to healthcare employees, patients and communities, if necessary 	<u>regions, HF, NNO</u>
	<ul style="list-style-type: none"> Applying wider measures for the disposal of the dead as necessary 	<u>MRD, regions</u>
COMMUNICATION	<ul style="list-style-type: none"> Active communication with the media, professional and lay public regarding the potential and real risks of pandemic influenza 	<u>MH, affected departments, regions, rPHO</u>
	<ul style="list-style-type: none"> Monitoring WHO and EC/ECDC recommendations 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Applying the communication strategy 	<u>MH</u>
	<ul style="list-style-type: none"> Regular meetings of the working party for 	<u>MH</u>

	communication	
	<ul style="list-style-type: none"> Evaluating the global and national pandemic risk 	<u>MH, selected experts</u>
	<ul style="list-style-type: none"> Building long-term cooperation with the media at national and regional level with the aim of ensuring they are sufficiently informed on the issue of the pandemic 	<u>MH, regions, rPHO</u>
	<ul style="list-style-type: none"> Developing an effective dialogue with the public with the aim of ensuring it is sufficiently informed on the issue of the pandemic 	<u>MH, regions, rPHO</u>
	<ul style="list-style-type: none"> Increasing public awareness regarding the measures that may be available in order to reduce the risk of pandemic influenza spread; promoting personal hygiene as a means of protection against infection 	<u>MH/NIPH, regions, rPHO</u>
	<ul style="list-style-type: none"> Applying special channels of information for hard to reach groups of the population 	<u>MH, regions</u>
	<ul style="list-style-type: none"> Updating communication strategies in accordance with feedback from the public and partner organizations - collecting and analyzing information 	<u>MH, regions</u>
	<ul style="list-style-type: none"> Using disease case definitions agreed on by the WHO / EU for reporting purposes 	<u>MH, MA</u>
	<ul style="list-style-type: none"> Exchanging information relating to the efficacy of recommended measures at international level (WHO, EC/ECDC, MS) 	<u>MH, MA</u>
	<ul style="list-style-type: none"> Exchanging information relating to the efficacy of recommended measures at national level 	<u>MH, MA</u>
	<ul style="list-style-type: none"> Ensuring rapid transmission of information regarding human infection with a new strain of the influenza virus at national and international level using the IHR, EWRS 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> Monitoring the worldwide epidemiological situation and disease characteristics according to WHO, EC/ECDC reports 	<u>MH/NIPH</u>
	<ul style="list-style-type: none"> Cooperation with the WHO, EC/ECDC and the MS on the enforcement of unified and precise reporting on the disease and epidemiological situation 	<u>MH</u>
	<ul style="list-style-type: none"> Promoting and providing information regarding recommended measures for the prevention and reduction of risks to the population and individuals 	<u>MH</u>
	<ul style="list-style-type: none"> Holding frequent and previously announced briefings via the popular media - web, TV, radio as well as press conferences, with the aim of containing panic and dispelling rumors 	<u>MH</u>
	<ul style="list-style-type: none"> Exchanging reports intended for the public and educational materials with other MS, the EC and ECDC 	<u>MH</u>
	<ul style="list-style-type: none"> Ensuring rapid transmission of information regarding laboratory-confirmed human infection via the network of reference laboratories 	<u>MH, NIPH, HF</u>
	<ul style="list-style-type: none"> Ensuring rapid transmission of information regarding infection of persons with a new strain of the influenza virus at national and international level using the IHR, EWRS 	<u>MH</u>

INTER-SECTORAL COOPERATION	<ul style="list-style-type: none"> • Activation of communication mechanisms to ensure the widest possible dissemination of information 	<u>MH, CAA, regions, rPHO, HF</u>
	<ul style="list-style-type: none"> • Setting up procedures to be followed by all spokespersons to provide consistent information 	<u>MH, CAA, regions</u>
	<ul style="list-style-type: none"> • Regular communication using set mechanisms ✓ What we know or do not know about the virus, epidemiological situation, application and efficacy of measures and the probable subsequent steps ✓ The importance of restricting the non-essential movement of persons to and from a designated region where containment measures are in force and of the relevant screening procedures at transit sites ✓ The importance of compliance with recommended measures in order to limit further spread of the disease ✓ How to access drugs, basic services and supplies in the containment region 	<u>MH/NIPH, regions, HF, rPHO</u>
	<ul style="list-style-type: none"> • Regularly updating and informing the public about what is known and not known about the pandemic disease, including routes of transmission, clinical severity, treatment and possibilities of prophylaxis 	<u>MH</u>
	<ul style="list-style-type: none"> • Providing regular information targeting social issues such as travel alerts, closure of borders, of schools etc. 	<u>MH, MFA, MT, MEYS, CAA, regions</u>
	<ul style="list-style-type: none"> • Regular updating of information for the public regarding healthcare facilities providing emergency medical services and regarding the possibilities of self-treatment 	<u>MH, regions, HF, GP, GP (AC)</u>
	<ul style="list-style-type: none"> • Implementing the duties of individual CAA, other affected subjects and regions within the scope of their authority, reflecting developments in the epidemiological situation as per the pandemic plans 	<u>Crisis management bodies, affected subjects</u>
	<ul style="list-style-type: none"> • Implementing planned measures to ensure the continuity of essential public services 	<u>Essential public services</u>
	<ul style="list-style-type: none"> • Implementing planned measures to ensure the continuity of activities of inpatient healthcare facilities 	<u>HF</u>
	<ul style="list-style-type: none"> • Implementing planned measures to ensure the continuity of social and social-medical services 	<u>Regions, affected subjects</u>

POST – PEAK PERIOD	MEASURES	JURISDICTION
PLANNING AND COORDINATION	<ul style="list-style-type: none"> Identifying lessons to be learnt from the pandemic 	<u>MH, CAA, regions, rPHO, HF, essential public services</u>
	<ul style="list-style-type: none"> Determining the need for potential resources and capacities for possible future pandemics 	<u>Crisis management bodies, essential public services</u>
	<ul style="list-style-type: none"> Revising nationwide and regional stocks and service provision 	<u>Crisis management bodies, affected subjects</u>
	<ul style="list-style-type: none"> Restoring the functioning of essential public services 	<u>Essential public services</u>
	<ul style="list-style-type: none"> Revising the national plan, if necessary 	<u>MH in cooperation with the affected departments and regions</u>
	<ul style="list-style-type: none"> Evaluating the necessity of government financial support; defining the criteria of financial support and proposing the means of securing financial resources 	<u>MF, government, crisis management bodies</u>
MONITORING AND ASSESSMENT OF THE SITUATION	<ul style="list-style-type: none"> Continuing in the activities of surveillance in order to detect the onset of the next wave of the virus 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> Evaluating resources for monitoring further waves 	<u>MH</u>
REDUCING THE SPREAD OF DISEASE	<ul style="list-style-type: none"> Evaluating the efficacy of the measures used and updating recommendations, protocols and algorithms according to needs 	<u>MH, crisis management bodies, essential public services</u>
	<ul style="list-style-type: none"> Continuing with the vaccination programs in accordance with the PP CR priorities and vaccine availability 	<u>MH, HF, regions, SIDC, GP, GP (AC)</u>
ENSURING CONTINUED FUNCTIONING OF THE HEALTHCARE SYSTEM (preparedness of the healthcare system for the increased demand for medical care)	<ul style="list-style-type: none"> Providing healthcare workers with opportunities to rest and recover 	<u>MH, MLSA, regions, HF, rPHO</u>
	<ul style="list-style-type: none"> Replenishing stocks of medicinal products; resuming supply and services and renewing basic healthcare equipment 	<u>MH, regions, HF</u>
	<ul style="list-style-type: none"> Revising and if need be updating pandemic plans for the next pandemic wave 	<u>MH/NIPH, affected departments, regions, HF, rPHO</u>
	<ul style="list-style-type: none"> Revising case definitions, treatment protocols and other algorithms 	<u>MH</u>
COMMUNICATION	<ul style="list-style-type: none"> Regularly informing the public and other partners regarding changes in the status of the pandemic 	<u>MH</u>
	<ul style="list-style-type: none"> Communicating the need for vigilance and disease prevention to 	<u>MH, regions, HF, SIDC</u>

INTER-SECTORAL COOPERATION	the public in order to prevent a further rise in morbidity	
	<ul style="list-style-type: none"> Updating information for healthcare workers regarding potential changes in signs and symptoms or in case definitions, protocols and algorithms 	<u>MH, regions, HF</u>
	<ul style="list-style-type: none"> Elaborating plans for the renewal of essential public services 	<u>Crisis management bodies, essential public services</u>

POST-PANDEMIC PERIOD	MEASURES	JURISDICTION
PLANNING AND COORDINATION	<ul style="list-style-type: none"> Evaluating the efficacy of measures used 	<u>MH, crisis management bodies</u>
	<ul style="list-style-type: none"> Revising the lessons learnt and incorporating results into pandemic plans at all levels 	<u>Crisis management bodies</u>
MONITORING AND ASSESSMENT OF THE SITUATION	<ul style="list-style-type: none"> Collecting and analyzing available data in order to evaluate the epidemiological, clinical and virological characteristics of the pandemic 	<u>MH, rPHO, NIPH/MH, HF</u>
	<ul style="list-style-type: none"> Revising monitoring and evaluation tools for the next pandemic 	<u>MH</u>
	<ul style="list-style-type: none"> Incorporating the pandemic subtype into routine seasonal surveillance 	<u>MH</u>
REDUCING THE SPREAD OF DISEASE	<ul style="list-style-type: none"> Evaluating measures implemented in order to limit disease spread 	<u>MH</u>
	<ul style="list-style-type: none"> Evaluating pharmaceutical interventions including: <ul style="list-style-type: none"> Efficacy, safety and resistance to the antivirals used Vaccine coverage; vaccine efficacy and safety 	<u>MH/NIPH, SIDC, rPHO</u>
	<ul style="list-style-type: none"> Revising and updating corresponding recommendations, if necessary 	<u>MH</u>
	<ul style="list-style-type: none"> Continuing with the vaccination program in accordance with the PP CR priorities and vaccine availability 	<u>MH, HF, regions, SIDC, GP, GP (AC)</u>
ENSURING CONTINUED FUNCTIONING OF THE HEALTHCARE SYSTEM (preparedness of the healthcare system for the increased demand for medical care)	<ul style="list-style-type: none"> Collecting and analyzing available data in order to evaluate the response of the healthcare system to the pandemic 	<u>MH/NIPH, HF, rPHO</u>
	<ul style="list-style-type: none"> Revising the lessons learnt from the pandemic and sharing information internationally 	<u>MH</u>
	<ul style="list-style-type: none"> Amending plans and procedures in accordance with the lessons learnt from the pandemic 	<u>MH, regions, HF</u>
	<ul style="list-style-type: none"> Providing psychological help to individuals as well as communities as needed 	<u>MH, NGO, affected subjects</u>
COMMUNICATION	<ul style="list-style-type: none"> Informing the public and other partners about the lessons learnt regarding the efficacy of the response during the pandemic and about how the identified shortcomings will be redressed 	<u>MH/NIPH, rPHO</u>
	<ul style="list-style-type: none"> An appeal to all partners across the sectors to revise pandemic and crisis 	<u>Government, MH, crisis management</u>

	plans on the basis of the lessons learnt	<u>bodies, affected subjects</u>
	<ul style="list-style-type: none"> • Extending the communication strategy and activities to cover other infectious diseases and using the principles of communication in order to build a dialogue with the public on healthcare issues 	<u>MH</u>
	<ul style="list-style-type: none"> • Improving communication plans in preparation for the next major public health threat 	<u>MH, affected subjects</u>
INTER-SECTORAL COOPERATION	<ul style="list-style-type: none"> • Improving cooperation across sectors at all management levels with the aim of solving identified shortcomings 	<u>Affected subjects</u>

Abbreviations used:

ARDS	- Acute Respiratory Distress Syndrome
ARI	- Acute Respiratory Infection
CNS	- Central Nervous System
ČR	- Czech Republic
MS	- Member States
DIC	- Disseminated Intravascular Coagulation
ECDC	- European Centre for Disease Prevention and Control
EC	- European Commission
EU	- European Union
EWRS	- Early Warning and Response System
GDP	- Gross domestic product
IHR (2005)	- International Health Regulations (2005)
ILI	- Influenza Like Illness
Pandemie IS	- Pandemie Information System
rPHO	- regional Public Health Office
MT	- Ministry of Transport
MF	- Ministry of Finance
MRD	- Ministry of Regional Development
MD	- Ministry of Defense
MIT	- Ministry of Industry and Trade
MLSA	- Ministry of Labor and Social Affairs
MJ	- Ministry of Justice
MEYS	- Ministry of Education, Youth and Sports
MI	- Ministry of the Interior
MH	- Ministry of Health
MA	- Ministry of Agriculture
MFA	- Ministry of Foreign Affairs
NATO	- North Atlantic Treaty Organization
NGO	- Non-governmental organization(s)
NRL for Influenza	- National Reference Laboratory for Influenza
PHPB	- Public Health Protection Bodies
GP	- General practitioner
PP CR	- Pandemic Plan of the Czech Republic
RDS	- Respiratory Distress Syndrome
ASMR	- Administration of State Material Reserves
SIDC	- State Institute for Drug Control
SVA	- State Veterinary Administration
NIPH	- National Institute of Public Health
CEC	- Central Epidemiology Commission
CAA	- Central Administrative Authorities
WHO	- World Health Organization
HF	- healthcare facility