I.R. IRAN
NATIONAL PREPAREDNESS PLAN
FOR
PANDEMIC INFLUENZA

Deputy of Health
Center for Disease Control
Autumn 2007 (Revised in: 13/11/2007)
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Introduction

Influenza along with other diseases such as plague, pox and cholera is a known source of worldwide epidemics (pandemics). This virus is capable of producing disease in both humans and animals. Normally, animal influenza is not transmitted to humans and vice versa. One specific characteristic of the virus is its frequent changes in its genome; this can be mild to significant. Mild changes can cause limited yearly outbreaks (generally in autumn and winter), whereas significant changes can produce new strains which are completely unknown to human immune system leading to great morbidity and mortality, widespread epidemics and even pandemics (see the attached figure).

The past century has witnessed several influenza pandemics which were mainly caused by viruses of animal origin. The greatest influenza-related mortality took place in 1818-1819,afflicting 500 million with nearly 40 million deaths. The next big pandemics happened in 1957 and 1967; each had a mortality of over one million. This trend shows an interval of about 10-30 years between pandemics. Considering that the last pandemic happened 40 years ago, the risk of new influenza pandemic is very high.

In 1997, a new subtype of avian influenza virus A (H5N1) caused great mortality in birds and a few deaths in humans in Hong Kong. The subsequent appearance of this type of virus with greater capability for spreading to humans was in 2003. The worldwide spread of the virus by wild migratory birds caused greater number of infections in humans (333 cases and 204 deaths by Nov 2007). Continuation of the process can eventually provide the virus with the final genetic changes necessary for human-to-human transmission. It is anticipated that this new subtype will cause a global pandemic in the near future. Birds' infection with the new subtype in various countries forces adoption of massive destruction policies by the governments. This further loss of birds on the top of direct mortality can lead to heavy socioeconomic consequences. Establishment of infection in birds native to a country would make eradication of the virus impossible, leading to further spread of the infection to the neighboring countries. World Health Organization has estimated that the next pandemic can afflict approximately 20 million of Iranian people causing around 100,000 deaths. It is noteworthy that considering the high level of international travels, the pandemic will take only about three months to spread around the world. This is a very strong reason for the necessity of the preparedness to confront the possible pandemic in all countries. Although currently effective vaccines and antiviral drugs are available, less-than-adequate technical capacities make production and widespread use impossible (nationally or worldwide).
Therefore, interventions other than pharmaceuticals and also effective use of the available resources play a vital role in reducing the disease burden during a pandemic. Afflicted person may be away from work for at least one week. Thus, during a pandemic, great number of people other than the hospitalized cases (and the dead) would avoid work for fear of infection or morbidity. Since the disease can affect the whole population ranging from industrial workers, service people, the police, etc., extensive societal disruption would be highly likely. The pandemic can last several months causing disruption in travels and trade at national and international levels and also cancellation of routine activities such as public gatherings, sports events, schools, etc. Tackling such a huge socioeconomic crisis, threatening the whole world at the same time, calls for thorough national preparedness and close international coordination and collaboration. Minimizing serious consequences of the pandemic require countries to race against time in developing and implementing their national preparedness plans covering all aspects of the pandemic influenza. The present document presents Iran’s plan to achieve this goal. The success of this plan heavily relies on close and active cooperation of various agencies and the cabinet support.

Islamic Republic of Iran, pursuant to the International Health Regulation which came into force on 15 June 2007 like other United Nations member states, is committed to take preventive actions against the occurrence and spread of diseases needing international surveillance including influenza.
How Influenza Changes Its Surface Proteins

Antigenic Shift

Human H2N2 → Generation of new Human Virus (H3N2) Possessing Hemagglutinin from Avian Virus (H3N8) → Human H3N2

Avian H3N8 → Genetic Reassortment Antigenic Shift
General goals

1. Reducing the morbidity, mortality and complications of an influenza pandemic
2. Reducing the spread of the disease
3. Maintaining the essential social services

Iran's response to the pandemic

To achieve the above-mentioned goals, we will follow two main strategies for facing the pandemic threat in Iran. These strategies aim at minimizing the morbidity and mortality as a result of the influenza pandemic.

First strategy- Containment

This strategy refers to disease spread prevention by means of screening on the borders, patients' isolation, restriction of contacts and reasonable use of antiviral drugs and vaccination for priority groups.

Second strategy- Essential social services maintenance

In case of sudden and extensive spread of the disease in the society, containment strategy may not be effective any more. In this case, the strategy should be shifted towards maintenance of essential social services.

Strategic actions

1. Equipping the laboratories with capital expenditure equipments, logistical supports (biosafety facilities, transportation, …) supplies and human resources and enhancing testing capacity for rapid and accurate diagnosis
2. Strengthening the disease surveillance system in order to provide early detection of cases with novel influenza subtypes and also the necessary information for disease management at different stages of the pandemic
3. Enhancing and strengthening health care system at the borders in order to contain the spread of the pandemic
4. Enhancing the existing treatment infrastructure in order to provide appropriate treatment for the patients at various stages of the pandemic and to prevent the spread of infection in treatment centers
5. Making necessary preparations for the supply of required vaccines with preference for the domestically produced vaccines
6. Developing social preparations necessary for reducing the cases of the disease at various stages of the pandemic using multisectoral coordination
7. Developing and implementation of educational and informational programs for different groups of society using multisectoral coordination
8. Establishing an emergency (pandemic crisis) committee under supervision of the Supreme Health Council for crisis management during the pandemic (and also establishing a similar committee in each province under the supervision of provincial health and welfare workgroup)
9. Recommendations on how to replace lost workforce and how to prepare for continuation of necessary social services during the pandemic
10. Predicting, suggesting and doing the follow-up for passing the laws necessary for the plan implementation
11. Conducting appropriate research to meet the pandemic-related needs and questions
12. Estimation and provision of necessary funds and financial resources
13. Monitoring and evaluating the implementation of the plan
<table>
<thead>
<tr>
<th>Period</th>
<th>Phase (World)</th>
<th>Phase (Iran)</th>
<th>Phase definition</th>
<th>Main strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpandemic</td>
<td>- 0</td>
<td>1</td>
<td>No animal influenza subtypes which can cause human disease is in circulation.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 1</td>
<td></td>
<td>There is animal infection but the human infection or disease risk is low.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 2</td>
<td></td>
<td>There is animal infection and substantial risk of human disease.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 3</td>
<td></td>
<td>Human infection with a new subtype, but no human-to-human spread or little evidence of spread to a close contact.</td>
<td></td>
</tr>
<tr>
<td>Pandemic Alert</td>
<td>4 4</td>
<td></td>
<td>There is human infection: small cluster(s) of human infection with limited human-to-human transmission, but spread is highly localized, suggesting that the virus is not well adapted to humans.</td>
<td>Containment</td>
</tr>
<tr>
<td>Pandemic</td>
<td>5 5</td>
<td></td>
<td>There is human infection: Localized larger cluster(s) of human infection with human-to-human spread, suggesting that the new virus is becoming increasingly better (but not fully) adapted to humans = substantial pandemic risk.</td>
<td></td>
</tr>
<tr>
<td>Postpandemic</td>
<td>6 6</td>
<td></td>
<td>Occurrence of the pandemic: sustained transmission and disease spread in the general population, first in one locale of the country and then spreading throughout the country, subsidence of the first wave, occurrence of the next pandemic wave.</td>
<td>Essential service maintenance</td>
</tr>
</tbody>
</table>

Return to interpandemic period

Expected levels of disease with seasonal strains of influenza virus.

Future needs assessment
If Islamic Republic of Iran enters into one of the pandemic phases and one or several of the neighboring or other countries, based on the reports by international organizations, are in the later phases, following national policies, and after informing WHO and while respecting the international health laws, Iran will be entitled to impose travel restrictions over land, sea, and air borders.
Pandemic phases
Objectives and Actions
in each phase
Interpandemic period: Phase 1

**Overarching goal**

Strengthen influenza pandemic preparedness at national and provincial levels.
Interpandemic period: Phase 1- Planning and coordination

National Objectives

1. To develop and maintain national influenza pandemic contingency plans which are in harmony with international plans.
2. To promote the capacity to detect and to report the new strains of influenza virus immediately.
3. To promote national and global capacity to respond to early reports of new influenza virus strains.
4. To provide necessary financial resources.

National Actions

1. Establish a national pandemic planning committee.
2. Advocate the importance of pandemic planning to relevant decision-makers.
3. Conduct the necessary research projects.
4. Exercise pandemic plans and use the results to improve and refine plans and preparedness.
5. Ensure implementation of plans and preparedness activities at all levels of public authorities.
6. Identify and train key personnel to be mobilized in case of pandemic crisis.
7. Develop a domestic stockpile (antiviral drugs, personal protective equipment, vaccines, laboratory diagnostics, and other technical support) for rapid deployment when needed.
8. Develop the capacity for virus subtypes detection and appropriate specimen handling and shipping.
9. Develop the capacity to manage and support the staffing and the resources during the pandemic.
10. Establish and update the required instructions for food, agricultural and animal farming products safety, and other public health issues.
11. Establish and update necessary instructions addressing infected animals’ care in order to maintain health in the society.
12. Appropriation of necessary funds for the plan.
**Interpandemic period: Phase 1- Situation monitoring and assessment**

**National Objectives**

1. To obtain up-to-date information on trends in human infection with seasonal strains of influenza.
2. To be able to report animal and human infections with new influenza virus strains, identify potential animal sources of human infection and assess the risk of transmission to humans.
3. To develop plans for ongoing assessment of impact and resource needs.

**National Actions**

1. Strengthen the surveillance systems for the detection, characterization and assessment of clusters of influenza-like illness or respiratory diseases-related deaths (continuous monitoring of the adequacy of intersectoral and interinstitutional collaboration).
2. Develop or strengthen national systems for influenza surveillance in both humans and animals, based on WHO, FAO and OIE guidance.
3. Report routine and unusual surveillance findings to relevant national and international authorities.
4. Characterize and share influenza virus isolates and information on circulating strains with relevant international agencies, such as WHO, FAO and OIE.
5. Assess burden of seasonal influenza to help estimate additional needs during the pandemic.
6. Develop and conduct research projects for assessment of resource needs during the pandemic phase (e.g. morbidity, mortality, workplace absenteeism, regions affected, risk groups affected, health-care workers and other essential workers’ availability, health-care supplies, bed occupancy/availability, admission pressures, use of alternative health facilities, mortuary capacity).
Interpandemic period: Phase 1- Prevention and containment

National Objectives

1. To determine a range of containment strategies based on non-medical public health actions.
2. To increase/improve stockpiling of antivirals.
3. To increase availability of vaccine in the event of pandemic.
4. To determine target groups and develop national guidelines for the use of seasonal and pandemic vaccines.

National Actions

1. Develop national guidance for public health interventions, based on WHO recommendations.
2. Establishing intersectoral and interinstitutional coordination.
3. Obtain the legal authority for planned interventions and anticipate and provide resources.
4. Develop and test a maneuver for confronting the possible pandemic and use the maneuver results to improve and correct the plans and to better prepare.
5. Increase the stockpile of drugs appropriate to national conditions and manufacturing capacity.
6. Determine the priority groups and guidelines for deployment and use of antivirals during pandemic alert and pandemic periods.
7. Participate in research projects for assessing safety and antiviral drug resistance to current drugs in order to promote deployments of affordable and appropriate alternatives.
8. Using national data on burden of influenza disease, develop or adapt a national vaccination policy to achieve the targets recommended by the World Health Assembly for uptake of seasonal influenza vaccine.
9. Define a national guideline for the use of vaccines during the pandemic, develop preliminary priorities for pandemic vaccine use based on expected vaccine availability.
10. Study the possible ways for assessing the pandemic vaccines.
11. List the views and rational reasons regarding vaccine manufacturing.
12. Explore the ways to assess access to vaccines, and fair and effective distribution to target population.
13. Support the increase in global production by contributing to global vaccine research or through economic strengthening of production.

14. Explore strategies to allow access to vaccines through mutual agreements with manufacturers or manufacturing countries.

15. Review logistic and operational needs for provision, distribution and use of pandemic vaccines (vaccine storage, distribution capacity, cold-chain availability, vaccination centers, and equipment requirements for vaccine administration).
Interpandemic period: Phase 1- Health system response

National Objectives

1. To update the contingency plans and strategies for pandemic response in the health-care sector.

National Objectives

1. Develop a checklist for assessing the actions using WHO checklist.
2. Assess health system preparedness with the help of the WHO checklist.
3. Identify the authorities, responsibilities and pathways clearly for command and control of health systems in the event of pandemic.
4. Identify priorities and develop response strategies of health care system (either public or private) for each stage of the pandemic (triage systems, surge capacity, human and material resource management).
5. Develop the process for: case-finding, treatment and implementation of management protocols and related algorithms, infection control guidelines, guidance on triaging, staffing management.
6. Develop and implement the guidelines for laboratory biosafety, safe specimen handling, and hospital infection control policies.
7. Estimate pharmaceutical and other material needs for stockpiling and take action for their provision.
8. Increase awareness by strengthening training of health-care workers on confronting pandemic influenza.
Interpandemic period: Phase 1- Communications and education

National Objectives

1. To develop and strengthen the appropriate mechanisms for routine and emergency communications between health authorities, and other governmental and international organizations which are involved in the pandemic and with the society.
2. To maintain an appropriate level of awareness among superior management groups.
3. To provide the suitable mechanisms for optimal use of the media for education and information campaigns.
4. To raise the awareness of target groups and the public to correct behaviors (among school children, soldiers, and university students).

National Actions

1. Establish and manage an integrated intersectoral and interinstitutional communications system.
2. Raise the awareness of pandemic influenza, using national and international resources.
3. Hold meetings with the media.
4. Assess the informational needs of the society and certain target groups.
5. Assess the adequacy of communications infrastructure for pandemic needs; improve through provision of necessary funds if necessary.
6. Establish and maintain a web site with relevant and up-to-date information.
7. Establish information exchange networks among key and supporting people (informing non-governmental health organizations and professional and technical groups about incidents).
8. Involve media representatives in related work groups.
9. Establish formal communications channels with WHO and other related organizations for sharing of information and coordination of communications strategy.
10. Monitor and assess communications and education systems performance in improving and raising the public awareness.
Interpandemic period: Phase 2

Overarching goal

Minimize the risk of disease transmission to humans; detect and report the possible cases rapidly.
Interpandemic period: Phase 2—Planning and coordination

National Objectives
1. To increase the response capacity to deal with possible human cases of influenza.
2. To coordinate actions among human and animal health authorities in order to limit the risks of human infection.

National Actions regarding detection and destruction of infected animals
1. Activate necessary mechanisms for joint actions with all animal health related organizations.
2. Assess the operational capacity increase of expert multisectoral response teams.
3. Decide whether to expand the logistical reserves (logistical, financial, supplies) according to risk assessment.
4. Assess the ability to rapidly expand and deploy human resources, drug and vaccine resources (either national or from global pool).
5. Establish a policy on compensation for loss of animals in order to improve response capacity to a health incident.
6. Assess preparedness status and identify immediate operational needs for filling possible gaps.
Interpandemic period: Phase 2—Situation monitoring and assessment

National Objectives
1. To monitor the incidence of infection with new influenza subtypes at early stages.
2. To share information including the latest results assessing the world performance with international health organizations.
3. To assess the transmission risk of viruses with pandemic potential to humans.

National Actions
1. Enhance animal and human surveillance system according to WHO, FAO and OIE recommendations, and report results rapidly and regularly.
2. Transmit isolates from suspected animals to WHO- and OIE (reference laboratories) immediately for confirmation, characterization, development of diagnostic equipment and facilities, and appropriate use of candidate vaccine for healthy animals.
3. Transmit isolates from suspected human cases of infection with an animal influenza virus strain urgently to the national influenza laboratory or other designated national laboratory.
4. Assess spread of the disease in animals and threat to human health by conducting investigations (epidemiological, laboratory) in affected area.
5. Assess expertise and capacity of national laboratories according to standard procedures and using WHO- and OIE- instructions.
6. Continue to collect and exchange virus isolates and other scientific information with national and international partner organizations.
7. Conduct serological surveillance of farmers (and their families) and other workers involved in outbreaks of animal influenza.
Interpandemic period: Phase 2—Prevention and containment

National Objectives

1. To minimize the risk of human infection from contact with infected animals.
2. To assess the national availability of antiviral drugs.
3. To reduce the risk of infection with seasonal influenza in humans in order to minimize the opportunities for virus reassortment.

National Actions

1. Enhance response to the animal outbreaks of the disease, including precautionary measures to reduce infection risk in workers involved in the response (education about measures against the disease; correct use of personal protective equipment; deployment of antivirals).
2. Develop measures to reduce human contact with potentially infected animals.
3. Anticipate and provide drug and vaccine stockpile based on estimated risk.
4. Update the information on available national supplies of antivirals regularly.
5. Update instructions for prophylaxis and treatment with antivirals, and implement them after formal assessment of existing risk.
6. Assess the ability to rapidly deploy antiviral drugs of a national or global stockpile to the affected cities and familiarize the staff with guidance for deployment and use.
7. Review strategy for the use of seasonal influenza vaccines in order to prevent co-infection with human and animal viruses, and promote their use in defined risk groups.
8. Review mechanisms for emergency production, licensing and testing of pandemic vaccine if the country is capable of producing vaccines.
9. If the country is capable of vaccine production: assess mechanisms for emergency production, obtain production licenses, and test pandemic vaccine.
Interpandemic period: Phase 2– Health system response

National Objectives

1. To assess the capability for quick diagnosis and appropriate response of health system to each possible case of human infection.

National Actions

1. Assess the shortage and improve the awareness of health care system regarding rapid diagnosis of infected international travelers and design a method for urgent investigation, recording and reporting of the infected cases.
2. Educate health care personnel about revised plans and care of the patients possibly infected with new influenza subtypes who need isolation and special attention.
3. Assess health system capacity to report and manage outbreaks of human disease in hospital wards and improve it if necessary.
4. Educate health system personnel on how to deal with new influenza virus.
5. Assess capability of rapid deployment of diagnostic tests (when available) and improve it if necessary.
6. Build necessary capacity for detecting human cases who were in contact with animal foci infected with new virus subtypes.
7. Provide and distribute personal self-protection equipment, antiviral drugs and vaccines required for people at occupational risk.
8. Support applied research for providing rapid laboratory diagnosis.
Interpandemic period: Phase 2—Communications and education

National Objectives

1. To assess the ability to rapidly share information among health authorities and other partners.
2. To assess the effectiveness of communications mechanisms among human and animal surveillance sectors regarding influenza disease.
3. To raise the public awareness and skills for confronting influenza.

National Actions

1. Update information and share it with national authorities, other partners and stakeholders, including at-risk groups and the public.
2. Establish rapid communications in order to answer questions and concerns from health-care providers and the public.
3. Communicate information to all levels on risk and prevention (risk of infection; food safety; animal handling based on WHO recommendations).
4. Correct wrong beliefs and notions of the public regarding infected people or people in contact with infected animals.
Pandemic alert period: Phase 3

Overarching goal

Rapid characterization of the new virus subtype and early notification, record, and response to additional cases of the disease.
Pandemic alert period: Phase 3—Planning and coordination

National Objectives

1. To assess mechanisms for recognizing and dealing with existing potential threats to human health by influenza disease.
2. To coordinate timely necessary interventions for reducing the risk of the pandemic.

National Actions

1. Activate the preliminary national pandemic plan in response to the increased risk of the pandemic.
2. Implement necessary interventions to reduce cases of the disease in the suspected or definite initial foci and delay the spread of infection.
3. Mobilize national response and provide instructions to relevant authorities, and update and implement pandemic contingency plans.
4. Brief all officials in legislative, judicial and executive government departments (e.g. health, agriculture, etc) at national and subnational levels, regarding the status of the incident and the potential need for additional resources (interventions and the use of emergency powers).
5. Collaborate with national and provincial authorities (including private essential services) in implementing the necessary interventions.
Pandemic alert period: Phase 3—Situation monitoring and assessment

National Objectives

1. To hinder more widespread human-to-human transmission of influenza, and to detect it quickly.
2. To characterize additional cases and risk factors for transmission.

National Actions

1. Confirm and report cases promptly using appropriate methods (International Health Regulations).
2. Prevent laboratory accidents or intentional release of pandemic virus.
3. Determine the epidemiology of human cases (source of exposure, incubation period, people in contact with patients, and period of communicability).
4. Provide a national case definition for influenza (or review and modify the existing definition) based on the latest WHO recommendations.
5. Assess clinical characteristics of infections in humans and share with international health organizations.
6. Determine rapid virological characterization of the virus responsible for human infection, in collaboration with WHO collaborating centers.
7. Enhance human and animal surveillance regarding influenza disease, including outbreak report.
8. Collaborate with international efforts to assess virus pathogenicity in humans.
9. Identify priority geographical areas and risk groups for initiating preventive measures.
10. Assess effectiveness of treatment protocols and infection control measures and revise them if necessary.
11. Conduct seroprevalence studies in risk groups, and then expand to the general population, to assess prevalence and incidence of infection (symptomatic and asymptomatic).
12. Continue to collect and share virus isolates and other information needed to develop or adjust diagnostic facilities and choose virus subtypes to produce vaccines, and monitor any emerging antiviral resistance.
Pandemic alert period: Phase 3– Prevention and containment

National Objectives

1. To contain or reduce human-to-human virus transmission.
2. To reduce morbidity and mortality associated with current human infections.
3. To assess the use of antivirals in current and later phases.
4. To increase readiness for pandemic vaccine production or provision.

National Actions

1. Continue to assess the availability of antiviral drugs periodically.
2. Assess effectiveness and safety of antivirals and if necessary review guidelines and priorities for use with the help of partner organizations.
3. Reassess emergency methods to increase supply of antivirals (additional production facilities, new drugs investigation).
4. Review vaccine use strategies with the help of partner organizations.
5. Decide whether to implement mass or targeted emergency vaccination campaigns (if not yet done).
6. Assess inventories of vaccines and other materials and resources needed to carry out vaccinations.
7. Consider supporting development of vaccines.

*** In case of report on cases of disease in the country:

8. Implement appropriate interventions as determined during contingency planning, in consultation with relevant organizations.
9. Share virus isolates with WHO in a timely fashion to develop potential pandemic vaccine production and to update the reagents.

10. In case of human infection during animal outbreaks:

   10-1. Investigate supplies of antivirals for post-exposure (and possibly pre-exposure) prophylaxis of individuals who are most likely to be exposed to the animal virus.
   10-2. Expand seasonal influenza vaccination to limit risk of dual infection in those most likely to be exposed to the animal virus, and to potentially decrease concurrent circulation of human strains in the outbreak-affected area.
Pandemic alert period: Phase 3– Health system response

National Objectives

1. To prevent nosocomial transmission and laboratory infections.
2. To raise awareness among healthcare workers regarding the response fashion to disease cases.

National Actions

1. Update case definition, diagnostic protocols, case-finding process, management, infection control, and surveillance care (for public and private health-care providers).
2. Assess capability and capacity for implementing infection control procedures for ill patients which are consistent with existing WHO guidelines.

*** If the country is affected:

3. Activate emergency coordinating committees (national, provincial) in order to establish preliminary coordination between the health-care sector and relevant organizations.
4. Identify ways to provide drugs and medical care free of charge to the patients.
5. Enhance the health-care delivery system in order to encourage prompt reporting of new cases.
6. Review pandemic contingency plans to improve capacity.
7. Assess and control decision-making procedures and chains of command.
8. Train health-care workers to identify and report disease cases.
9. Implement infection-control procedures to prevent nosocomial transmission.
10. Comply with standards of biosafety in laboratories, and safe specimens and shipments transfer.
Pandemic alert period: Phase 3—Communications and education

National Objectives

1. To communicate transparently with the public regarding possible progression of the outbreak and occurrence of the pandemic.
2. To share appropriate information rapidly with health care authorities and other relevant governmental, private and international organizations.

National Actions

1. Identify target groups for consistent delivery of key messages and distribution of appropriate educational materials.
2. Make the sent messages consistent with the defined objectives.
3. List the issues of stigmatization of individuals, families, and communities (due to human infection with the animal strain).
4. Update the information for news media, general public, health care workers and those in authority.
5. Review communications systems for improvement in their function and appropriateness.

*** If the country is affected:

6. Provide regular and up-to-date reports on the country situation for WHO and other international and domestic organizations.
Pandemic alert period: Phase 4

**Overarching goal**

Contain the circulation of new virus within limited foci or delay its spread in order to gain time to implement interventions and develop vaccine production and distribution.
Pandemic alert period: Phase 4—Planning and coordination

National Objectives

1. To assess the ability of the existing systems to report and characterize outbreaks, and identify the increased risk of a pandemic.
2. To adjust the interventions according to the conditions in order to delay or contain the spread of human infection within limited foci.

National Actions

1. Draw highest levels of political support for continuity of necessary interventions.
2. Enhance complementary logistical services and recruit emergency manpower.
3. Give operational orders for initiation of the necessary interventions at the provincial and township levels.
4. Manage operational response teams in all relevant sectors.
5. Coordinate cross-border collaboration for information-sharing and cooperation in emergency interventions.
6. Identify the areas needing international assistance.
7. Reassess current situation in order to identify the shortcomings of the plan and correct them.
8. Identify the national ability to respond to international needs.
Pandemic alert period: Phase 4—Situation assessment and monitoring

National Objectives

1. To assess the extent of human-to-human transmission using health indicators.
2. To report and record new cases of the disease.
3. To assess the effect of implemented interventions based on the most important measures in the pandemic to enhance control measures.

National Actions

1. Describe the clinical features, virology and infection resources (epidemiological assessment).
2. Report the information on disease cases according to International Health Regulations.
3. Expand activities which are implemented in phase 3 and adjust case definition if necessary.
4. Continue doing clinical research to optimize treatment protocols.
5. Send the specimens to the vaccine production centers.
6. Forecast likely consequences of the spread of infection.
7. Share interventions results with the international community for experience exchange.
Pandemic alert period: Phase 4– Prevention and containment

National Objectives
1. To contain or delay human-to-human virus transmission.
2. To reduce morbidity and mortality associated with the disease.
3. To assess the disease trend in order to use antiviral drugs in later phases of the pandemic.
4. To increase readiness for pandemic vaccine production and distribution.
5. To do research to determine the efficacy of the used vaccine.

National Actions
1. Implement appropriate interventions using new guidance provided by WHO.
2. Evaluate the effectiveness of interventions (drugs and vaccines) for containment and delaying.
3. Provide and use antiviral drugs for treatment and prophylaxis based on risk assessment and severity of illness in humans (At least one percent of the society must have access to antiviral drugs when needed).
4. Assess effectiveness of control measures for the purpose of containing outbreaks (Determine target population, if intervention agreed, implement emergency measures, and assess the results).
5. Deploy and distribute prototype pandemic vaccine if possible.
6. Assess need to deploy current antiviral stock at provincial and township level (if this becomes necessary).
7. Support development or increased production of pandemic prototype vaccines if necessary.
**Pandemic alert period: Phase 4– Health system response**

**National Objectives**

1. To prevent nosocomial transmission.
2. To maintain biosafety rules.
3. To assess current capacity of health care system and optimal use of them during infection (phase 5 and 6).

**National Actions**

1. Update and disseminate health-related messages.
2. Report morbidity and mortality.
3. Update case definition, protocols and algorithms for case-finding, management, infection control and surveillance in both public and private sectors.
4. Implement emergency plans completely with full mobilization of the health care system.
5. Fill the personnel positions in order to cover staff shortage in health care system and other relevant organizations.
Pandemic alert period: Phase 4– Communications and education

National Objectives

1. To share appropriate information among health-care authorities and other relevant organizations.
2. To prepare the public for implementing necessary interventions during rapid progression of the pandemic (phase 6).

National Actions

1. Update and provide key messages on prevention of human-to-human spread.
2. Inform the public of preventive interventions against the pandemic.
3. Update relevant authorities and the public on the domestic and international epidemiological situation of the disease.
4. Activate the crisis committee and the rapid response team.
5. Develop and distribute education materials regarding self-protection and public health.
6. Re-educate the community about infection control measures.
7. Re-educate the health care units about infection control measures.
Pandemic alert period: Phase 5

Overarching goal

Contain or delay disease spread to prevent phase 6 of the pandemic, and to provide time for final preparedness for responding to the pandemic.
Pandemic alert period: Phase 5– Planning and coordination

National Objectives

1. To update and ensure the comprehensiveness of the plans developed to delay or avert the pandemic (phase 6).

National Actions

1. Develop necessary interventional plans for evaluating the current situation.
2. Organize and make health care system and other sectors ready (command and control system) for implementing treatment and containment activities.
3. Activate emergency coordinating committees (national and provincial).
Pandemic alert period: Phase 5– Situation monitoring and assessment

National Objectives

1. To mobilize active participation and involvement of all the executive authorities for containing disease spread.
2. To monitor public health resources required for pandemic response continuously.

National Actions

1. Monitor periodically essential resources (medical equipment, drugs, vaccine production, financial resources, hospital capacity, human resources, etc.).
2. Expand activities in phase 4 proportionately.
3. Anticipate and estimate material and human loss as a result of pandemic spread according to current national and world situation.
4. Enhance surveillance for respiratory diseases.
5. Monitor the development of antiviral resistance.
6. Assess capacity for antiviral drug usage during the pandemic.
7. Assess the success of pandemic vaccine usage in the field.
8. Assess impact of containment measures and share findings with the international community to allow updating of national and international guidance.
Pandemic alert period: Phase 5– Prevention and containment

National Objectives

1. To contain or delay human-to-human virus transmission and the onset of the pandemic (phase 6).
2. To reduce morbidity and mortality associated with current human infections.
3. To improve antivirals capacity for usage in the pandemic period.
4. To support pandemic vaccine provision and distribution, to obtain necessary licenses, and to increase supplies.
5. To increase immunization coverage of target groups using available pandemic vaccine.

National Actions

1. Produce/ provide and supply the required vaccines in coordination with international health organizations.
2. Implement the plans developed for preventing spread of infection in humans (quarantine, cancellation of public gatherings, pharmaceuticals prophylaxis, provision and distribution of materials to prevent disease spread, etc.).
3. Assess and possibly revise the use of antivirals for treatment of cases.
4. Expand supplies of drugs.
5. Distribute vaccine throughout the country and carry out mass vaccination for priority groups.
6. Cease seasonal vaccine production and initiate pandemic vaccine production (if vaccine production is possible in the country).
Pandemic alert period: Phase 5– Health system response

National Objectives

1. To provide rapid health system response and make changes in triage and treatment priorities.
2. To prevent nosocomial transmission and maintain biosafety.

National Actions

1. Update case definition, case-finding process and protocols, management, infection control, and surveillance (for public and private health-care providers).
2. Implement emergency plans completely with full mobilization of health system.
3. Collaborate and coordinate with other organizations capable of rapid response to crises.
4. Implement triage instructions during pandemic alert period.
5. Organize and arrange health system workers in an emergency.
6. Provide healthy conditions and other needs of personnel in quarantines.
7. Arrange for additional human and material resources, and alternative means health-care system based on forecasted needs and contingency plans.
8. Implement corpse-management based on established procedures.
9. Implement guidance on antivirals usage for occupational exposures (switch from prophylaxis to early treatment).
10. Obtain support from insurance companies for covering in-patient care.
11. Implement infection control programs consistent with WHO guidelines.
12. Report disease cases promptly according to the instruction.
Pandemic alert period: Phase 5– Communications and education

National Objectives

1. To prepare the public and other relevant organizations for dealing with a rapid progression of pandemic and possible risks in phase 6.
2. To share information appropriately among health authorities and other relevant organizations.

National Actions

1. Review key messages.
2. Encourage the public to follow behaviors effective in disease transmission prevention.
3. Improve communications strategies using the last “window of opportunity”.
4. Utilize communications facilities to reduce city traffic.
5. Inform public about interventions that may be implemented during the pandemic (cancellation of public gatherings, travel restrictions, quarantine, isolation, etc.).
Pandemic period: Phase 6

Overarching Goal
1. Reduce mortality and complications associated with the pandemic.
2. Maintain essential social services.
Pandemic period: Phase 6—Planning and coordination

National Objectives

1. Establish central command and control for the plan.
2. Coordinate relevant organizations’ resources to minimize morbidity and mortality, preserve health-care system effectiveness, minimize societal disruption, and minimize the economic impact of the pandemic.
3. Ensuring rational access of the community to the national resources.

National Actions

1. Activate emergency committees for central command and management.
2. Update the guidelines and circulars.
3. Coordinate response and implement specific interventions in the pandemic.
4. Deploy the reserve forces when necessary.
5. Declare end of states of emergency and pandemic control operations.
6. Support rebuilding of essential services, including rest and recuperation for staff.
7. Examine how to cooperate with the remaining infected countries at the end of the pandemic.
Pandemic period: Phase 6– Situation monitoring and assessment

National Objectives

1. To monitor the epidemiological, virological and impact of the pandemic at national level.
2. To assess the effectiveness of specific responses and interventions and use them for improving future interventions.

National Actions

1. Monitor geographical spread of disease in and out of the country.
2. Adjust surveillance system in proportion to the size and severity of the pandemic.
3. Monitor possible changes in epidemiology, clinical presentation and virus strain.
4. Monitor and assess national impact of the pandemic (morbidity, mortality, workplace absenteeism, affected regions, groups at the risk of infection, health-care worker availability, reserve worker availability, health-care facilities, hospital bed availability and occupancy, admission pressures, use of alternative health facilities, mortuary capacity, etc.).
5. Assess and disseminate national findings and review global influenza preparedness plan based on experiences gained.
6. Forecast progression or regression of the pandemic.
7. Estimate economic losses as a result of the pandemic.
8. Assess the impact of treatment and interventions (immunization, efficacy of vaccines, antivirals and non-pharmaceutical interventions, etc.).
9. Estimate and provide resources required for subsequent pandemic wave.
10. Report the current status to the relevant international organizations through appropriate means.
11. Document lessons learned and share experience gained with the international community.
Pandemic period: Phase 6– Prevention and containment

National Objectives

1. To contain spread of the disease using non-medical health interventions and minimize societal disruption.
2. To minimize morbidity and mortality through the rational use of available drugs and vaccines.

National Actions

1. Implement defined public health interventions according to global influenza preparedness plan and latest international guidelines and recommendations.
2. Evaluate the efficacy of all the interventions implemented.
3. Implement the pandemic vaccine program if available, evaluate immunization efficacy, and monitor vaccine supplies.
4. Implement restrictions on public gatherings (including schools closure) and public education (mass media education).
Pandemic period: Phase 6– Health system response

National Objectives

1. To manage demand on health systems in order to maximize sustainability of response.
2. To optimize health care provision through maximal utilization of the possible facilities.
3. To reduce overall impact of the pandemic (morbidity and mortality).

National Actions

1. Implement in full pandemic contingency plans in health systems and other social essential services provider organizations at national and provincial levels (monitor health system status, adjust triage system if necessary, deploy additional workforce and volunteers, ensure staff support, provide medical and non-medical support for the public and ill people in alternative facilities if needed, provide social and psychological support for health-care workers, victims and community.
2. Collect available data on effectiveness and complications of clinical interventions and share information World Health Organizations.
3. Implement vaccination campaign according to the operational plans targeted at priority groups if available.
4. Provide resting opportunities for overworked staff through provision of reserve personnel.
5. Restock drugs and facilities, service, repair and renew essential equipment.
6. Review and revise plans for anticipation of subsequent pandemic waves based on experiences gained in the first wave.
7. Support rebuilding and repairing essential services.
8. Adjust case definitions, protocols and algorithms based on experiences gained in the first pandemic wave.
9. Maintain capability of controlling infection in ill patients, and implement infection control based on latest WHO guidelines; maintain staff ability to use personal protective equipment.
10. Set up outpatient influenza clinics for proving care free of charge.
11. Provide in-patient care for ill people free of charge (or appropriate insurance coverage).
Pandemic period: Phase 6– Communications and education

National Objectives

1. To provide public access to key officials regularly through national media (radio, television, etc) for obtaining credible and consistent information related to the pandemic.
2. To provide the public with open and accessible communications channels for giving necessary advice.
3. To reduce public anxiety, grief and distress during the pandemic.

National Actions

1. Maintain capacity and hold required domestic meetings and obtain international information.
2. Activate all elements of communications plan.
3. Conduct amusing and educational programs.
4. Assess the outcome of communications activities and improve it if necessary.
5. Evaluate communications response during previous phases; review lessons learned.
6. Ready the public for consequences of subsequent pandemic waves.
7. Keep the public informed about necessary interventions (including health system priorities, travel restrictions, public gathering restrictions, school closure, etc).
8. Review and improve key messages and encourage the society to follow behaviors effective in disease transmission prevention.
9. Keep news media, public, professional partners and other stakeholders informed about progress of pandemic in affected countries; prepare audiences for imminent onset of pandemic activity.