

# WHO global influenza preparedness plan

The role of WHO and recommendations for  
national measures before and during pandemics



Department of Communicable Disease  
Surveillance and Response  
Global Influenza Programme

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# Executive summary

The present WHO global influenza preparedness plan has been prepared to assist WHO Member States and those responsible for public health, medical and emergency preparedness to respond to threats and occurrences of pandemic influenza.\* It updates, significantly revises and replaces the *Influenza pandemic plan The role of WHO and guidelines for national and regional planning* published by WHO in 1999. This new plan addresses the possibility of a prolonged existence of an influenza virus of pandemic potential, such as the H5N1 influenza virus subtype in poultry flocks in Asia which persisted from 2003 onwards. It also makes provision for the possibility of simultaneous occurrence of events with pandemic potential with different threat levels in different countries, as was the case in 2004 with poultry outbreaks of H7N3 in Canada and H5N1 in Asia.

This new plan redefines the phases of increasing public health risk associated with the emergence of a new influenza virus subtype that may pose a pandemic threat, recommends actions for national authorities, and outlines measures to be taken by WHO during each phase. This should result in greater predictability of the measures to be taken by the various partners involved, including WHO, during the different phases of the pandemic, and should improve international coordination and transparency in recommended national measures. Guidance is also provided to national authorities for developing their own pandemic plans in line with these phases.

The responsibility for management of the national risk of pandemic influenza rests primarily with the relevant national authorities. Every country is strongly urged to develop or update a national influenza preparedness plan according

to the recommendations contained in this document. Each national authority should play its part towards achieving the international harmonization of preparedness measures, as this is the key to success in reducing the risk of spread of an influenza pandemic.

Redefinition of the phases was needed to address the public health risks of influenza infection in animals, link phase changes more directly with changes in public health response, and focus on early events during a “pandemic alert” period when rapid, coordinated global and national actions might help to possibly contain or delay the spread of a new human influenza strain. Even if not successful in containing spread, this approach should gain time to develop vaccines against the new strain, and to implement other pandemic preparedness measures that had been planned in advance. Success will depend on several factors, including surveillance to provide global early warning of human infections with new influenza subtypes. The new phases and the overarching public health goals for each phase are summarized on page 2.

This document also contains suggestions for national authorities to subdivide certain phases at the national level to reflect the national situation. It is suggested to subdivide *phases 2–5* according to whether a country is affected (or has extensive trade or travel links with an affected country), or is not affected. It is also suggested to subdivide *phase 6*, the pandemic phase, according to whether a country is not yet affected, is affected (or has extensive trade or travel links with an affected country), whether its wave of infection has subsided, or whether it is experiencing a subsequent wave.

In order to accomplish the public health goals for each phase, the specific objectives and actions to be taken by WHO, and those recommended for national authorities, are divided into

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\* Available at: <http://www.who.int/csr/disease/influenza/inforesources/en/>

**Interpandemic period**

**Phase 1.** No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, the risk<sup>a</sup> of human infection or disease is considered to be low.

Strengthen influenza pandemic preparedness at the global, regional, national and subnational levels.

**Phase 2.** No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk<sup>a</sup> of human disease.

Minimize the risk of transmission to humans; detect and report such transmission rapidly if it occurs.

**Pandemic alert period**

**Phase 3.** Human infection(s) with a new subtype, but no human-to-human spread, or at most rare instances of spread to a close contact.<sup>b</sup>

Ensure rapid characterization of the new virus subtype and early detection, notification and response to additional cases.

**Phase 4.** Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well adapted to humans.<sup>b</sup>

Contain the new virus within limited foci or delay spread to gain time to implement preparedness measures, including vaccine development.

**Phase 5.** Larger cluster(s) but human-to-human spread still localized, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible (substantial pandemic risk).

Maximize efforts to contain or delay spread, to possibly avert a pandemic, and to gain time to implement pandemic response measures.

**Pandemic period**

**Phase 6.** Pandemic: increased and sustained transmission in general population.<sup>b</sup>

Minimize the impact of the pandemic.

<sup>a</sup> The distinction between **phase 1** and **phase 2** is based on the risk of human infection or disease resulting from circulating strains in animals. The distinction is based on various factors and their relative importance according to current scientific knowledge. Factors may include pathogenicity in animals and humans, occurrence in domesticated animals and livestock or only in wildlife, whether the virus is enzootic or epizootic, geographically localized or widespread, and/or other scientific parameters.

<sup>b</sup> The distinction between **phase 3**, **phase 4** and **phase 5** is based on an assessment of the risk of a pandemic. Various factors and their relative importance according to current scientific knowledge may be considered. Factors may include rate of transmission, geographical location and spread, severity of illness, presence of genes from human strains (if derived from an animal strain), and/or other scientific parameters.

five categories: (1) planning and coordination; (2) situation monitoring and assessment; (3) prevention and containment; (4) health system response; and (5) communications. Certain objectives and actions are specific to influenza, whereas others address preparedness for and response to many health emergencies that affect large numbers of people. Although many countries already have contingency plans for disasters or other health emergencies, some such measures are included to ensure completeness in pandemic influenza planning. The extent of implementation will depend on available resources.

Of critical importance in pandemic preparedness is intersectoral planning involving partners out-

side the health sector. These partners include other government departments (e.g. agriculture, transport, trade, labour, defence, education, the judiciary) at multiple levels of government, as well as partners in the private sector, including industry and nongovernmental organizations.

It is impossible to anticipate when the next pandemic might occur or how severe its consequences might be. On average, three pandemics per century have been documented since the 16th century, occurring at intervals of 10–50 years. In the 20th century, pandemics occurred in 1918, 1957 and 1968. The pandemic of 1918 is estimated to have killed more than 40 million people in less than one year, with peak mortality rates occurring in people aged 20–45

years. The pandemics of 1957 and 1968 were milder (1–4 million estimated deaths, primarily in traditional risk groups such as the elderly), but many countries nevertheless experienced strains on health-care resources. If an influenza pandemic virus were to appear again similar to the one that struck in 1918, even taking into account the advances in medicine since then, unparalleled tolls of illness and death could be

expected. Air travel might hasten the spread of a new virus, and decrease the time available for preparing interventions. Health-care systems could be rapidly overburdened, economies strained, and social order disrupted. Although it is not considered feasible to halt the spread of a pandemic virus, it should be possible to minimize its consequences through advance preparation to meet the challenge.

# 1. Introduction

## Why revise the pandemic preparedness plan?

In 1999, the World Health Organization published the *Influenza pandemic plan. The role of WHO and guidelines for national and regional planning*.<sup>1</sup> This plan defined phases of disease progression that could be expected after human infection with a new human influenza virus subtype, outlined measures that would be taken by WHO during these phases, suggested issues that should be considered by national authorities, and provided background information. It has proved useful in guiding pandemic planning and in addressing several subsequent events involving limited human infections with new influenza subtypes.

The 1999 WHO plan now requires updating and revision in light of several recent developments. One is the recognition of endemic animal infection with an influenza virus subtype (H5N1) that has been repeatedly transmitted to humans, causing fatal human disease. Other recent developments include advances in the understanding of the evolutionary biology of influenza viruses, new techniques for vaccine development and laboratory diagnosis, improved antivirals, and the ongoing revision of the International Health Regulations. A promising new paradigm for management of epidemics was illustrated by the successful control of severe acute respiratory syndrome (SARS) in 2003, facilitated by the rapid implementation of global and national actions coordinated by WHO that depended upon early disease recognition, high-level political support for interventions, and transparent communication involving many partners and the public. The SARS experience suggests that coordinated global and national efforts could also be successful in addressing the emergence of a new human subtype of influenza

– if not in containing a pandemic, then possibly in delaying its emergence to “buy time” for the implementation of preparations made in advance. A new appreciation of infectious diseases as threats to global and national security offers the prospect that high-level political leadership could be enlisted in support of the necessary intersectoral planning. Finally, while several countries have made important progress in pandemic influenza planning in recent years, others have asked WHO for more specific recommendations regarding national objectives and actions during different phases. This has led to recognition of the need for more detailed measures providing for harmonized global and national actions.

In December 2004, WHO held a consultation on WHO-recommended national and international measures before and during influenza pandemics. The present document is based on the results of the consultation.

## Summary of the major changes to the 1999 WHO plan

This document:

1. Redefines pandemic phases based on the need for changes in public health action, by:
  - (a) addressing human health risks posed by infection in animals (“animal” as used herein includes all non-human animal species, including birds);
  - (b) using a risk assessment considering multiple factors as the basis for moving between phases;
  - (c) providing for downscaling of phases to reflect decreased public health risks.
2. Focuses greater attention on early phases when rapid intervention might contain or delay the spread of a new influenza virus subtype in humans. Such measures would

<sup>1</sup> Document WHO/CDS/CSR/EDC/99.1.



include enhanced surveillance and use of nonpharmaceutical public health interventions and consideration of deployment of a possible global early intervention stockpile.

3. Provides more specific objectives and activities at each phase for WHO and national authorities.
4. Provides for the harmonization of the recommended measures with the ongoing revision of the International Health Regulations.

### How to use this document

- It should be used as a guide to inform and harmonize national and international preparedness and response before and during influenza pandemics.
  - Its primary audience is public health officials with responsibility for influenza preparedness and response. The executive summary has been developed for senior policy-makers and officials in other sectors of government who may not necessarily have a public health background.
  - Countries should develop or update national influenza preparedness plans that address the recommendations made here. This document is not designed to replace national plans, which every country should develop. More detailed information on why recommended actions are needed and how to implement them can be found in further documents, such as those mentioned in the bibliography.
- **Table 1** provides a comparison of the old and new phases.
  - **Table 2** provides an overview of actions to be taken by WHO and recommended for consideration by each country during each phase, classified into five categories: (1) planning and coordination; (2) situation monitoring and assessment; (3) prevention and containment; (4) health system response; and (5) communications. The extent of implementation will depend on available resources.
  - Certain measures outlined in **Table 2** are specific to influenza, whereas others address preparedness for and response to many health emergencies that may affect large numbers of people. Although many countries already have contingency plans for disasters or other health emergencies, some such measures are included to ensure completeness in pandemic influenza planning.
  - The recommendations made herein apply to naturally occurring influenza. In the event of unintentional or intentional release of an influenza virus with pandemic potential (e.g. related to a laboratory accident or the deliberate release of biological agents), most of them may also be suitable however. Additional guidance should nevertheless be obtained from WHO and other appropriate authorities.

## 2. Overview of new pandemic phases

### New phases

**Table 1** provides a summary of new phases before and during an influenza pandemic. To promote harmonization with existing national and international documents, the new phases are (as much as possible) related to the phases in the 1999 WHO *Global influenza pandemic preparedness plan*.

### Additional national subdivisions

Each phase is associated with international and national public health actions. National actions during each phase are further subdivided according to the national epidemiological situation. For convenience, the term “not affected” is used for countries without cases/outbreaks. However, these countries should also take certain actions as indicated, in order to strengthen preparedness. National authorities are free to adjust the suggested additional national subdivisions of phases given here. However, WHO strongly recommends that countries consider the national actions proposed in this document when developing or updating a national plan.

### Sequence of declaration of phases

As the species of origin and sequence of progression of the next pandemic strain may vary and thus be difficult to predict, WHO may declare, upscale and downscale phases in a non-sequential order. If an upscaling designation skips a phase, actions in the skipped phase should also be implemented, unless they are specifically superseded by actions in the new phase.

### Rationale for phases

#### Interpandemic period

**Phase 1.** No new<sup>1</sup> influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection or disease may or may not be present in animals. If

present in animals, the risk of human infection or disease is considered to be low.<sup>2</sup>

*Rationale.* It is likely that influenza subtypes that have caused human infection and/or disease will always be present in wild birds or other animal species. Lack of recognized animal or human infections does not mean that no action is needed. Preparedness requires planning and action in advance.

**Phase 2.** No new<sup>1</sup> influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk<sup>2</sup> of human disease.

*Rationale.* The presence of animal infection caused by a virus of known human pathogenicity may pose a substantial risk to human health and justify public health measures to protect persons at risk.

#### Pandemic alert period

**Phase 3.** Human infection(s) with a new subtype, but no human-to-human spread, or at most rare instances of spread to a close contact.<sup>3</sup>

*Rationale.* The occurrence of cases of human disease increases the chance that the virus may

<sup>1</sup> Definition of new: a subtype that has not circulated in humans for at least several decades and to which the great majority of the human population therefore lacks immunity.

<sup>2</sup> The distinction between *phase 1* and *phase 2* is based on the risk of human infection or disease resulting from circulating strains in animals. The distinction is based on various factors and their relative importance according to current scientific knowledge. Factors may include pathogenicity in animals and humans, occurrence in domesticated animals and livestock or only in wildlife, whether the virus is enzootic or epizootic, geographically localized or widespread, and/or other scientific parameters.

<sup>3</sup> The distinction between *phase 3*, *phase 4* and *phase 5* is based on an assessment of the risk of a pandemic. Various factors and their relative importance according to current scientific knowledge may be considered. Factors may include rate of transmission, geographical location and spread, severity of illness, presence of genes from human strains (if derived from an animal strain), and/or other scientific parameters.

Table 1 **Comparison of phases published by WHO in 1999 and those in the present document**

PHASES AS PUBLISHED BY WHO IN 1999	NEW PANDEMIC PHASES	ADDITIONAL NATIONAL SUBDIVISIONS OF NEW PHASES
<b>Interpandemic period</b> <b>Phase 0</b>	<b>Interpandemic period</b> <b>Phase 1.</b> No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, the risk <sup>a</sup> of human infection or disease is considered to be low.	
	<b>Phase 2.</b> No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk <sup>a</sup> of human disease.	Affected or extensive travel/trade links with affected country. Not affected.
<b>Phase 0.</b> Preparedness level 1: human case.	<b>Pandemic alert period</b> <b>Phase 3.</b> Human infection(s) with a new subtype, but no human-to-human spread, or at most rare instances of spread to a close contact.	Affected or extensive travel/trade links with affected country.
		Not affected.
<b>Phase 0.</b> Preparedness level 2: limited human transmission.	<b>Phase 4.</b> Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well adapted to humans. <sup>b</sup>	Affected or extensive travel/trade links with affected country.
		Not affected.
<b>Phase 0.</b> Preparedness level 3: spread in general population.	<b>Phase 5.</b> Larger cluster(s) but human-to-human spread still localized, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible (substantial pandemic risk). <sup>b</sup>	Affected or extensive travel/trade links with affected country.
		Not affected.
<b>Pandemic period</b> <b>Phase 1.</b> Multiple countries.	<b>Pandemic period</b> <b>Phase 6.</b> Pandemic phase: increased and sustained transmission in general population. <sup>b</sup>	Not yet affected.
<b>Phase 2.</b> Multiple regions.		Affected or extensive travel/trade links with affected country.
<b>Phase 3.</b> Subsiding in initially affected countries but not in other countries.		Subsided.
<b>Phase 4.</b> Next wave.		Next wave.
<b>Postpandemic period</b> <b>Phase 5.</b> Return to phase 0.	<b>Postpandemic period</b> Return to interpandemic period.	Return to interpandemic period.

<sup>a</sup> The distinction between *phase 1* and *phase 2* is based on the risk of human infection or disease resulting from circulating strains in animals. The distinction would be based on various factors and their relative importance according to current scientific knowledge. Factors may include: pathogenicity in animals and humans; occurrence in domesticated animals and livestock or only in wildlife; whether the virus is enzootic or epizootic, geographically localized or widespread; other information from the viral genome; and/or other scientific information.

<sup>b</sup> The distinction between *phase 3*, *phase 4* and *phase 5* is based on an assessment of the risk of a pandemic. Various factors and their relative importance according to current scientific knowledge may be considered. Factors may include: rate of transmission; geographical location and spread; severity of illness; presence of genes from human strains (if derived from an animal strain); other information from the viral genome; and/or other scientific information.

adapt or reassort to become transmissible from human to human, especially if coinciding with a seasonal outbreak of influenza. Measures are needed to detect and prevent spread of disease. Rare instances of transmission to a close contact – for example, in a household or health-care setting – may occur, but do not alter the main attribute of this phase, i.e. that the virus is essentially not transmissible from human to human.

Examples:

- One or more unlinked human cases with a clear history of exposure to an animal source/non-human source (with laboratory confirmation in a WHO-designated reference laboratory).
- Rare instances of spread from a case to close household or unprotected health-care contacts without evidence of sustained human-to-human transmission.
- One or more small independent clusters<sup>1</sup> of human cases (such as family members) who may have acquired infection from a common source or the environment, but for whom human-to-human transmission cannot be excluded.
- Persons whose source of exposure cannot be determined, but are not associated with clusters<sup>1</sup> or outbreaks of human cases.

**Phase 4.** Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well adapted to humans.<sup>2</sup>

*Rationale.* Virus has increased human-to-human transmissibility but is not well adapted to humans and remains highly localized, so that its spread may possibly be delayed or contained.

Examples:

- One or more clusters<sup>1</sup> involving a small number of human cases, e.g. a cluster of <25 cases lasting <2 weeks.<sup>3</sup>
- Appearance of a small number of human cases in one or several geographically linked areas without a clear history of a non-human source of exposure, for which the most likely expla-

nation is considered to be human-to-human transmission.

**Phase 5.** Larger cluster(s) but human-to-human spread still localized, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible (substantial pandemic risk).<sup>2</sup>

*Rationale.* Virus is more adapted to humans, and therefore more easily transmissible among humans. It spreads in larger clusters, but spread is localized. This is likely to be the last chance for massive coordinated global intervention, targeted to one or more foci, to delay or contain spread. In view of possible delays in documenting spread of infection during pandemic *phase 4*, it is anticipated that there would be a low threshold for progressing to *phase 5*.

Examples:

- Ongoing cluster-related transmission, but total number of cases is not rapidly increasing, e.g. a cluster of 25–50 cases and lasting from 2 to 4 weeks.<sup>4</sup>
- Ongoing transmission, but cases appear to be localized (remote village, university, military base, island).

<sup>1</sup> An unusual cluster of cases or deaths from influenza-like illnesses can be defined as a group of cases (suspected, probable and/or confirmed) of individuals with disease onset within a period of two weeks in a same defined geographical area, presenting with similar clinical features including respiratory symptoms, and for which the epidemiological pattern or clinical features do not correspond to usual observation in cases of infection with seasonal influenza. These unusual observations may include: (i) unusual distribution by age group; (ii) severity of illness in adults in the absence of chronic disease; (iii) disease affecting special risk groups such as individuals exposed to potentially infective live or dead animals, or health-care workers.

<sup>2</sup> The distinction between *phase 3*, *phase 4* and *phase 5* is based on an assessment of the risk of a pandemic. Various factors and their relative importance according to current scientific knowledge may be considered. Factors may include rate of transmission, geographical location and spread, severity of illness, presence of genes from human strains (if derived from an animal strain), and/or other scientific parameters.

<sup>3</sup> Ro = Basic reproduction rate (average number of new infections acquired from one case). It will not be possible to calculate Ro in the early stages of a cluster; however modelling suggests that for a cluster with these characteristics,  $0 < Ro \leq 0.5$ .

<sup>4</sup> It will not be possible to calculate Ro in the early stages of a cluster; however modelling suggests that for a cluster with these characteristics,  $0.5 < Ro \leq 1.0$ .

- In a community known to have a cluster, appearance of a small number of cases whose source of exposure is not readily apparent (e.g. beginning of more extensive spread).
- Appearance of clusters caused by same or closely related virus strains in one or more geographical areas without rapidly increasing numbers of cases.

### **Pandemic period**

**Phase 6.** Increased and sustained transmission in the general population.

*Rationale.* Major change in global surveillance and response strategy, since pandemic risk is imminent for all countries. The national response is determined primarily by the disease impact within the country.

### **Postpandemic period**

A return to the interpandemic period (the expected levels of disease with a seasonal strain) follows, with continued need to maintain surveillance and regularly update planning. An intensive phase of recovery and evaluation may be required.

### **Simultaneous occurrence of situations posing different levels of pandemic risk**

In the event of simultaneous situations posing different levels of risk, e.g. different new influenza subtypes or different extent of spread in different areas, the phase will be determined by the highest applicable level of risk.

### **Criteria for downscaling of phases**

All phases except *phase 1* are anticipated to be temporary. With every announcement of a new phase, WHO will set a time period at which the designation will be reviewed. In consideration of downscaling, the following criteria will be used:

- Lack of ongoing disease activity meeting the criteria for the current phase.
- Adequate national surveillance and international reporting as assessed by WHO and, for issues relating to infection in animals, in partnership with other organizations such as the

Food and Agriculture Organization of the United Nations (FAO) and the World Organisation for Animal Health (OIE).

- Adequate, if necessary on-site, risk assessment by WHO in partnership with affected countries, and for issues relating to infection in animals, in partnership with other organizations such as FAO and OIE.
- A risk assessment considering the factors that led to designation of the phase,<sup>1,2</sup> as well as other potential factors. For example, if the respiratory illness season is in progress in the region, downscaling might sometimes be delayed because of the increased risk that new strains might reassort with seasonal strains, and that surveillance to detect new strains co-circulating with seasonal strains might be more difficult.

### **Procedure for decision-making**

- Designation of phases, including decisions on upscaling and downscaling, will be made by the Director-General of WHO. The designation will be made in harmony with existing regulations governing human disease reporting and control (e.g. the International Health Regulations), and in consultation with other organizations and institutions, as necessary.
- The national subdivisions of phases will be designated by national authorities.

<sup>1</sup> The distinction between *phase 1* and *phase 2* is based on the risk of human infection or disease resulting from circulating strains in animals. The distinction is based on various factors and their relative importance according to current scientific knowledge. Factors may include pathogenicity in animals and humans, occurrence in domesticated animals and livestock or only in wildlife, whether the virus is enzootic or epizootic, geographically localized or widespread, and/or other scientific parameters.

<sup>2</sup> The distinction between *phase 3*, *phase 4* and *phase 5* is based on an assessment of the risk of a pandemic. Various factors and their relative importance according to current scientific knowledge may be considered. Factors may include rate of transmission, geographical location and spread, severity of illness, presence of genes from human strains (if derived from an animal strain), and/or other scientific parameters.

### 3. Overarching goals, objectives and actions for each phase

**Table 2** provides an overview of objectives and actions that WHO will take and recommend to national authorities to address the overarching priority goals. Objectives and actions are divided into five categories:

1. Planning and coordination
2. Situation monitoring and assessment
3. Prevention and containment (nonpharmaceutical public health interventions, vaccines, and antivirals)
4. Health system response
5. Communications

The extent of implementation will depend on available resources.

The proposed measures are based upon current knowledge of outbreaks of seasonal influenza and past pandemics. Recommendations may be adjusted based on new evidence and experience.

Actions are intended to continue after upscaling to higher phases unless they are superseded by actions in the higher phase. If an upscaling designation skips a phase, actions in the skipped phase should also be implemented, unless they are superseded by actions in the higher phase.

**Table 2 Overarching goals, objectives and actions for WHO and national authorities, by phase**

**INTERPANDEMIC PERIOD**

**Interpandemic period, phase 1 – Overarching goal**

*Strengthen influenza pandemic preparedness at the global, regional, national and subnational levels.*

**Interpandemic period, phase 1 – Planning and coordination**

<b>WHO OBJECTIVES</b>	<b>NATIONAL OBJECTIVES</b>
1. To promote the development of harmonized global, regional and national influenza pandemic preparedness plans.	1. To develop and maintain national influenza pandemic contingency plans which are in harmony with international plans.
2. To promote the development of global and national capacity to detect and respond to early reports of new strains.	2. To promote national and global capacity to respond to early reports of new influenza virus strains.
3. To develop strategies and procedures to coordinate the rapid mobilization and deployment of global resources to foci of infection during a pandemic alert period.	3. To develop effective mechanisms for mobilization and rapid deployment of resources to areas of need.
4. To improve international response to pandemic influenza (and other health emergencies) by developing mechanisms for rapid decision-making and action, establishing intersectoral collaboration, and promoting corresponding measures at the national level.	4. To develop effective mechanisms for decision-making and subsequent actions regarding national and international responses to influenza-related health emergencies, by strengthening intersectoral and intergovernmental cooperative arrangements that will identify and minimize the risk of human infection with a new influenza virus.

<b>WHO ACTIONS</b>	<b>NATIONAL ACTIONS</b>
1. Form a panel of experts (WHO Influenza Task Force) to monitor and evaluate available information and advise WHO on influenza-related issues, including recommendation of appropriate phases.	1. Establish a national pandemic planning committee.
2. Encourage and assist comprehensive national pandemic influenza planning.	2. Advocate the importance of pandemic planning to relevant decision-makers.
3. Develop tools to estimate influenza seasonal and pandemic disease burden, and the public health value and cost-effectiveness of interventions, including seasonal vaccination.	3. Develop and periodically update national plans in close collaboration with relevant partners, including those outside the health sector, and with reference to current WHO guidance.
4. Facilitate implementation of pandemic plans through preparedness activities, including exercises.	4. Ensure implementation of plans and preparedness activities at all levels of public authorities.
5. Facilitate/negotiate agreements among partners, e.g. Member States, other international organizations, nongovernmental organizations and the private sector, to facilitate implementation of the global plan.	5. Exercise pandemic plans and use the results to improve and refine plans and preparedness.
6. Promote agreements to develop, manage and deploy a global stockpile (e.g. of antivirals, personal protective equipment, vaccines, laboratory diagnostics), other resources and technical assistance during pandemic alert periods to resource-poor countries with foci of influenza activity.	6. Identify, brief regularly and train key personnel to be mobilized in case of emergence of a new influenza virus strain.
	7. Consider the development of a domestic stockpile (antivirals, personal protective equipment, vaccines, laboratory diagnostics, other technical support) for rapid deployment when needed.
	8. Consider providing resources and technical assistance during pandemic alert periods to resource-poor countries with foci of influenza activity.

**PHASE  
1**

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| <ul style="list-style-type: none"> <li>7. Harmonize pandemic planning with other international legal and policy instruments, e.g. the International Health Regulations.</li> <li>8. Develop surge-capacity contingency plans for the internal management of WHO resources and staff during a pandemic.</li> <li>9. Establish international guidance to address food safety and other public health issues related to infected animals.</li> </ul> | <ul style="list-style-type: none"> <li>9. Ensure procedures for rapid sharing of specimens or isolates for virus characterization and development of diagnostics and vaccine.</li> <li>10. Develop surge-capacity contingency plans for the internal management of domestic resources and essential workers during a pandemic.</li> <li>11. Establish national guidance to address food safety, safe agricultural practices and other public health issues related to infected animals.</li> </ul> |
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**Interpandemic period, phase 1 – Situation monitoring and assessment**

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ul style="list-style-type: none"> <li>1. To coordinate global surveillance networks that monitor trends of human infection with seasonal strains, and provide early warning of new strains in humans and animals (in collaboration with other partners and organizations, e.g. FAO and OIE ).</li> <li>2. To promote the development of global and national capacity to assess risks to humans from animals and other possible sources of human infection with new strains.</li> <li>3. To promote the development of national plans for ongoing assessment of impact and resource needs during the pandemic period.</li> </ul>	<ul style="list-style-type: none"> <li>1. To have available up-to-date information on trends in human infection with seasonal strains of influenza.</li> <li>2. To be able to detect animal and human infections with new influenza virus strains, identify potential animal sources of human infection and assess the risk of transmission to humans.</li> <li>3. To develop plans for ongoing assessment of impact and resource needs during the pandemic period.</li> </ul>

WHO ACTIONS	NATIONAL ACTIONS
<ul style="list-style-type: none"> <li>1. Strengthen the global influenza surveillance network and other laboratories to increase national capacity for influenza surveillance.</li> <li>2. Work with national authorities and other partners (e.g. FAO and OIE) to coordinate a research and monitoring programme for the human–animal interface, and use data collected to assess the risk of human infection with animal influenza viruses.</li> <li>3. Facilitate sharing of influenza virus strains for reagents development and subtyping of new viruses.</li> <li>4. Encourage relevant national authorities, such as animal and public health authorities, to establish intersectoral and interinstitutional collaboration in influenza surveillance.</li> <li>5. Develop or review interpandemic and pandemic guidelines and tools for detection, investigation, rapid risk assessment, reporting and ongoing evaluation (e.g. monitoring outcome of containment measures), of clusters of influenza-like illness.</li> <li>6. Develop guidelines and tools to assist countries in ongoing monitoring of information, for assessment of impact and resource needs during the pandemic phase.</li> </ul>	<ul style="list-style-type: none"> <li>1. Develop robust national generic surveillance systems for the detection, characterization and assessment of clusters of influenza-like illness or respiratory deaths, with provision for surge capacity and intersectoral and interinstitutional collaboration.</li> <li>2. Develop or strengthen national systems for influenza surveillance in both humans and animals, based on WHO, FAO and OIE guidance.</li> <li>3. Report routine and unusual surveillance findings to relevant national and international authorities.</li> <li>4. Characterize and share influenza virus isolates and information on circulating strains with relevant international agencies, such as WHO, FAO and OIE.</li> <li>5. Assess burden of seasonal influenza to help estimate additional needs during a pandemic.</li> <li>6. Develop contingency plan for ongoing monitoring of information, for assessment of impact and 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).</li> </ul>



## Interpandemic period, phase 1 – Prevention and containment

# PHASE 1

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To ensure the availability of up-to-date, evidence-based recommendations on potential interventions.</li> <li>2. To promote the increased use of seasonal influenza vaccine, consistent with WHO recommendations.</li> <li>3. To coordinate efforts to resolve impediments to the development, production and access to pandemic vaccines.</li> <li>4. To assess the needs and develop strategies and guidelines for development, deployment and use of global stockpiles.</li> </ol>	<ol style="list-style-type: none"> <li>1. To agree in advance a range of containment strategies based on nonpharmaceutical public health actions.</li> <li>2. To develop a strategy regarding stockpiling of antivirals and criteria for deployment.</li> <li>3. To increase availability of vaccine in the event of a pandemic.</li> <li>4. To develop national strategies and criteria for use of seasonal and pandemic vaccines.</li> <li>5. To anticipate the possible need to develop a future pandemic vaccine.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<p><b>Public health interventions</b></p> <ol style="list-style-type: none"> <li>1. Periodically reassess recommended interventions (<i>Annex 1</i>) in consultation with appropriate partners, including those not in the health-care sector, regarding acceptability, effectiveness and feasibility. Modify as appropriate.</li> <li>2. Facilitate development of models to assess impact of measures, conduct/observe table-top exercises and use the results to improve planning.</li> </ol> <p><b>Antivirals</b></p> <ol style="list-style-type: none"> <li>1. Assess the potential usefulness of a global stockpile during the pandemic alert period, and if appropriate based on such assessment, develop criteria for its deployment and use.</li> <li>2. Develop procedures to coordinate rapid antiviral susceptibility testing of new strains.</li> </ol> <p><b>Vaccines</b></p> <ol style="list-style-type: none"> <li>1. Provide tools for countries on methods of assessing the annual burden of influenza as a means to increase vaccine use during interpandemic period.</li> <li>2. Develop a prioritized global research and development agenda for producing innovative and more efficient vaccines.</li> <li>3. Explore ways to shorten the time needed for vaccine prototype preparation and to increase vaccine use in WHO-recommended risk groups, by working with pharmaceutical companies, national authorities and research institutes.</li> <li>4. Explore ways to increase availability of pandemic vaccines during pandemic alert and pandemic periods.</li> </ol>	<ol style="list-style-type: none"> <li>1. Develop national guidance for use of public health interventions, considering WHO recommendations (<i>Annex 1</i>).</li> <li>2. Ensure that proposed interventions are discussed with responsible decision-makers in and outside the health sector (transport, education, etc.); ensure legal authority for proposed interventions; anticipate and address resource implications for implementation.</li> <li>3. Conduct/observe table-top exercises and use the results to improve planning.</li> <li>4. Develop a strategy to ensure access to antivirals for national use (e.g. stockpiling); ensure availability of data to project likely needs during higher phases.</li> <li>5. Consider setting priorities and criteria for deployment and use of antivirals during pandemic alert and pandemic periods.</li> <li>6. Consider participation in research projects to assess safety and antiviral drug resistance to current drugs and promote development of affordable alternatives.</li> <li>7. 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.</li> <li>8. Define national objectives for the use of pandemic vaccines; develop preliminary priorities for pandemic vaccine use, based on expected availability.</li> <li>9. Explore possible ways to increase access to pandemic vaccines; address regulatory issues, liability, intellectual property rights.</li> </ol>

**PHASE  
1**

5. Provide mechanism for vaccine manufacturers to access vaccine prototype strains.
6. Develop principles to guide national recommendations for use of seasonal and pandemic vaccines.
  - (a) *Countries with vaccine manufacturing capacity.*  
Define how to ensure access to vaccines, and fair and effective distribution to target population; consider supporting initiatives to increase global production by contributing to global vaccine research and/or by strengthening infrastructure.
  - (b) *Countries without vaccine manufacturing capacity.*  
Explore strategies to allow access to vaccines through bilateral agreements with manufacturers or manufacturing countries.
10. Review logistic and operational needs for implementation of pandemic vaccine strategy (vaccine storage, distribution capacity, cold-chain availability, vaccination centres, staffing requirements for vaccine administration).

**Interpandemic period, phase 1 – Health system response**

WHO OBJECTIVES	NATIONAL OBJECTIVES
1. To promote contingency planning by health-care systems for response to an influenza pandemic.	1. To ensure that up-to-date contingency plans and strategies are in place for pandemic response in the health-care sector.

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>1. Assist national health-care delivery authorities in identifying priority needs and response strategies, and assessing preparedness (e.g. through developing checklists, model pandemic preparedness plans, training and table-top exercises).</li> <li>2. Provide guidance for appropriate infection and clinical control in health-care and social settings, and in care facilities.</li> <li>3. Coordinate international response planning with other international organizations.</li> <li>4. Collect pandemic preparedness plans from countries and make them available to other countries.</li> <li>5. Develop/strengthen laboratory and clinical networks for diagnostics and development of clinical guidelines.</li> <li>6. Keep a global inventory of key manufacturers of key products.</li> <li>7. Provide guidance for technical support and training of health-care workers on risk factors for infection with emerging influenza virus strains.</li> <li>8. Develop guidelines for self-care.</li> <li>9. Develop and maintain WHO guidelines on biosafety and biosecurity in handling and shipping specimens and isolates.</li> </ol>	<ol style="list-style-type: none"> <li>1. Benchmark health system preparedness with the help of the <i>WHO checklist for influenza pandemic preparedness planning</i>,* and address deficiencies according to national resources.</li> <li>2. Ensure that authorities, responsibilities and pathways are clearly identified for command and control of health systems in the event of a pandemic.</li> <li>3. Identify priorities and response strategies for public and private health-care systems for each stage including where relevant: triage systems, surge capacity, human and material resource management.</li> <li>4. Produce interim: case-finding, treatment and management protocols and algorithms; infection control guidelines; guidance on triaging; surge-capacity management and staffing strategies.</li> <li>5. Ensure implementation of routine laboratory biosafety, safe specimen handling, and hospital infection control policies.</li> <li>6. Estimate pharmaceutical and other materiel supply needs; commence arrangements to secure supply.</li> <li>7. Increase awareness and strengthen training of health-care workers on pandemic influenza.</li> <li>8. Exercise contingency plans regularly, including command-and-control pathways.</li> </ol>

\* Available at <http://www.who.int/csr/disease/influenza/inforesources/en/>

## Interpandemic period, phase 1 – Communications

# PHASE 1

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To promote the establishment of mechanisms for routine and emergency communications within and among health authorities and other appropriate partners at the international, national and subnational levels, and with the public.</li> <li>2. To promote the establishment of national risk-communication strategies and capabilities appropriate to each phase.</li> <li>3. To establish a collaborative working relationship with news media regarding epidemic response.</li> </ol>	<ol style="list-style-type: none"> <li>1. To ensure that mechanisms exist for routine and emergency communications between health authorities, within and between government agencies, with other organizations likely to be involved in a pandemic response, and with the public.</li> <li>2. To maintain an appropriate level of awareness among government and other essential partners.</li> <li>3. To ensure collaborative working relationships with the media regarding epidemics, including the roles, responsibilities and operating practices of public health authorities.</li> </ol>
WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>1. Provide information to facilitate risk communication related to influenza.</li> <li>2. Plan and test capacity for meeting current and expected future international information demands, among others by maintaining a web site.</li> <li>3. Facilitate training workshops to strengthen the capacity of national authorities for best practices in risk communication related to influenza and other epidemic diseases.</li> <li>4. Include risk communicators in senior management groups.</li> <li>5. Increase the familiarity of news media with WHO activities, operations and decision-making related to influenza and other epidemic diseases.</li> <li>6. Establish formal communication channels among key response stakeholders, including WHO Member countries, other international organizations (e.g. United Nations, European Union, nongovernmental organizations, etc.), and technical/professional associations for facilitating outbreak-information sharing and communications-strategy coordination.</li> <li>7. Develop feedback mechanisms to identify emerging public concerns, address rumours, and correct misinformation.</li> </ol>	<ol style="list-style-type: none"> <li>1. Establish phased national communications strategy for pandemic influenza.</li> <li>2. Strengthen risk communication related to influenza, taking into consideration existing WHO guidance for outbreak communication and corresponding national contingency plans.</li> <li>3. Plan and test capacity for meeting expected domestic information demands for diverse audiences, including professional/technical groups, the news media and general public.</li> <li>4. Ensure communications infrastructure is adequate for pandemic needs.</li> <li>5. Establish and maintain a web site with relevant information.</li> <li>6. Establish networks among key response stakeholders, including risk communicators, non-health government departments, and professional and technical groups.</li> <li>7. Include risk communicators in senior management groups.</li> <li>8. Familiarize news media with national plans, preparedness activities and decision-making related to seasonal and pandemic influenza.</li> <li>9. Establish formal communications channels with WHO and other partners for sharing of outbreak information and coordination of communications strategy related to influenza.</li> <li>10. Develop feedback mechanisms to identify public level of knowledge about pandemic influenza and emerging public concerns. Address rumours proactively, and correct misinformation.</li> </ol>

## Interpandemic period, phase 2 – Overarching goal

*Minimize the risk of transmission to humans; detect and report such transmission rapidly if it occurs.*

### Interpandemic period, phase 2 – Planning and coordination

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"><li>1. To promote strengthened response capacity to deal with possible human cases.</li><li>2. To coordinate development of strategies and guidelines to reduce the risk of human infection.</li></ol>	<ol style="list-style-type: none"><li>1. To ensure a heightened response capacity to address possible human cases.</li><li>2. To coordinate implementation of measures in close collaboration with animal health authorities in order to limit the risks of human infection.</li></ol>

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"><li>1. Activate joint mechanisms for actions with other organizations (e.g. FAO, OIE) to control disease in animals and to implement prevention measures.</li><li>2. Coordinate measures to ensure that appropriate components of a possible stockpile and other resources and technical assistance are available and could be deployed to affected areas if necessary.</li></ol>	<p><b>Affected countries and countries with extensive travel/trade links with affected countries</b></p> <ol style="list-style-type: none"><li>1. Activate joint mechanisms for actions with animal health authorities and other relevant organizations.</li><li>2. Assess preparedness status and identify immediate actions needed to fill gaps (e.g. with the help of the <i>WHO checklist for influenza pandemic preparedness planning</i>).*</li><li>3. Ensure ability to mobilize and rapidly deploy a multisectoral expert response team.</li><li>4. Ensure ability to rapidly deploy stockpile resources (national or from global pool) to field locations.</li><li>5. Decide whether to deploy part of the stockpile components according to risk assessment.</li><li>6. Establish a policy on compensation for loss of animals through culling, in order to improve compliance with emergency measures.</li></ol>

### Interpandemic period, phase 2 – Situation monitoring and assessment

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"><li>1. To obtain and disseminate information on spread in animals and interspecies transfers.</li><li>2. To support early detection of human infection.</li><li>3. To collaborate in assessment of the risk of transmission from animals to humans.</li><li>4. To facilitate the availability of diagnostic reagents to diagnose human infections.</li></ol>	<ol style="list-style-type: none"><li>1. To identify interspecies transmission at an early stage and transmit this information to WHO and other appropriate partners.</li><li>2. To provide ongoing risk assessment for transmission of viruses with pandemic potential to humans.</li></ol>

\* Available at <http://www.who.int/csr/disease/influenza/inforesources/en/>

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>1. Collaborate with national authorities and appropriate international organizations, e.g. FAO and OIE, to confirm the presence of a new strain, assess the epidemiology and coordinate strain characterization.</li> <li>2. Encourage dissemination of information on spread in animals and interspecies transfers.</li> <li>3. Provide guidance on human risk assessment to national authorities in affected countries, and assist with on-site assessment if requested and feasible.</li> <li>4. Assist national authorities in enhancing surveillance and investigating suspect cases of transmission to humans, if possible.</li> <li>5. Continue to support the collection of strains and information needed to develop diagnostic reagents.</li> <li>6. Coordinate development and provision of diagnostic reagents to WHO national influenza centres, as necessary.</li> <li>7. Work with countries to monitor and report on ongoing national surveillance and investigation.</li> </ol>	<p><b>Affected countries and countries with close travel/ trade links with affected countries</b></p> <ol style="list-style-type: none"> <li>1. Implement enhanced animal and human surveillance based on WHO, FAO and OIE recommendations; report results rapidly and regularly to the above-mentioned international bodies.</li> <li>2. Urgently transmit representative isolates from infected animals to WHO- and OIE-designated reference laboratories for confirmation, detailed characterization, development of diagnostic reagents and consideration of suitability for use to develop candidate vaccine viruses/prototype vaccine strains.</li> <li>3. Urgently transmit representative isolates from suspected human cases of infection with an animal influenza virus strain to the national influenza centre or other designated national laboratory for influenza.</li> <li>4. Conduct field investigations (epidemiological, laboratory) in affected area to assess spread of the disease in animals and threat to human health.</li> <li>5. Participate actively in assessment of the risk of transmission (e.g. animal models for pathogenicity testing).</li> <li>6. Ensure expertise and capacity for virological surveillance in national laboratories according to standard procedures and using reagents provided by WHO- and OIE- designated reference laboratories.</li> <li>7. Continue to collect and exchange virus isolates and other scientific information with partner organizations.</li> <li>8. Conduct serological surveillance of farmers (including their families) and animal workers involved in containment of outbreaks of animal influenza.</li> </ol>

**Interpandemic period, phase 2 – Prevention and containment**

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To reduce the risk of human infection through exposure to animal viruses.</li> <li>2. To assess the susceptibility of animal strains to antiviral drugs.</li> <li>3. To reduce the risk of coinfection in humans and thereby minimize the opportunities for virus reassortment.</li> <li>4. To consider the development of a human vaccine against the new strain.</li> </ol>	<ol style="list-style-type: none"> <li>1. To minimize the risk of human infection from contact with infected animals.</li> <li>2. To assess the national availability of antiviral drugs.</li> <li>3. To reduce the risk of coinfection in humans and thereby minimize the opportunities for virus reassortment.</li> </ol>

**PHASE  
2**

WHO ACTIONS	NATIONAL ACTIONS
<p><b>Public health interventions</b></p> <ol style="list-style-type: none"> <li>Maintain close liaison with international agricultural authorities having the primary responsibility for the control of the disease in animals, and provide appropriate assistance as needed.</li> <li>Recommend measures to reduce human exposure (e.g. persons living, working or travelling in affected areas).</li> </ol> <p><b>Antivirals</b></p> <ol style="list-style-type: none"> <li>Coordinate testing of the new strains for antiviral susceptibility.</li> <li>Provide information to national authorities on principles for antiviral drug use needed for the development of prophylaxis and treatment recommendations.</li> <li>Encourage national authorities and companies to provide current data on national inventories and international availability of antiviral agents effective against the new strain.</li> <li>Ensure that the antivirals component of a possible global stockpile could be deployed to the affected countries if necessary, and review indications for deployment and use.</li> </ol> <p><b>Vaccines</b></p> <ol style="list-style-type: none"> <li>Characterize the virus and decide on need to develop and distribute vaccine prototype strain for possible vaccine production.</li> <li>Communicate with vaccine manufacturers regarding possible planning for investigatory vaccine lots and clinical trials (especially if this phase was downscaled from the pandemic alert period).</li> <li>Support establishment of mechanisms for producing/obtaining seasonal and pandemic prototype vaccines for possible targeted use as a measure to reduce pandemic risk during prolonged pandemic alert periods.</li> </ol>	<p><b>Affected countries</b></p> <ol style="list-style-type: none"> <li>Ensure optimal response to the animal outbreak, including measures to reduce infection risk in those involved in the response (education and training regarding potential threat; correct use of personal protective equipment; deployment of antivirals if risk assessment indicates).</li> <li>Recommend measures to reduce human contact with potentially infected animals (e.g. advice for travellers).</li> <li>Prepare for use of further interventions if human infection is detected.</li> <li>Update information on available national supplies of antivirals.</li> <li>Update recommendations for prophylaxis and treatment with antivirals; consider implementation after formal risk assessment.</li> <li>Ensure that antivirals component of a national or global stockpile could be deployed rapidly from a central location to the affected district(s), and that appropriate staff are familiar with guidance for deployment and use.</li> <li>Review strategy for the use of interpandemic vaccines to prevent dual infection with human and animal viruses, and promote their use in defined risk groups.</li> <li>Develop contingency plans for procuring seasonal vaccine (or specific vaccine if available) and for distribution once available.</li> </ol> <p><b>Unaffected countries</b></p> <ol style="list-style-type: none"> <li>Establish or enhance mechanisms for exchange of epidemiological and virological data, and of infection control expertise/guidance with affected countries.</li> </ol> <p><b>Countries with vaccine production capacity</b></p> <ol style="list-style-type: none"> <li>Review strategies for emergency production, licensing and testing of pandemic vaccine.</li> </ol>

## Interpandemic period, phase 2 – Health system response

WHO OBJECTIVES	NATIONAL OBJECTIVES
1. To promote national efforts to ensure early diagnosis of human cases and appropriate health system response.	1. To ensure that if human infections occur, they will be quickly recognized and that health system will respond appropriately.

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>1. Provide guidance to countries in assessing health system preparedness and needs if not already done.</li> <li>2. Coordinate the availability of diagnostic reagents to affected countries as appropriate.</li> <li>3. Ensure readiness of diagnostic capacity in WHO-designated reference laboratories.</li> <li>4. Develop guidelines for health-care workers to assist in case-finding and investigation.</li> </ol>	<p><b>Affected countries and countries with extensive travel/trade links with affected countries</b></p> <ol style="list-style-type: none"> <li>1. Alert local health-care providers to: consider new influenza infection in ill patients with epidemiological link to affected animal species; implement infection control measures; report cases immediately to public health authorities; provide algorithms to assist in case-finding and management.</li> <li>2. Verify availability and distribution procedures for personal protective equipment and antivirals and for vaccine for the protection of persons at occupational risk; consider measures to implement.</li> <li>3. Ensure rapid deployment of diagnostic tests when available.</li> </ol> <p><b>All countries</b></p> <ol style="list-style-type: none"> <li>1. Alert health system to review preparedness plans and be ready to receive presumably small numbers of patients with new influenza subtype infection requiring isolation and clinical care.</li> <li>2. Assess health system capacity to detect and contain outbreaks of human disease in hospital settings.</li> <li>3. Alert local health-care providers to consider influenza infection in ill patients with travel or epidemiological link to an affected country, and to recognize the need for immediate reporting to national authorities; provide algorithms to assist in case-finding and investigation.</li> </ol>

# PHASE 2

## Interpandemic period, phase 2 – Communications

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To ensure rapid global sharing of appropriate technical information.</li> <li>2. To ensure that mechanisms exist for coordinating communications with FAO and OIE, and other international partners.</li> </ol>	<ol style="list-style-type: none"> <li>1. To ensure that appropriate information is shared rapidly among health authorities, other partners and the public.</li> <li>2. To ensure that mechanisms exist for coordinating communications with the animal-health sector.</li> </ol>

**WHO ACTIONS**

1. Update national and international authorities, other partners and stakeholders, including at-risk groups and the public, with current information on virus spread and risks to humans.
2. Work with partners to promote consistent messages in the interest of personal safety and public health.

**NATIONAL ACTIONS**

**Affected countries and countries with extensive travel/trade links with affected countries**

1. Establish rapid communications to answer questions from health-care providers and the public.
2. Communicate information on risk and prevention (risk of infection; safe food; animal handling) based on WHO recommendations.
3. Address possible stigmatization of individuals/populations in contact with the animal strain.

**All countries**

1. Update national authorities, other partners and stakeholders, including at-risk groups and the public, with current information on virus spread and risks to humans.

**PHASE  
2**



## PANDEMIC ALERT PERIOD

### Pandemic alert period, phase 3 – Overarching goal

*Ensure rapid characterization of the new virus subtype and early detection, notification and response to additional cases.*

#### *Pandemic alert period, phase 3 – Planning and coordination*

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>To provide guidance to national authorities regarding interventions to detect and respond to human cases.</li> </ol>	<ol style="list-style-type: none"> <li>To ensure that mechanisms exist so that imminent potential human health threats can be recognized and dealt with.</li> <li>To coordinate timely interventions that will reduce the risk of a pandemic.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>Mobilize response by providing guidance to national authorities in reviewing and updating national contingency plans, based on evolving scientific information about the human case(s).</li> <li>Provide international oversight and support to countries with initial human cases, to assist in establishing facts and fully characterizing cases</li> <li>Review WHO internal contingency plan.</li> </ol>	<p><b>Affected countries</b></p> <ol style="list-style-type: none"> <li>Activate national pandemic contingency planning arrangements.</li> <li>Implement interventions to reduce disease burden in the initial foci and contain or delay the spread of infection.</li> <li>Mobilize national response and provide guidance to relevant authorities in reviewing, updating and implementing contingency plans.</li> <li>Brief appropriate officials in all relevant government departments (e.g. health, agriculture, executive, legislative/judicial) 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.</li> <li>Provide assistance to regional, district and local authorities (including private essential services) in implementing interventions.</li> </ol>

**PHASE**  
**3**

#### *Pandemic alert period, phase 3 – Situation monitoring and assessment*

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>To coordinate confirmation of human infection(s).</li> <li>To provide assistance to national authorities if needed in describing the epidemiological, virological and clinical features of infection and possible sources, and in assessing the extent of human-to-human transmission.</li> <li>To enhance alertness for additional cases.</li> <li>To enhance development or adjustment of diagnostic reagents and vaccines.</li> </ol>	<ol style="list-style-type: none"> <li>To be able to exclude wider human-to-human transmission, and to detect this as soon as it occurs.</li> <li>To be able to detect and characterize additional cases (including risk factors for transmission).</li> </ol>

**PHASE  
3**

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>1. Facilitate laboratory confirmation of human infections through the WHO network of reference laboratories.</li> <li>2. Establish global case definition for reporting by countries.</li> <li>3. Collaborate with national authorities to ensure rapid reporting of human infections with a new influenza virus strain by appropriate means.</li> <li>4. Collect, synthesize and disseminate information on the global situation in collaboration with partners.</li> <li>5. Provide appropriate support to national authorities in investigating the case(s), and the epidemiological circumstances of infection, and in identifying risk groups.</li> <li>6. Provide guidance to national authorities in assessing the pathogenicity, and clinical and virological aspects of human infection.</li> <li>7. Encourage countries to publicize data and inform WHO on ongoing case investigations.</li> <li>8. Update, if needed, and provide diagnostic reagents to national influenza reference centres for identification of the new strain.</li> <li>9. Continue to collaborate with national and international organizations to collect strains and information needed to develop or adjust diagnostic reagents and vaccines.</li> <li>10. Decide on need to develop or update prototype vaccine strain.</li> <li>11. Enhance alertness for additional cases and encourage active human case-finding.</li> </ol>	<p><b>Affected countries and countries with extensive travel/trade links with affected countries</b></p> <ol style="list-style-type: none"> <li>1. Confirm and report cases promptly using appropriate channels (e.g. International Health Regulations).</li> <li>2. Exclude laboratory accident or intentional release as the cause of the human cases.</li> <li>3. Determine the epidemiology of human cases (source of exposure; incubation period; infection of contacts (clinical and subclinical); period of communicability).</li> <li>4. Establish national case definition (or review/modify existing definition) based on WHO guidance.</li> <li>5. Assess clinical characteristics of infections in humans and share with relevant international partners.</li> <li>6. Ensure rapid virological characterization of the virus responsible for human infection, in collaboration with WHO collaborating centres.</li> <li>7. Enhance human and animal surveillance, including cluster detection.</li> <li>8. Collaborate with international efforts to assess virus pathogenicity in humans.</li> <li>9. Identify priority geographical areas and risk groups for targeting with preventive measures.</li> <li>10. Assess effectiveness of treatment protocols and infection control measures and revise if necessary.</li> <li>11. Conduct seroprevalence studies in risk groups, and then expand to the general population, to assess prevalence/incidence of infection (symptomatic and asymptomatic).</li> <li>12. Continue to collect and share virus isolates and other information needed to develop or adjust diagnostic reagents and develop candidate vaccine viruses/ prototype vaccine strains, and monitor any emerging antiviral resistance.</li> </ol>

***Pandemic alert period, phase 3 – Prevention and containment***

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To provide guidance in implementing measures to prevent or reduce human-to-human spread.</li> <li>2. To assess the potential for use of antivirals in current and later phases.</li> <li>3. To facilitate planning for pandemic vaccine development.</li> </ol>	<ol style="list-style-type: none"> <li>1. To contain or reduce human-to-human virus transmission.</li> <li>2. To limit morbidity and mortality associated with current human infections.</li> <li>3. To assess the potential for use of antivirals in current and later phases.</li> <li>4. To increase readiness for possible pandemic vaccine development.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<p><b>Public health interventions</b></p> <ol style="list-style-type: none"> <li>1. Reiterate appropriate and inappropriate measures for affected and unaffected countries (<i>Annex 1</i>).</li> <li>2. Request affected countries to inform WHO on implementation and effectiveness of containment measures, to inform national and international planning.</li> <li>3. Advocate that appropriate international organizations and associations and transportation companies develop and prepare to implement standard measures for travellers on board international conveyances.</li> </ol> <p><b>Antivirals</b></p> <ol style="list-style-type: none"> <li>1. Coordinate assessment of effectiveness and safety of antiviral therapy in treated patients using standardized research protocols when possible.</li> <li>2. Work with national authorities to coordinate positioning of components of a possible global stockpile so that they could be swiftly deployed.</li> <li>3. Coordinate collection and testing of strains for antiviral susceptibility.</li> </ol> <p><b>Vaccine</b></p> <ol style="list-style-type: none"> <li>1. Support strain characterization and decide on need to develop and distribute vaccine prototype strain for possible vaccine production.</li> <li>2. Communicate with vaccine manufacturers regarding planning for production of investigatory vaccine lots and clinical trials.</li> <li>3. Assist national authorities in affected countries to assess the possible benefits and disadvantages of vaccinating persons with occupational and other exposures with seasonal vaccines, and to plan vaccination programmes if appropriate.</li> <li>4. Review and update WHO recommendations for pandemic vaccine use strategies with partners, including national authorities. Assess the advisability and feasibility of use of pandemic vaccines during pandemic alert periods.</li> </ol>	<p><b>Countries with case(s)</b></p> <ol style="list-style-type: none"> <li>1. Implement appropriate interventions as identified during contingency planning, in consultation with relevant partners.</li> <li>2. Share virus isolates with WHO in a timely fashion to allow for potential pandemic vaccine development and updating of reagents.</li> <li>3. If associated with animal outbreak(s):             <ol style="list-style-type: none"> <li>(a) consider deploying supplies of antivirals for post-exposure (and possibly pre-exposure) prophylaxis of individuals who are most likely to be exposed to the animal virus;</li> <li>(b) continue promoting vaccination with seasonal influenza vaccine to limit risk of dual infection in those most likely to be exposed to the animal virus, and potentially decrease concurrent circulation of human strains in the outbreak-affected area.</li> </ol> </li> </ol> <p><b>All countries</b></p> <ol style="list-style-type: none"> <li>1. Assess/reassess availability of antivirals.</li> <li>2. Review evidence base for effectiveness and safety of antivirals and if necessary reassess and review strategies, guidelines and priorities for use with partner organizations.</li> <li>3. Reassess emergency methods to increase supply of antivirals, e.g. additional production facilities, investigatory new drugs.</li> <li>4. Review vaccine use strategies with partner organizations.</li> <li>5. Resolve liability and other legal issues linked to use of the pandemic vaccine for mass or targeted emergency vaccination campaigns, if not yet done.</li> <li>6. Assess inventories of vaccines and other material resources needed to carry out vaccinations (e.g. syringes).</li> <li>7. Consider supporting development of prototype vaccines.</li> </ol>



## Pandemic alert period, phase 3 – Health system response

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To promote increased national efforts in recognition and diagnosis of cases and in implementing contingency plans for use of health-care resources.</li> <li>2. To provide guidance for clinical care and infection control.</li> <li>3. To provide guidance on appropriate handling of specimens, including biosafety and security issues.</li> </ol>	<ol style="list-style-type: none"> <li>1. To prevent nosocomial transmission and laboratory infections.</li> <li>2. To ensure heightened awareness among health-care workers regarding the possibility of cases and/or clusters of cases.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>1. Encourage national authorities to review and update health system response strategies at national and subnational levels.</li> <li>2. Review and update guidelines for clinical care, diagnostics, treatment, infection control and safe specimen handling.</li> <li>3. Activate existing clinical networks to review clinical information, advise on knowledge gaps and develop clinical research protocols.</li> </ol>	<p><b>Affected countries</b></p> <ol style="list-style-type: none"> <li>1. Activate emergency coordinating committees (national, regional and local) and pre-established coordination between the health-care sector and relevant partner organizations.</li> <li>2. Explore ways to provide drugs and medical care free of charge (or covered by insurance) to the patient and the health-care delivery system, in order to encourage prompt reporting of new cases.</li> <li>3. Review contingency plans at all levels, with special attention to surge capacity.</li> <li>4. Test decision-making procedures and chains of command.</li> <li>5. Train health-care workers to detect/identify clusters of cases.</li> <li>6. Ensure implementation of infection-control procedures to prevent nosocomial transmission.</li> <li>7. Ensure compliance with standards for biosafety in laboratories, and for safe specimen-handling and shipment.</li> </ol> <p><b>All countries</b></p> <ol style="list-style-type: none"> <li>1. Provide public and private health-care providers with updated case definitions, protocols and algorithms to assist with case-finding, management, infection control and surveillance.</li> <li>2. Assess capability/capacity for implementing infection control procedures for ill patients; implement infection control consistent with existing WHO guidance.</li> </ol>

# PHASE 3

### Pandemic alert period, phase 3 – Communications

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To communicate transparently with the public regarding possible outbreak progression and contingencies to be expected.</li> <li>2. To ensure rapid sharing of appropriate information among health authorities, other partners and the public, including what is known and what is unknown.</li> </ol>	<ol style="list-style-type: none"> <li>1. To communicate transparently with the public regarding possible outbreak progression and contingencies to be expected.</li> <li>2. To ensure rapid sharing of appropriate information among health authorities, other relevant government departments and other partners, including what is known and what is unknown.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>1. Update national and international authorities, other partners and stakeholders, and the public on the global epidemiological situation and disease characteristics.</li> <li>2. Work with partners to promote consistent messages.</li> <li>3. Provide background information regarding the effectiveness of recommended measures.</li> <li>4. Upon request, dispatch communications experts to affected areas.</li> </ol>	<p><b>Affected countries</b></p> <ol style="list-style-type: none"> <li>1. Provide regular updates to WHO and other international and domestic partners on the evolving national situation.</li> </ol> <p><b>All countries</b></p> <ol style="list-style-type: none"> <li>1. Identify target groups for delivery of key messages; develop appropriate materials, formats and language options.</li> <li>2. Work with partners to ensure consistent messages are delivered.</li> <li>3. Address the issue of stigmatization of individuals/families/communities affected by human infection with the animal strain.</li> <li>4. Review and update information materials for news media, general public, health workers and policy-makers.</li> <li>5. Review communications systems and facilities to ensure that they are functioning optimally, and that contact lists are up to date.</li> </ol>



### Pandemic alert period, phase 4 – Overarching goal

***Contain the new virus within limited foci or delay spread to gain time to implement preparedness measures, including vaccine development.***

### Pandemic alert period, phase 4 – Planning and coordination

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To coordinate global and national efforts to delay or contain the spread of human infection within limited foci.</li> <li>2. To coordinate assessment of national needs and resource mobilization among affected and unaffected countries.</li> </ol>	<ol style="list-style-type: none"> <li>1. To ensure that systems exist to detect and characterize outbreaks, and assess the risk of escalation into a pandemic.</li> <li>2. To coordinate the implementation of procedures that will delay or contain the spread of human infection within limited foci.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>Facilitate deployment of a possible global stockpile or other resources, as well as of technical assistance.</li> <li>Coordinate global interventions and assist in their implementation and evaluation.</li> <li>Consider activating internal WHO contingency plan.</li> <li>Identify needs and encourage the provision of international assistance to resource-poor countries.</li> </ol>	<p><b>Affected countries</b></p> <ol style="list-style-type: none"> <li>Ensure highest levels of political commitment for ongoing and potential interventions/countermeasures.</li> <li>Activate procedures to obtain additional resources; consider invoking emergency powers.</li> <li>Activate overarching national command and control of response activities, either by formal means or <i>de facto</i> (close oversight of district and local activities).</li> <li>Deploy operational response teams across all relevant sectors.</li> <li>Ensure cross-border collaboration with surrounding countries for information-sharing and coordination of emergency responses.</li> <li>Identify needs for international assistance.</li> </ol> <p><b>Unaffected countries</b></p> <ol style="list-style-type: none"> <li>Activate national pandemic contingency planning arrangements.</li> <li>Reassess current state of preparedness using the <i>WHO checklist for influenza pandemic preparedness planning*</i> and national tools; implement actions required to close priority gaps.</li> <li>Identify ability to respond to requests for international assistance.</li> </ol>

**PHASE  
4**

**Pandemic alert period, phase 4 – Situation assessment and monitoring**

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>To coordinate assessment of the extent of human-to-human transmission.</li> <li>To describe the epidemiological, virological and clinical features of infection and possible source, and disseminate this information as needed for surveillance and control measures.</li> <li>To enhance development or adjustment of diagnostic reagents and vaccines.</li> </ol>	<ol style="list-style-type: none"> <li>To assess the extent of human-to-human transmission</li> <li>To detect, notify and characterize additional clusters (including the identification of risk factors and other data concerning transmission as requested by WHO).</li> <li>To assess the threat to human health and the impact of any control measures, and identify resources required for enhanced control.</li> </ol>

\* Available at <http://www.who.int/csr/disease/influenza/inforesources/en/>

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>1. Facilitate assessment of the extent of human-to-human transmission, if necessary with on-site evaluation.</li> <li>2. Adjust case definition for global reporting.</li> <li>3. Facilitate reporting of human-to-human transmission of infection with a new influenza virus strain by national authorities by appropriate means, e.g. the International Health Regulations.</li> <li>4. Recommend strategies for national authorities to enhance surveillance in risk groups in affected areas.</li> <li>5. Coordinate with national authorities the monitoring of national actions on containment and control.</li> <li>6. Provide appropriate support to national authorities in investigating cases and contacts, enhancing disease surveillance to identify additional cases, and the epidemiological circumstances of infection (e.g. source of exposure, infection of contacts, and spread in the general population), and in identifying risk groups.</li> <li>7. Enhance active case-finding for early detection of associated clusters.</li> </ol>	<p><b>Affected countries</b></p> <ol style="list-style-type: none"> <li>1. Describe and (re)assess the epidemiological, virological and clinical features of infection; identify possible source(s).</li> <li>2. Report this information on cases and clusters through appropriate mechanisms, e.g. International Health Regulations, to WHO and other appropriate bodies.</li> <li>3. Expand activities already under way in <i>phase 3</i>; adjust case definition if necessary.</li> <li>4. Assess sustainability of human-to-human transmission.</li> <li>5. Conduct clinical research to optimize treatment protocols, if resources available.</li> <li>6. Collect and share strains and information needed to develop or adjust diagnostic reagents and prototype vaccines.</li> <li>7. Forecast likely impact of the spread of infection.</li> <li>8. Attempt to assess the impact of containment measures to allow for adjustment of recommendations; share findings urgently with the international community (including WHO) to allow updating of national and international policies.</li> <li>9. Enhance surge capacity for surveillance.</li> </ol> <p><b>Unaffected countries</b></p> <ol style="list-style-type: none"> <li>1. Enhance surveillance, especially in countries with extensive travel/trade links to affected areas.</li> </ol>



**Pandemic alert period, phase 4 – Prevention and containment**

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To support and evaluate global and national efforts to delay or contain the spread of human infection within limited foci.</li> <li>2. To assess susceptibility of new strain and availability of antivirals, and deploy from global stockpile when appropriate.</li> <li>3. To promote development and prepare for production of pandemic vaccine.</li> <li>4. To deploy pandemic vaccine to foci of disease, if appropriate and available.</li> </ol>	<ol style="list-style-type: none"> <li>1. To contain or delay human-to-human virus transmission.</li> <li>2. To limit morbidity and mortality associated with current human infections.</li> <li>3. To assess the potential for wider usage of antivirals in later phases.</li> <li>4. To increase readiness for pandemic vaccine production and deployment.</li> <li>5. To gain early experience in pandemic vaccine use under field conditions (if clinical trial lots are available).</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<p><b>Public health interventions</b></p> <ol style="list-style-type: none"> <li>1. Reiterate appropriate and inappropriate measures for affected and unaffected countries (<i>Annex 1</i>).</li> <li>2. Request affected countries to report on implementation of enhanced surveillance and containment measures, assist in evaluating the effectiveness of such measures, and transmit appropriate information to all Member States to inform national and international planning.</li> <li>3. Advocate that appropriate international organizations and associations, and transportation companies, implement standard measures for travellers on board international conveyances, consistent with the new phase.</li> <li>4. Assess needs for recommending additional containment measures, e.g at international borders.</li> </ol>	<p><b>Countries with cases</b></p> <ol style="list-style-type: none"> <li>1. Implement appropriate interventions identified during contingency planning, and consider any new guidance provided by WHO.</li> <li>2. Evaluate the effectiveness of these measures in collaboration with WHO.</li> <li>3. Use antivirals for early treatment of cases, and consider antiviral prophylaxis for close contacts of cases based on risk assessment and severity of illness in humans.</li> <li>4. Assess likely effectiveness and feasibility of prophylaxis for the purpose of attempting to contain outbreaks. Determine target population; if intervention agreed, implement as an emergency measure; assess impact.</li> <li>5. Consider deploying prototype pandemic vaccine if available.</li> </ol>
<p><b>Antivirals</b></p> <ol style="list-style-type: none"> <li>1. Same as in <i>phase 3</i>.</li> <li>2. Collaborate with national authorities in support of targeted antiviral prophylaxis to close contacts of cases, if appropriate.</li> </ol>	<p><b>Countries without cases</b></p> <ol style="list-style-type: none"> <li>1. Assess need to deploy current antiviral stock to local/ regional level to facilitate rapid implementation of antiviral strategy (if this becomes necessary).</li> <li>2. Consider supporting development or increased production of prototype vaccines.</li> </ol>
<p><b>Vaccines</b></p> <ol style="list-style-type: none"> <li>1. Develop up-to-date vaccine prototype strains.</li> <li>2. Coordinate the planning of clinical trials.</li> <li>3. Collaborate with national authorities in vaccinating persons at occupational or other risk of infection, if appropriate.</li> <li>4. Update guidance for optimal use of seasonal and pandemic vaccines when available.</li> </ol>	

PHASE  
4



## Pandemic alert period, phase 4 – Health system response

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>To promote efforts by national authorities to use health-care capacity optimally if additional cases occur.</li> <li>To provide guidance on clinical triage and treatment.</li> <li>To enhance appropriate infection control and biosafety procedures in community primary and secondary care.</li> </ol>	<ol style="list-style-type: none"> <li>To prevent nosocomial transmission.</li> <li>To maintain biosafety.</li> <li>To ensure capacity is available and used optimally in affected countries.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>Coordinate international response with other international organizations.</li> <li>Reassess guidelines for clinical management and infection control in health care (including long-term care facilities).</li> <li>Review guidelines for biosafety in laboratories.</li> <li>Encourage national systems to prepare for the next higher phase, including a mobilization plan for health-care workers.</li> <li>Coordinate and support clinical research to increase evidence for recommended guidelines and protocols.</li> </ol>	<p><b>Affected countries</b></p> <ol style="list-style-type: none"> <li>Update and reinforce messages to local health-care providers to consider influenza infection in ill patients, and report findings to public health authorities.</li> <li>Update case definition, protocols and algorithms for case-finding, management (antivirals and other required drugs), infection control and surveillance as required.</li> <li>Activate contingency plans for response to overload of health facilities with influenza patients, and identify alternative strategies for case isolation and management.</li> <li>Implement surge-capacity arrangements and contingency plans for staff shortages in health-care facilities and in all other key activity sectors.</li> <li>Re-emphasize infection-control measures and issue stockpiles of personal protective equipment.</li> </ol> <p><b>Unaffected countries</b></p> <ol style="list-style-type: none"> <li>Activate pandemic contingency planning arrangements.</li> </ol>

**PHASE  
4**

## Pandemic alert period, phase 4 – Communications

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>To ensure rapid sharing of appropriate information among health authorities, other international agencies and other partners, including what is known and what is unknown.</li> <li>To prepare the public and partners for a possible rapid progression of events and possible contingency measures.</li> </ol>	<ol style="list-style-type: none"> <li>To ensure rapid sharing of appropriate information among health authorities, other relevant government departments and other partners, including what is known and what is unknown.</li> <li>To prepare the public and partners for a possible rapid progression of events and possible contingency measures.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>1. Update national and international authorities, other partners and stakeholders, and the public on global epidemiological situation and disease characteristics.</li> <li>2. Work with partners to promote consistent messages.</li> <li>3. Provide templates for general health education materials.</li> <li>4. Ensure regular updating of information regarding the effectiveness of recommended measures.</li> </ol>	<p><b>Affected countries</b></p> <ol style="list-style-type: none"> <li>1. Reinforce and intensify key messages on prevention of human-to-human spread.</li> <li>2. Explain rationale and update public on all aspects of outbreak response and likely next steps.</li> <li>3. Provide instruction in self-protection.</li> </ol> <p><b>All countries</b></p> <ol style="list-style-type: none"> <li>1. Update national authorities, other partner organizations/stakeholders and the public on the domestic and international epidemiological situation and known disease characteristics.</li> <li>2. Activate emergency communications plans.</li> <li>3. In conjunction with partner organizations, update communications messages.</li> <li>4. Develop general health protection education materials, e.g. templates, for national and local applications.</li> <li>5. Re-emphasize infection-control measures in the community, health-care settings, and long-term care facilities.</li> </ol>

**Pandemic alert period, phase 5 – Overarching goal**  
*Maximize efforts to contain or delay spread, to possibly avert a pandemic, and to gain time to implement pandemic response measures.*

**Pandemic alert period, phase 5 – Planning and coordination**

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To coordinate maximum global efforts to delay or possibly avert a pandemic.</li> </ol>	<ol style="list-style-type: none"> <li>1. To coordinate and ensure maximum efforts to delay or possibly avert a pandemic.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>1. Coordinate global interventions to reduce disease burden in the initial foci, and thereby contain or delay the spread of infection.</li> <li>2. Coordinate the ongoing evaluation of interventions.</li> <li>3. Finalize preparations for imminent pandemic, including internal organization and staffing surge capacity.</li> <li>4. Identify needs and encourage international assistance to resource-poor countries.</li> <li>5. Activate WHO contingency plan.</li> </ol>	<p><b>Affected countries</b></p> <ol style="list-style-type: none"> <li>1. As needed, designate special status to affected area in order to facilitate interventions (e.g. state of emergency).</li> <li>2. Assist in the ongoing evaluation of interventions.</li> <li>3. Finalize preparations for imminent pandemic, including activation of internal organizational arrangements (within command-and-control system) and staffing surge capacity.</li> <li>4. Adjust and maximize efforts and resources to reduce disease burden and contain or delay the spread of infection.</li> </ol>

## Pandemic alert period, phase 5 – Situation monitoring and assessment

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To determine pandemic risk and spread of disease.</li> <li>2. To update description of the epidemiological, virological and clinical features of infection and possible source, and disseminate this information as needed for surveillance and control measures.</li> <li>3. To provide guidance on national monitoring of health-care system needs.</li> </ol>	<ol style="list-style-type: none"> <li>1. To determine pandemic risk and exclude spread to other countries/regions and to identify this as soon as it occurs.</li> <li>2. To determine and monitor public health resources required for pandemic response.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>1. Coordinate assessment of the extent of human-to-human transmissibility in collaboration with partners.</li> <li>2. Promote intensification of disease surveillance in countries not yet affected, to the maximum extent possible.</li> <li>3. Support affected Member States as much as possible in confirming the spread of human infections and assessing the epidemiological situation.</li> <li>4. Review and adjust case definition and guidelines if needed.</li> <li>5. Facilitate reporting of increased spread and other epidemiological features by national authorities through appropriate means.</li> <li>6. Accelerate and enhance situation monitoring and assessment activities in pandemic alert period, <i>phase 4</i>, to a maximum.</li> <li>7. Promote monitoring of health-care needs and facilities in affected countries.</li> <li>8. Forecast trends for the first pandemic wave (affected regions, risk groups, health-care resource needs, impact, etc.).</li> </ol>	<p><b>Affected countries</b></p> <ol style="list-style-type: none"> <li>1. Expand and adjust activities in <i>phase 4</i>, to maximum intensity.</li> <li>2. Report increased spread through appropriate means, including the revised International Health Regulations, as a public health emergency of international concern (PHEIC).</li> <li>3. Implement real-time monitoring of essential resources (medical supplies, pharmaceuticals, infrastructure, vaccines, hospital capacity, human resources, etc.).</li> <li>4. Conduct enhanced surveillance for respiratory disease through surveys (telephone or questionnaires).</li> <li>5. Adjust forecasts of the likely impact of both infection spread and control measures.</li> <li>6. Assess impact of containment measures to date in order to allow for readjustment if necessary; share findings with the international community to allow updating of national and international guidance/recommendations.</li> <li>7. Monitor the development of antiviral resistance.</li> </ol> <p><b>Unaffected countries</b></p> <ol style="list-style-type: none"> <li>1. Enhance surveillance measures to maximum intensity.</li> </ol>



## Pandemic alert period, phase 5 – Prevention and containment

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To mobilize and focus global resources to contain/control outbreak</li> <li>2. To coordinate efforts to limit morbidity and mortality.</li> <li>3. To assess impact of control measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. To make massive efforts to contain or delay human-to-human virus transmission and the onset of a pandemic.</li> <li>2. To limit morbidity and mortality associated with current human infections.</li> <li>3. To assess the potential for usage of antivirals in the pandemic period.</li> <li>4. To support preparations for large-scale pandemic vaccine production and licensing, and prepare for deployment as supplies become available.</li> <li>5. To gain early experience in pandemic vaccine use under field conditions (if clinical trial lots are available).</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<p><b>Public health interventions</b></p> <ol style="list-style-type: none"> <li>1. Same as <i>phase 4</i>.</li> <li>2. Collaborate to the extent possible with national authorities in distributing infection-control supplies to health-care settings providing care to human cases, especially if these supplies are from the global stockpile.</li> </ol> <p><b>Antivirals</b></p> <ol style="list-style-type: none"> <li>1. Same as in <i>phase 4</i>.</li> <li>2. Collaborate with national authorities to the extent possible in administering and evaluating targeted antiviral prophylaxis to close contacts of cases, especially if the global stockpile is used.</li> </ol> <p><b>Vaccines</b></p> <ol style="list-style-type: none"> <li>1. Promote vaccine prototype development, e.g. by coordinating clinical trials, if not done in <i>phase 2</i>.</li> <li>2. Establish ongoing information exchange with vaccine manufacturers to prepare for full-scale pandemic vaccine production.</li> <li>3. Provide guidance to national authorities in preparing and conducting a targeted vaccine campaign involving persons in the affected community, if pandemic vaccine is available.</li> </ol>	<p><b>Countries with cases</b></p> <ol style="list-style-type: none"> <li>1. Implement interventions identified during contingency planning and new guidance provided by WHO.</li> <li>2. Consider/reconsider use of antivirals for early treatment of cases (prioritization may need to be changed).</li> <li>3. Assess/reassess efficacy and feasibility of prophylaxis for the purpose of attempting to contain outbreaks. Determine target population; if intervention agreed, implement as an emergency measure; assess impact.</li> <li>4. Consider deploying prototype pandemic vaccine if available.</li> </ol> <p><b>Countries without cases</b></p> <ol style="list-style-type: none"> <li>1. Reassess need to deploy current antiviral stock to local/regional level to facilitate rapid implementation of antiviral strategy (if this becomes necessary).</li> <li>2. Consider results and lessons learned from use in countries with cases and modify antiviral strategy (if applicable).</li> <li>3. If agreements already in place with manufacturer(s), consider recommending cessation of seasonal vaccine production and initiation of full-scale pandemic vaccine production.</li> <li>4. Plan for vaccine distribution and accelerate preparations for mass vaccination campaigns (e.g. education, legal/liability issues) for when pandemic vaccine becomes available.</li> <li>5. Adjust priority lists of persons to be vaccinated (if applicable).</li> </ol>

# PHASE 5

**If pandemic vaccine has already been developed**

1. Activate emergency procedures for rapid licensing and use of pandemic vaccines (all countries).
2. Consider allocating vaccine for population-based intervention aimed at containing infection within currently affected areas.
3. Consider implementing pandemic vaccine strategy as indicated in pandemic period.

**Pandemic alert period, phase 5 – Health system response**

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To promote efforts by national authorities to use health-care capacity optimally if additional cases occur, including providing guidance on clinical triage, treatment and infection-control procedures.</li> <li>2. To provide guidance on appropriate handling of specimens, including biosafety and security issues.</li> </ol>	<ol style="list-style-type: none"> <li>1. To ensure that health systems are ready to scale up response and implement changes in triage and treatment priorities, and that these actions occur as soon as a country becomes affected.</li> <li>2. To prevent nosocomial transmission and maintain biosafety.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
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1. Coordinate international response with other international organizations.
2. Provide guidance to national authorities in assisting clinicians in recognition, diagnosis and reporting of cases.
3. Provide guidance to national authorities to optimize use of scarce facilities (triage, modified clinical guidelines, modified hospital infection guidelines, etc.).
4. Provide countries with updated models for alternative care and protection of non-influenza health-care service.

**Affected countries**

1. Full mobilization of health services and full implementation of emergency/contingency plans in affected areas, including coordination with other emergency sectors.
2. Commence triage arrangements and other emergency procedures for efficient use of health-care facilities.
3. Fully implement emergency plans for deployment of health-care workers.
4. Ensure attention to the health and other needs of persons in quarantine.
5. Arrange for additional human and material resources, and alternative means of health-care delivery, based on forecasted needs and contingency plans.
6. Implement corpse-management procedures.
7. Prepare health-care workers for potential change in policy regarding antivirals for occupational exposures (switch from prophylaxis to early treatment).

**Unaffected countries**

1. Activate emergency coordinating committees (national, regional or other) for health system.
2. Provide public and private health-care providers with updated case definition, protocols and algorithms for case-finding, management, infection control and surveillance.



3. Explore ways to provide drugs and medical care free of charge (or covered by insurance) to the patient and the health-care delivery system, to encourage prompt reporting and enrolment.
4. Assess capability/capacity for infection control for ill patients, and implement infection control consistent with WHO guidelines.
5. Review contingency plans relevant to health system response at all levels, with special attention to surge-capacity arrangements.
6. Test decision procedures and chains of command, and other pandemic working arrangements to ensure that they are functioning.
7. Train health-care workers to detect/identify cases and clusters.

### Pandemic alert period, phase 5 – Communications

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To prepare national authorities, other partners, and the public for a likely rapid progression of events, additional contingency measures, and disruptions to normal life.</li> <li>2. To ensure rapid sharing of appropriate information among health authorities, other partners and the public, including what is known and what is unknown.</li> </ol>	<ol style="list-style-type: none"> <li>1. To prepare the public and other partners for a likely rapid progression of events, additional contingency measures, and disruptions to normal life.</li> <li>2. To ensure rapid sharing of appropriate information among health authorities, other relevant government departments and other partners, including what is known and what is unknown.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>1. Update national authorities, other partners and stakeholders, and the public on global situation, trends, epidemiological characteristics and recommended measures.</li> <li>2. Continue to work with partners to promote consistent messages.</li> <li>3. Explain importance of complying with recommended measures despite their possible limitations, and about interventions that may be modified or implemented during a pandemic.</li> </ol>	<ol style="list-style-type: none"> <li>1. Redefine key messages; set reasonable public expectations; emphasize need to comply with public health measures despite their possible limitations.</li> <li>2. Utilize last “window of opportunity” to refine communications strategies and systems in anticipation of imminent pandemic.</li> <li>3. Inform public about interventions that may be modified or implemented during a pandemic, e.g. prioritization of health-care services and supplies, travel restrictions, shortages of basic commodities, etc.</li> </ol>

# PHASE 5

## PANDEMIC PERIOD

- The intensity of activities in a country will depend largely on whether there are cases in the country. The eventual appearance of cases in all countries is considered virtually inevitable.
- Affected countries should follow the recommendations below. Unaffected countries should prepare to implement these recommendations rapidly, especially if they have extensive trade/travel links with affected countries.

### Pandemic period, phase 6 – Overarching goal

*Minimize the impact of the pandemic.*

#### Pandemic period, phase 6 – Planning and coordination

WHO OBJECTIVES	NATIONAL OBJECTIVES
1. To provide global leadership and coordination to minimize morbidity and mortality; preserve health-care system effectiveness; minimize societal disruption; and minimize the economic impact of a pandemic.	1. To provide leadership and coordination of multisectoral resources that will: minimize morbidity and mortality; preserve health-care system effectiveness; minimize societal disruption; and minimize the economic impact of a pandemic.
2. To promote rational access to finite resources, including vaccines and other pharmaceutical supplies (when available).	2. To ensure rational access to finite national resources, including pharmaceutical supplies and (when available) vaccine.
3. To support evaluation of the effectiveness of specific responses and interventions.	3. To evaluate the effectiveness of specific responses and interventions.
4. To establish and maintain trust across all agencies and organizations and with the public, through a commitment to transparency and credible actions.	4. To establish and maintain trust across all agencies and organizations and with the public, through a commitment to transparency and credible actions.
5. To draw lessons from the ongoing pandemic response in order to improve response strategy and inform future planning.	5. To draw lessons from the ongoing pandemic response in order to improve response strategy and inform future planning.

WHO ACTIONS	NATIONAL ACTIONS
1. Establish WHO influenza pandemic information and coordination centre.	<b>Countries not yet affected</b>
2. Interact with international organizations and agencies inside and outside of the health sector to coordinate interventions.	1. Activate crisis committee(s) and national command and control of emergency operations (if not already done).
3. Coordinate ongoing development of guidelines.	2. Finalize adjustment of official guidelines and recommendations.
4. Provide guidance to national authorities on implementing and evaluating interventions and assessing their impact.	3. Provide guidance to local authorities in all sectors on implementation and evaluation of proposed interventions.
5. Identify need for and promote provision of resources and other support as may be required in severely affected countries.	<b>Affected countries</b>
6. Facilitate development of consensus on lessons learned for immediate application, as well as for future needs.	1. Implement all relevant elements of national pandemic plan, including coordination of response and implementation of specific interventions.
	2. Assess and publicize the current and cumulative national impact.
	3. Consider applying emergency powers.

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**Subsided (end of pandemic or between waves)**

1. Determine need for additional resources and powers during subsequent pandemic waves.
2. Declare end of emergency command-and-control operations, states of emergency, etc.
3. Support rebuilding of essential services, including rotating rest and recuperation for staff.
4. Review national plan based on experiences.
5. Address psychological impacts.
6. Acknowledge contributions of all stakeholders (including the public) and essential staff towards fighting the disease.
7. Consider offering assistance to remaining countries with ongoing widespread activity.

**Pandemic period, phase 6 – Situation monitoring and assessment**

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To monitor the epidemiological, virological and clinical features, and the course and impact of the pandemic at the global level, in order to forecast trends and optimize the use of finite resources.</li> <li>2. To assess the effectiveness of interventions used to date in order to guide future actions.</li> </ol>	<ol style="list-style-type: none"> <li>1. To monitor the epidemiological, virological and clinical features, and the course and impact of the pandemic at the national level, in order to forecast trends and optimize the use of finite resources.</li> <li>2. To assess the effectiveness of interventions used to date in order to guide future actions.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>1. Coordinate global strain surveillance.</li> <li>2. Monitor spread of disease and adjust case definitions.</li> <li>3. Coordinate monitoring for possible changes in epidemiological, clinical and virological aspects of infection, including antiviral drug resistance.</li> <li>4. Coordinate and/or facilitate assessment of global impact (morbidity, mortality).</li> <li>5. Assist national reporting of estimated national impact and facilitate global situation monitoring (global spread, national trends).</li> <li>6. Encourage preparation of forecasts for the next wave (new affected regions, risk groups, health-care resources, etc.).</li> <li>7. Review lessons learnt and make adjustments in surveillance guidelines and tools for countries.</li> </ol>	<p><b>Countries not yet affected</b></p> <ol style="list-style-type: none"> <li>1. Continue enhanced surveillance measures as for <i>phase 5</i> (unaffected country).</li> <li>2. Monitor global situation (vaccine/antiviral availability, recommendations for best practices, etc.).</li> <li>3. Estimate the impact of vaccination and antiviral programmes used elsewhere (safety, efficacy and antiviral resistance).</li> </ol> <p><b>Affected countries</b></p> <ol style="list-style-type: none"> <li>1. Monitor geographical spread of disease from point(s) of introduction/first detection.</li> <li>2. Use enhanced surveillance and case-management database to identify initial cases/contacts and track initial geographical spread.</li> <li>3. Monitor for possible changes in epidemiology, clinical presentation and virological features.</li> </ol>

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4. Monitor and assess national impact (morbidity, mortality, workplace absenteeism, regions affected, risk groups affected, health-care worker availability, essential worker availability, health-care supplies, bed occupancy/availability, admission pressures, use of alternative health facilities, mortuary capacity, etc.).
5. Assess need for emergency measures, e.g. emergency burial procedures, use of legal powers to maintain essential services.
6. If sufficient resources, forecast trends (course of pandemic) and economic impact.
7. Assess uptake and impact of: treatments and countermeasures, including vaccine/antiviral efficacy and safety and emergence of antiviral resistance; nonpharmaceutical interventions; etc.
8. As disease activity intensifies and becomes more widespread, adjust surveillance (e.g., reduce virological surveillance, discontinue case-management database) and adjust case definition to reflect increasing certainty of clinical diagnoses in absence of virological confirmation; switch to aggregate data collection on morbidity, mortality. Maintain sufficient virological surveillance to detect antigenic drift.

**Subsided (end of pandemic or between waves)**

1. Evaluate resource needs for subsequent waves if they occur.
2. Identify the most effective surveillance and control measures for subsequent pandemic waves.
3. Report current status through appropriate international mechanisms.
4. Review lessons learned.
5. Reinstate enhanced surveillance for early detection of subsequent wave.
6. Share experience gained with international community (lessons learned).



**Pandemic period, phase 6 – Prevention and containment**

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To mitigate impact in affected countries.</li> <li>2. To evaluate and update recommended interventions.</li> <li>3. To promote maximum production and rational use of pharmaceuticals, e.g. vaccines and antivirals.</li> </ol>	<ol style="list-style-type: none"> <li>1. To contain or delay spread using public health interventions, while limiting societal disruption.</li> <li>2. To minimize morbidity and mortality through the rational use of available pharmaceuticals, e.g. vaccines and antivirals.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<p><b>Public health interventions</b></p> <ol style="list-style-type: none"> <li>1. Reiterate appropriate and inappropriate measures for affected and unaffected countries (<i>Annex 1</i>).</li> <li>2. Advocate that appropriate international organizations and associations and transportation companies implement standard measures for travellers on board international conveyances, consistent with the new phase.</li> <li>3. Coordinate and facilitate assessment of interventions and update recommendations if needed.</li> </ol> <p><b>Antivirals</b></p> <ol style="list-style-type: none"> <li>1. Coordinate assessment of antiviral susceptibility, effectiveness, and safety.</li> <li>2. Update guidance on the optimal use of available agents.</li> </ol> <p><b>Vaccines</b></p> <ol style="list-style-type: none"> <li>1. Recommend /update composition of pandemic vaccine.</li> <li>2. Encourage emergency pandemic vaccine production.</li> <li>3. Provide updated guidelines for national authorities to conduct targeted vaccination campaigns.</li> <li>4. Recommend which strains should be included in vaccines, especially if nonpandemic strains are still circulating.</li> </ol>	<p><b>As soon as possible (regardless of extent of disease activity)</b></p> <ol style="list-style-type: none"> <li>1. Implement pandemic vaccine procurement plans; update vaccine recommendations; re-evaluate dosage and schedule based on available new data and WHO recommendations; plan logistics of delivery.</li> <li>2. As soon as available, implement pandemic vaccine programme as availability/resources permit; evaluate safety and efficacy; monitor supply.</li> </ol> <p><b>Countries not yet affected</b></p> <ol style="list-style-type: none"> <li>1. Implement appropriate public health interventions as identified during contingency planning and consider new guidance provided by WHO.</li> <li>2. Review/update recommendations for use of antivirals based on: emerging data from affected countries; clinical studies; evidence of resistance; changes to WHO recommendations; availability and resources.</li> <li>3. Implement distribution plan; monitor supply; be prepared to contribute to evaluation of safety and effectiveness.</li> </ol> <p><b>Affected countries</b></p> <ol style="list-style-type: none"> <li>1. Implement appropriate public health interventions identified during contingency planning, and consider new guidance provided by WHO.</li> <li>2. When possible, evaluate the effectiveness of such measures.</li> <li>3. Re-evaluate use of antivirals based on clinical studies, evidence of resistance, changes to WHO recommendations and availability.</li> </ol> <p><b>Subsided (end of pandemic or between waves)</b></p> <ol style="list-style-type: none"> <li>1. Review effectiveness of treatments and countermeasures; update guidelines, protocols and algorithms.</li> <li>2. Evaluate antiviral efficacy, safety and resistance data; review/update guidelines as necessary; assess supply for subsequent wave(s).</li> <li>3. Assess vaccine coverage to date, efficacy and safety; review/update guidelines as necessary; begin vaccination of persons not yet immunized in line with plans, priority status and availability; consider incorporation of pandemic strain into seasonal vaccine.</li> </ol>

## Pandemic period, phase 6 – Health system response

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>To provide guidance on ways to optimize patient care with limited resources.</li> </ol>	<ol style="list-style-type: none"> <li>To optimize patient care with limited resources.</li> <li>To reduce overall impact of the pandemic (morbidity and mortality).</li> <li>To manage demand on health systems in order to maximize sustainability of response.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
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- Coordinate international response with other international organizations.
- Provide guidelines and (updated) model algorithms for the triage of influenza and non-influenza cases.
- Update guidelines on self-care.
- Facilitate mutual aid arrangements between countries according to the phasing of the pandemic, including mobilization of immune health-care workers.
- Utilize existing clinical networks to review clinical information and effectiveness, and safety of clinical interventions; advise on knowledge gaps, research needs.

### Countries not yet affected

- Keep emergency coordinating arrangements and chains of command for health systems fully functional.
- Keep case definition, protocols and algorithms for case-finding, management (including appropriate use of antibiotics to treat suspected bacterial infections), infection control and surveillance updated in line with latest WHO guidance.
- Maintain health-care worker vigilance for the onset of cases and clusters.
- Explore ways to provide drugs and medical care free of charge (or covered by insurance) to the patient and the health-care delivery system, to encourage prompt reporting and recognition of the start of pandemic activity.
- Maintain capability/capacity for infection control for ill patients, and implement infection control consistent with latest WHO guidelines; maintain staff competency in use of personal protective equipment (conduct drills).
- Keep under review plans relevant to health system response at all levels down to the smallest functioning health unit; maintain surge-capacity arrangements; prepare for imminent switch to pandemic working arrangements.

### Affected countries

- Implement in full pandemic contingency plans for health systems and essential services, at national and local levels where affected; monitor health system status; adjust triage system if necessary; deploy additional workforce and volunteers; ensure staff support; provide medical and non-medical support for ill people in alternative (non-health-care) facilities if needed; provide social/psychological support for health-care workers, victims and communities.
- If resources permit, collect available data on effectiveness and safety of clinical interventions and share these with areas not yet affected and WHO.
- Implement vaccination campaign according to priority status, in line with plans and availability.

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4. If resources permit, collect available data on effectiveness of clinical interventions and share these with WHO.

**Subsided (end of pandemic or between waves)**

1. Ensure that overworked staff have opportunities for rest and recuperation.
2. Restock medications and supplies; service and renew essential equipment.
3. Review/revise plans in anticipation of subsequent wave(s).
4. Support rebuilding of essential services.
5. Adjust case definitions, protocols and algorithms.
6. Continue with vaccination programme in line with plans, priority order and availability.

**Pandemic period, phase 6 – Communications**

WHO OBJECTIVES	NATIONAL OBJECTIVES
<ol style="list-style-type: none"> <li>1. To share appropriate information rapidly among health authorities, other partners and the public.</li> <li>2. To serve as official global source and focal point for credible information related to the pandemic.</li> </ol>	<ol style="list-style-type: none"> <li>1. To ensure public access to regularly-updated official national sources and focal points for credible, consistent information related to the pandemic.</li> <li>2. To maintain open and accessible channels for advice to the public on specific subjects (e.g. travel, social gatherings, etc.).</li> <li>3. To achieve public acceptance and support for national responses and contingency measures.</li> <li>4. To ensure rapid sharing of information regarding progress of the pandemic among health authorities, other relevant government departments and other partners.</li> </ol>

WHO ACTIONS	NATIONAL ACTIONS
<ol style="list-style-type: none"> <li>1. Regularly brief international organizations, national authorities, other partners and stakeholders, and the public on the situation.</li> <li>2. Implement and maintain capacity for meeting expected international information demands.</li> <li>3. Work with partners to promote consistent messages.</li> <li>4. Evaluate communications response during previous phases; review lessons learned.</li> </ol>	<p><b>Countries not yet affected</b></p> <ol style="list-style-type: none"> <li>1. 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.</li> <li>2. Redefine key messages; set reasonable public expectations; emphasize need to comply with public health measures despite their possible limitations.</li> <li>3. Utilize last “window of opportunity” to refine communications strategies and systems in anticipation of imminent pandemic.</li> </ol>

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4. Inform public about interventions that may be modified or implemented during a pandemic, e.g. prioritization of health-care services and supplies, travel restrictions, shortages of basic commodities, etc.

**Affected countries**

1. Maintain capacity for meeting expected domestic and international information demands.
2. Activate all elements of communications plan.
3. Acknowledge public anxiety, grief and distress associated with pandemic.
4. Audit outcomes of communications activities to refine current response and inform future pandemic planning.

**Subsided (end of pandemic or between waves)**

1. Evaluate communications response during previous phases; review lessons learned.
2. Publicly address community emotions after the pandemic.
3. Make people aware of uncertainties associated with subsequent waves.

## ANNEX 1

# Recommendations for nonpharmaceutical public health interventions

### MEASURES AT THE NATIONAL LEVEL (for persons living or travelling within an affected country)

Measures	Pandemic alert period <sup>a</sup>		Pandemic period <sup>a</sup>	Comments
	Phase 3	Phases 4 and 5	Phase 6	
<b>Public health information, communication</b>				
Information for public on risks and risk avoidance (tailored to target population).	Y	Y	Y	
Information for professionals.	Y	Y	Y	
Advice on universal hygiene behaviour.	Y	Y	Y	
Preparatory information on next phase.	Y	Y	Y	
<b>Measures to reduce risk that cases transmit infection</b>				
Confinement:				
— Confine cases (mild and severe) as appropriate to local situation; provide medical and social care.	Y	Y	Y	Need to plan for large numbers of severe cases.
Face masks: <sup>b</sup>				
— Symptomatic persons.	Y	Y	Y	Logistics need to be considered.
— Exposed persons: undertake risk assessment considering: evidence of human-to-human transmission; closeness of contact; frequency of exposure.	C	C	C	Consider recommending masks based on risk assessment.
— Persons seeking care (respiratory illness) in risk area (waiting room).	Y	Y	Y	Need more data, especially on use by well persons.
<b>Measures to reduce risk that contacts transmit infection</b>				
Tracing and follow-up of contacts.	Y	Y	N	Not feasible once pandemic starts.
Voluntary quarantine (such as home confinement) of healthy contacts with health monitoring; provide medical and social care.	N	Y	N	Voluntary quarantine should also apply to contacts of known cases undergoing antiviral prophylaxis, as efficacy not known.
Self-health monitoring and reporting if ill but no restrictions on movement.	Y	C	N	Not relevant for contacts in quarantine.

Source: WHO consultation on priority public health interventions before and during an influenza pandemic. Geneva, World Health Organization, 2004. (Document WHO/CDS/CSR/RMD/2004.9.)

Measures	Pandemic alert period <sup>a</sup>		Pandemic period <sup>a</sup>	Comments
	Phase 3	Phases 4 and 5	Phase 6	
Advise contacts to reduce social interaction.	N	NR	N	Not relevant for contacts in quarantine; see also measures to increase social distance.
Advise contacts to defer travel to unaffected areas.	N	NR	Y	Not relevant for contacts in quarantine. Precautionary principle when unclear whether human-to-human transmission is occurring; see also travel measures.
Provide contacts with antiviral prophylaxis. <sup>c</sup>	Y	Y	N	Principle of early aggressive measures to avert pandemic.
<b>Measures to increase social distance</b>				
Voluntary home confinement of symptomatic persons.	Y	Y	Y	Measures needed to reduce risk of transmission to other household members.
Closure of schools (including preschool, higher education) in conjunction with other measures (limiting after-school activities) to reduce mixing of children.	N	C	C	Depends on epidemiological context – extent to which these settings contribute to transmission.
Population-wide measures to reduce mixing of adults (furlough non-essential workers, close workplaces, discourage mass gatherings). <sup>d</sup>	N	C	C	Consider in certain circumstances – extent to which unlinked community transmission and transmission in workplaces occurs.
Masks in public places.	N	N	N	Not known to be effective; permitted but not encouraged.
<b>Measures to decrease interval between symptom onset and patient isolation</b>				
Public campaign to encourage prompt self-diagnosis.	Y	Y	Y	
Urge entire population (affected area) to check for fever at least once daily.	N	N	N	
Set up fever telephone hotlines with ambulance response.	N	C	N	
Set up fever clinics with appropriate infection control.	N	C	N	
Introduce thermal scanning in public places.	N	N	N	Not effective based on experience; also requires individual and public health action for identified febrile persons.

Measures	Pandemic alert period <sup>a</sup>		Pandemic period <sup>a</sup>	Comments
	Phase 3	Phases 4 and 5	Phase 6	
<b>Disinfection measures</b>				
Hand-washing.	Y	Y	Y	
Household disinfection of potentially contaminated surfaces.	Y	Y	Y	
Widespread environmental disinfection.	N	N	N	
Air disinfection.	N	N	N	
<b>Measures for persons entering or exiting an infected area within the country</b>				
Advise to avoid contact with high-risk environments (such as infected poultry farms, live-poultry markets).	Y	Y	Y	
Recommended deferral of non-essential travel to affected areas.	N	Y	Y	If significant areas of country remain unaffected.
Restrict travel to and from affected areas.	N	N <sup>e</sup>	N	Enforcement of travel restrictions considered impractical in most countries but likely to occur voluntarily when risk appreciated by the public.
Cordon sanitaire.	N	N	N	Enforcement considered impractical.
Disinfection of clothing, shoes or other objects of persons exiting affected areas.	N	N	N	Not recommended for public health purposes, but may be required by veterinary authorities to prevent spread of infection in animals.

## MEASURES AT THE INTERNATIONAL LEVEL

### Measures at borders for persons entering or exiting a country

Information to travellers:				
— Outbreak notice.	Y	Y	Y	Message must be tailored to phase. While travel would remain a matter of personal choice, transparency must be ensured in order to allow for informed decision-making. Consequences for the traveller may include personal risk to health and economic harm.
— Recommend that travellers to areas experiencing outbreaks of highly pathogenic avian influenza avoid contact with poultry farms and live animal markets.	Y	Y	C	
— Recommend deferral of non-essential international travel to affected areas.	N	Y	Y	
— Recommend deferral of non-essential international travel from affected areas.	<i>See screening measures.</i>			



Measures	Pandemic alert period <sup>a</sup>		Pandemic period <sup>a</sup>	Comments
	Phase 3	Phases 4 and 5	Phase 6	
<b>Measures at borders for international travellers coming from or going to affected areas</b>				
Health alert notices to travellers to and from affected areas.	N	Y	Y	WHO negotiates with appropriate organizations (e.g, International Air Transport Association) to ensure that health alert notices are distributed; WHO facilitates shared notice formats among countries.
Medical surveillance:				
— Daily self-checking for fever, travellers from affected area; travellers to affected area.	N	Y	Y	
— Self-reporting if symptoms appear in travellers from affected areas.	N	N	Y	
— Self-reporting if symptoms appear in travellers from affected areas.	Y	Y	Y	Contacts of confirmed cases should be encouraged to monitor health. Quarantine may be indicated. Persons on affected conveyance should be traced and similarly advised.
— Advice on how to behave if ill after travel in affected areas (seek health care, give travel history, receive influenza laboratory test); if pandemic virus detected, patient should be isolated and public health officials, including WHO, notified.	Y	Y	Y	
<b>Entry screening</b> for travellers coming from affected areas.				
				Due to lack of proven health benefit, practice should be permitted (for political reasons, to promote public confidence) but not encouraged. Travellers should receive health alert notices instead.
— Screening for symptoms (visual detection of symptoms).	N	N	N	Entry screening may be considered where host country suspects that exit screening (see below) at traveller's point of embarkation is suboptimal.
— Screening for at-risk travellers (health declaration, questionnaire).	N	N	N	
— Thermal screening.	N	N	N	
— Medical examination.	N	N	N	
Entry screening for geographically isolated infection-free areas (islands), using the options above.	N	Y	Y	Feasible, may prevent entrance of pandemic virus. May also be relevant where country's internal surveillance capacity is limited.
<b>Exit screening</b> for all travellers from areas with human infection.				
— Screening for symptoms (visual detection of symptoms).	N	N	N	More feasible than entry screening for detecting early cases. Not feasible due to passenger volume.

Measures	Pandemic alert period <sup>a</sup>		Pandemic period <sup>a</sup>	Comments
	Phase 3	Phases 4 and 5	Phase 6	
— Screening for at-risk travellers (health declaration, questionnaire).	N	Y	Y	
— Thermal scanning or ear-temperature measurement.	N	Y	Y	Thermal scanning less sensitive and specific but may be more practical than ear-temperature scanning.
— Stop-list of isolated or quarantined persons.	N	N	N	May be feasible in certain countries, but generally not encouraged.
— Recommend that ill persons postpone travel.	Y	Y	Y	
— Medical examination for travellers at risk or with fever.	N	N	N	Not feasible to implement at borders.

#### Measures for countries with porous borders (including informal or illegal crossing points) adjoining affected areas

Raise awareness among health-care providers and general public to facilitate surveillance and response measures, such as social distancing, quarantine or isolation.	N	Y	Y	WHO to post relevant guidelines on web for use by countries in developing posters, mass-media messages and similar measures. Possible benefits include rumour control.
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#### Measures for travellers on board international conveyances from affected areas

Recommend self-reporting if influenza-like symptoms appear.	N	Y	Y	
Separate sick travellers (if possible) on board.	N	Y	Y	On flights from affected areas, masks should be offered to all passengers upon boarding.
Advise health authority at countries of traveller's embarkation, destination and transit that a person on board is ill (airline is responsible to notify destination only).	Y	Y	Y	Established requirement for destination, but not uniformly observed in practice.
Share epidemiological information for contact tracing with national public health authorities.	N	Y	Y	Countries to share this information directly with others, as appropriate.

<sup>a</sup> Y = yes, should be done at this phase; N = no, not necessary at this phase; C = should be considered; NR = not relevant.

<sup>b</sup> Quality and type of mask depend on risk group. Cases: surgical mask; health-care workers: N95 or equivalent; others: depends on risk. (Please see Clarification on page 50.)

<sup>c</sup> Implementation depends on adequate supplies and may require a global stockpile with a prenegotiated targeting and delivery strategy to ensure availability in the area where a potential pandemic virus emerges. Prophylactic use will depend on evidence of effectiveness. Targeted use is required because of potential for drug resistance, side-effects and limited supplies. Targeted use might consider: public prevention; protection of health-care workers; protection of other essential service providers; individual treatment.

<sup>d</sup> Given a pandemic strain causing significant morbidity and mortality in all age groups and the absence of a vaccine, authorities should seriously consider introducing population-wide measures to reduce the number of cases and deaths. Decisions can be guided by mathematical and economic modelling. If modelling indicates a reduction in the absolute numbers of cases and deaths, decisions to introduce measures involving multiple government sectors will then need to balance the protection of priority functions against the risk of social and economic disruption.

<sup>e</sup> Could be considered as an emergency measure to avert or delay a pandemic.

## ANNEX 2

# List of participants

### WHO consultation on WHO-recommended national and international measures before and during influenza pandemics

WHO headquarters, Geneva, Switzerland, 13–15 December 2004

- Dr Isabelle Bonmarin, Project Coordinator, Institut de veille sanitaire, Saint-Maurice, France.
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- Dr Angus Nicoll (Breakout Group Moderator), Director, Communicable Disease Surveillance Centre, Health Protection Agency Centre for Infections, London, United Kingdom.
- Dr Darina O'Flanagan, Director, National Disease Surveillance Centre, Dublin, Ireland.
- Dr Preecha Prempre, ASEAN+3 Coordinator, Bureau of Epidemiology, Department of Disease Control, Ministry of Public Health, Nonthaburi, Thailand.
- Mr Daniel Rutz (Breakout Group Rapporteur), Special Assistant for Communications, National Center for Infectious Diseases, Centers for Disease Control and Prevention, Atlanta, United States of America.
- Dr David Salisbury, Principal Medical Officer, Department of Health, London, United Kingdom.
- Dr Vilma Savy, Director, National Influenza Centre, National Institute for Infectious Diseases, Buenos Aires, Argentina.
- Dr Lars Schaade, Specialist Advisor, German Federal Ministry of Health and Social Security, Bonn, Germany.

\* Invited but unable to attend.

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# Clarification

## Use of masks by health-care workers in pandemic settings

WHO is issuing a clarification on its previously published recommendations related to the use of masks within health-care settings by health-care workers exposed to persons considered infected by pandemic influenza. The previously published language is contained on page 42 (under "Face Masks") and on page 46 (in foot note "b") of the document entitled "WHO global influenza preparedness plan: The role of WHO and recommendations for national measures before and during pandemics" which was published in March 2005.

WHO recommends that health-care workers who will be within 3 feet (1 metre) of infected patients use medical masks (e.g., surgical or procedure) when caring for patients either with, or suspected to have, pandemic influenza. For simplicity, health-care facilities also may recommend that health-care workers use such masks whenever entering a room containing a patient diagnosed with pandemic influenza. The use of particulate respirators at 95% efficiency (e.g., N95 or comparable respirators) by health-care workers should be considered when a patient is undergoing a procedure in which the likelihood of the generation of aerosolized particles is considered to be particularly high, for example during endotracheal intubation, suctioning, or aerosolized nebulizer treatments. WHO acknowledges that resource limitations may set hurdles for universal application of this latter recommendation. However, if resources allow and such respirators are available, they should be used by health-care workers during aerosol-producing procedures in pandemic influenza settings.

If the health-care worker is attending an individual patient who is in isolation, the mask or respirator should be discarded after leaving the room. If the health-care worker is attending multiple patients in the same room, the same mask or respirator may be used until the health-care worker leaves the room. The mask should be discarded after leaving the room.

Importantly, regardless of whether a patient is in a single room or is with several patients, the health-care worker should disinfect the hands with an alcohol-based preparation or should wash the hands with soap and water immediately after each encounter with a patient and before seeing another patient. Hand hygiene also should be performed immediately after discarding a used mask or respirator.

During an influenza pandemic, health-care workers will be at elevated risk of exposure to and infection by pandemic influenza viruses. In a pandemic situation, some patients may have a laboratory confirmed diagnosis but the majority of patients may be diagnosed by clinical criteria. These recommendations should be applied on both situations.

## Justification

Available evidence suggests that transmission of human influenza viruses probably occurs largely through exposure to respiratory large-particle ( $> 5 \mu\text{m}$  in size) droplets. Therefore, the use of surgical masks is considered beneficial and is recommended for all health-care workers who will work within 3 feet of patients who are considered potentially infectious with pandemic influenza. The transmission of influenza viruses through small-particle aerosols (droplet nuclei) at distances over 3 feet cannot be definitively excluded based on available experimental and observational studies. Because of this consideration, respirators, such as particulate respirators at 95% efficiency may provide additional protection in certain situations where procedures such as endotracheal intubation, suctioning, bronchoscopy or nebulizer treatments of infected patients may lead to creation of aerosolized particles in the vicinity of the patient. In these considerations, WHO recognizes that some countries may choose to provide and recommend respirators in those situations but that other countries may not.

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