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EPIDEMIC ALERT & RESPONSE

Informal consultation on influenza pandemic preparedness in countries with limited resources

Kuala Lumpur, Malaysia
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World Health Organization

Department of Communicable Disease Surveillance and Response

Contents

Introduction

The recent avian influenza outbreaks in Asia have provided a stark reminder that the threat of an influenza pandemic is ever present. Epidemiological models indicate that such a pandemic would be responsible for a major burden of disease and for potentially enormous economic costs worldwide, with the greatest impact occurring in the poorest countries, as a result of limited surveillance and health care resources as well as the poor health and nutritional status of the population.

To minimize the impact of a pandemic, planning and implementation of preparatory activities must start well in advance. The World Health Organization (WHO) published its first guidelines for influenza pandemic preparedness plans in 1999 and recommended that each Member State develop its own pandemic preparedness plan. So far, only a small number of countries, mostly developed ones, have influenza pandemic plans.

It is important that the most vulnerable countries (those with limited resources) have a pandemic plan. To assist such countries in developing their plans, WHO has drafted a pandemic preparedness checklist and guide to pandemic preparedness planning. An informal consultation was conducted in Kuala Lumpur, Malaysia, from 23 to 25 June 2004, at which representatives of more than 10 Asian countries participated. This report contains a summary of the discussions held on key elements of the checklist and recommendations for countries with limited resources.

Background

An influenza pandemic occurs with the appearance of a new influenza virus against which none of the population has any immunity. This results in several simultaneous epidemics worldwide with enormous numbers of cases and deaths. With the increase in global transport and communications, as well as urbanization and overcrowded conditions, epidemics resulting from a new influenza virus are likely to be established quickly around the world.

A new influenza virus: how it could cause a pandemic

Influenza A and B are two of the three types of influenza viruses associated with annual outbreaks and epidemics of influenza. These epidemics are the result of minor changes in the influenza viruses that enable them to evade the immunity people have developed after either previous infections with the viruses or in response to vaccinations.

Only influenza A virus can cause pandemics. When a major change in either one or both of the influenza A virus surface proteins occurs spontaneously, no one has immunity to this completely new virus. When the virus also has the capacity to spread from person to person, a pandemic can occur.

Global pandemics have occurred previously in 1918 ("the Spanish flu", caused by the H1N1 strain), 1957 ("the Asian flu", caused by the H2N2 strain) and 1968 ("the Hong Kong flu", cause by the H3N2 strain). Influenza H1N1 re-emerged in 1977 ("the Russian flu").

Consequences of an influenza pandemic

During the last century, influenza pandemics caused millions of deaths, social disruption and profound economic losses worldwide. Influenza experts agree that another pandemic is likely to happen but are unable to predict when. It has been estimated that in industrialized countries, the next pandemic may result in up to 130 million outpatient visits, 2 million hospital admissions and 650 000 deaths over two years. However, the impact is likely to be greatest in developing countries. Deaths caused by pandemic influenza in these countries could total many millions.

In addition to their human toll, pandemics have enormous social and economic consequences. For example, estimates of the cost of the severe acute respiratory syndrome (SARS) outbreak in 2002–2003 range up to US$ 50 billion. SARS caused considerable social disruption and public anxiety, even in areas and countries with no cases. Hospitals, schools and some borders were closed. Thousands of people were placed in voluntary or enforced quarantine. Avoidance of travel to certain areas and the widespread wearing of surgical masks were disproportionate to the risk. Patients and ethnic groups encountered discrimination.

Estimates of the economic cost of the widespread highly pathogenic avian influenza (HPAI) outbreaks of 2003–2004 have yet to be undertaken. Over a two-month period early in 2004, more than 100 million birds in Asia either died of HPAI or were culled. This figure is greater than the total number of poultry affected in the world's previous five largest outbreaks. Although the economic cost has not yet been calculated, poultry production clearly contributes greatly to the economies and food supplies of the affected countries.

Fortunately, pandemics do not occur very often. The last major influenza pandemic was in 1968. Since then, however, a new threat has emerged. Avian influenza, which had previously infected only birds, has caused illness in humans several times since 1997. There is only limited evidence for human-to-human transmission of HPAI infections. Nevertheless, the HPAI outbreaks remind us that the next pandemic could occur at any time and with potentially devastating consequences to human populations if an influenza virus were to combine the high case-fatality rate associated with HPAI and the high transmissibility of seasonal influenza.

Why prepare?

Governments and their partners need to develop strategies and programmes that prepare them for a pandemic. The objective of pandemic planning is to allow Member States to be prepared to recognize and manage an influenza pandemic. Planning may help to reduce transmission of the pandemic virus strain, to decrease the number of cases, hospitalizations and deaths, to maintain essential services and to reduce the economic and social impact of a pandemic. In addition, blueprints for an influenza pandemic preparedness plan could easily be used for broader contingency plans encompassing other disasters resulting from the emergence of novel, highly transmissible and/or severe communicable diseases.

Why develop a pandemic preparedness checklist?

Member States will have varying capacities for influenza pandemic planning and response. The aim of a pandemic preparedness checklist is primarily to provide an outline of the essential minimum components of preparedness as well as those aspects that are considered desirable.

Planning will require the commitment and input of the Member States themselves. A checklist is not intended to substitute for a Member State's preparedness plan. It is essentially a guide that may be used to assist in the development, revision or assessment of the comprehensiveness of such a plan.

In addition to this checklist, more comprehensive guidelines will be drafted, based on the checklist, to assist countries with the development of a national plan in a more stepwise approach. Moreover, these guidelines will contain more background information explaining why certain preparedness activities are thought to be important.

Objectives of the consultation

This informal consultation was held to get feedback on key elements of a draft influenza pandemic preparedness checklist prepared by WHO. The specific objectives were to:

- raise awareness of the need and potential benefits of pandemic preparedness;
- understand the processes involved in planning influenza pandemic preparedness;
- reach some consensus on the priority components of a pandemic plan;
- develop specific recommendations relevant to the high-priority areas of pandemic planning;
- identify the way forward for Member States as they develop their pandemic plans;
- identify whether WHO assistance is needed and, if so, what form it should take.

Summary of the discussions

The points below summarize the discussions during the consultation, grouped under the headings in which they were discussed. However, the summary may sometimes touch on other issues.

Following the summary, action points for both national governments and WHO have been provided.

I. How to develop a national influenza pandemic preparedness plan

Political commitment

1. High-level political support is necessary to develop a preparedness plan.
2. Advocacy will be needed to improve Member States' commitment to pandemic preparedness planning. National, regional and global sharing of information on recent outbreaks and their impact (e.g. of SARS and HPAI), can be used as advocacy materials.

3. Increased regional collaboration and networking may lead not only to mutual support of people involved in planning, but can also be used as an instrument for "international peer pressure", thus increasing political commitment.

Intersectoral and multilevel collaboration

4. Intersectoral coordination involving non-health sectors (especially agriculture, economic, social and internal affairs) is needed.

5. The planning process should also engage the media and professional networks outside the health sector (law, education, tourism, etc.).

6. Local levels of government and the wider community need to be involved in pandemic preparedness as planning may affect all members of the community.

7. Regional partnerships and sharing of existing pandemic plans and planning tools may reduce the resources needed for the planning process.

8. Subnational plans may be necessary in some countries in addition to a national plan, e.g. in China and India, if national plans cannot cover specific issues at subnational levels (because of the size of the country or different administrative responsibilities within the country).

Generic versus specific planning

9. Although a pandemic plan can be part of a general emergency preparedness plan, there are issues specific to influenza that need to be addressed.

10. The content of the plan (i.e. which components are included) will depend on existing resources and population size and structure, and should be decided upon in advance by those countries beginning preparedness planning.

11. The planning process should include identification of possible resources to fund pandemic response.

II. Gaps in preparedness

Impact of pandemic and inter-pandemic influenza

1. The burden of inter-pandemic influenza, including the economic and social burden, is poorly understood in tropical countries.

2. Models can be used to estimate influenza-associated morbidity and mortality. However, current models used for developed countries may not be useful for developing countries.

3. Existing influenza-like illness surveillance and early warning systems in countries is of variable quality (e.g. many surveillance systems are without laboratory support).

4. Assessment of the burden of inter-pandemic influenza is not essential to start developing a pandemic preparedness plan.

5. More information is necessary on the estimated impact (e.g. morbidity and mortality) of a pandemic on different groups of the population in order to develop a preparedness plan.

Plan versus reality

6. A pandemic preparedness plan should be a "living" document. To achieve this, countries can:

    a. conduct a desktop simulation exercise (to gain experience with turn-around times, making sure that people know what to do);

    b. organize national debriefing on response whenever a country has experienced an outbreak with pandemic potential;

    c. conduct periodic reviews of the plan to include new evidence and technical developments.

III. Legal and ethical issues

Legal basis for public health measures

1. During the SARS outbreak, there was limited non-compliance to quarantine measures. However, a strong legal basis should be in place in case it is needed.

2. Countries without a proper specific legal infrastructure needed to put in place public health measures or a central command and control mechanism during a national emergency should address such issues urgently.

3. Regulations should remain feasible for daily practice and should be enforceable.

4. The new (draft) International Health Regulations (IHR) provide a framework for international reporting, collaboration and response. All national pandemic preparedness plans should address the revised IHR.

Ethics and social support

5. During a pandemic, community rights may need to overrule individual rights, but the processes should include a mechanism for checks and balances and should take into account the principles of bioethics. An example of such a mechanism is to have an independent ethical review team.

6. Besides a legal basis, intensive social and practical support of people under quarantine is essential.

IV. Surveillance

Pandemic phases

1. Global pandemic phases and preparedness levels should be further clarified. The discussions from this consultation should be taken into consideration.

2. In developing a national plan, global phases may be adapted to country level to better address the epidemiological and geographical situation.

3. In order to better "fit" surveillance requirements to pandemic phases, it was suggested that the WHO phases are renamed as follows.

   Inter-pandemic Routine influenza pattern in humans and animals.

   Pre-pandemic 1. Influenza strain with pandemic potential identified in birds or animals.

   2. Influenza strain with pandemic potential identified in humans.

   3. Human-to-human transmission of the influenza strain with pandemic potential confirmed.

   Pandemic Multicountry or regional outbreaks of pandemic influenza strain with efficient human-to-human transmission.

4. Although national pandemic preparedness plans should address the possible interaction between animal outbreaks and a pandemic, apparent animal outbreaks (e.g. poultry deaths) may not necessarily be a source of human pandemic strain. This means that some levels may be skipped when a pandemic arises.

Interaction with animal influenza networks

5. Animal surveillance and human surveillance groups should intensify collaboration in:

   a. exchange of laboratory and epidemiological information;

   b. exchange of laboratory materials (e.g. reagents, assay methods);

   c. collaborative case definition and case investigation during outbreaks;

   d. development of advice on food safety and public health.

Priorities for human influenza surveillance

6. Surveillance should lead to action. Before setting surveillance priorities, countries should define the objectives of surveillance.

7. Speed of laboratory confirmation will affect the rapidity of implementation of control measures. Countries should ensure rapid identification of strains.

8. It is strongly recommended to separate the analysis of potential pandemic strains and normal routine influenza diagnosis. Separation would ideally involve the use of different rooms within the laboratory.

9. National and international reporting systems should take into account the new IHR.

10. During the pre-pandemic phase, surveillance in all countries should target:

    a. description of the circulating strain;

    b. early detection and reporting of the potential pandemic strain in animals;

    c. early detection and reporting of the potential pandemic strain in humans.

    Countries affected by a pandemic threat should also:

    d. determine the extent of the outbreak;

    e. determine if human-to-human transmission is occurring and the efficiency of transmission.

11. Activities during the pre-pandemic phase should include:

    a. laboratory surveillance;

    b. a clinical case reporting system, including reporting from hospitals;

    c. an early warning system (e.g. rumour surveillance, investigating clusters of acute respiratory disease);

    d. a basic system for animal surveillance;

    e. strengthening collaboration with a reference laboratory to identify non-typable influenza.

    Activities in affected countries (i.e. with animal outbreaks) should also include:

    f. case investigation and contact tracing;

    g. cluster investigation;

    h. health monitoring of high-risk groups.

12. Desirable surveillance activities during the pre-pandemic phase may include:

    a. pneumonia surveillance;

    b. monitoring antiviral drug resistance.

13. During the pandemic phase, surveillance should be targeted to monitor the:

    a. extent of the pandemic within the affected country;

    b. morbidity and mortality attributable to the novel pandemic strain;

    c. effect of the pandemic on essential services.

14. Activities during the pandemic phase may include:

    a. case counting in specific clinics or hospitals designated for exclusive use by presumed influenza pandemic patients (if a country chooses to designate such clinics or hospitals);

    b. determining the profession of these cases (i.e. to see if any are involved in designated emergency services);

    c. counting all hospital admissions resulting from presumed pandemic strain influenza;

d. counting bed occupation in intensive care units by patients with presumed pandemic strain influenza;

e. counting all deaths due to presumed pandemic strain influenza (inside and outside hospitals);

f. counting absenteeism among the essential services workforce.

15. Desirable surveillance during the pandemic phase may include:

a. monitoring antiviral resistance;

b. studies to assess vaccine effectiveness;

c. targeted research on the epidemiology of the pandemic strain, including studies on the incubation period;

d. targeted research on the virology of the pandemic strain, including molecular epidemiology;

e. targeted research on the risks for human-to-human transmission and the effectiveness of recommended preventive strategies.

V. Public health interventions (non-pharmaceutical interventions)

1. When deciding on the possible interventions, there is a need to consider the epidemiological characteristics of pandemic influenza (e.g. incubation period and period of infectivity).

2. The appropriateness of the intervention will depend on different stages of the pandemic. Most non-pharmaceutical interventions are likely to be effective only in pre-pandemic or early pandemic stages.

3. Different measures may be considered for different population subgroups (e.g. adults/children, rural/ urban situation).

4. Appropriate legislation is needed to implement control measures.

5. There is a need for more scientific evidence on the effectiveness of various interventions, especially for the use of masks.

VI. Vaccines and antivirals

Vaccines

1. In order to optimize the speed for pandemic vaccine production, countries should ensure that potential pandemic strains are sent to a nominated WHO collaborating centre without delay.

2. Although it may take several months (>6 months) before vaccines become available, even in limited quantities, target groups for priority vaccination should be identified in all pandemic preparedness plans.

3. The identification of priority target groups needs transparent decision-making.

4. Safety and liability issues for pandemic vaccines need to be addressed in the pandemic plan, i.e. prior to the use of such vaccines.

5. Pneumococcal vaccination may not be a priority for countries with limited resources.

Antivirals

6. As a result of a lack of global surge capacity and high prices, Member States should not consider antivirals to be the first line of response during a pandemic unless they have adequate stockpiles.

7. Member States may consider stockpiling of antivirals.

8. During the pre-pandemic phase, use of antivirals, if available, should be targeted only at people at high risk of infection.

9. Antivirals will be in extremely short supply during a pandemic. Countries should identify a selected target group for priority treatment. This group may include key persons maintaining essential services. However, in the absence of a stockpile, the chance of antivirals becoming available will be low.

VII. Maintaining essential services

1. Essential services or processes should be identified rather than individuals. This identification process needs involvement of different sectors.

2. Health-care services are essential. Other services considered to be essential may vary between countries.

3. Essential services should develop plans to maintain sufficient personnel to carry out their activities, e.g. by the use of volunteers, training additional staff, and the identification and use of people that have recovered from infection.

4. If vaccines (or antivirals) are available, a country can consider priority vaccination (or treatment) of personnel required to carry out essential services.

5. In addition to technical arrangements, psychosocial and other supportive arrangements (e.g. resting facilities) for professionals, especially health-care workers, are essential to maintain the workforce.

VIII. Risk communication

1. Risk communication is an essential component of the response to an outbreak and thus of a national preparedness plan.

2. Provision of timely and accurate information is critical.

3. The media, general public and health professionals should be provided with daily updates during pre-pandemic and pandemic phases.

4. Daily analysis of international news during an outbreak can be helpful in developing a national communication strategy.

5. Health-care workers are an important target population for risk communication.

6. It is important to keep an open dialogue going with the press: they can be an important source of information as well.

7. A country should designate a spokesperson or spokespersons. They should preferably not be involved in the day-to-day outbreak response, to ensure availability. For this person(s), communication skills are as important as technical knowledge.

IX. Pandemic preparedness checklist

Feedback on the checklist was limited. A representative from one Member State that had started its pandemic plan reported that the checklist was useful. A representative from another Member State, which had recently completed a pandemic plan, reported that the checklist was comprehensive but that reference should be made to the psychosocial support of health-care workers (both clinical and laboratory based) at potential risk of occupational exposure. A further informal comment from a representative of a Member State in the process of revising its pandemic plan was that the checklist was very useful. Representatives from Member States that had not yet started pandemic planning indicated that the checklist reminded them of many things that still had to be done in their countries.

Based on feedback obtained from participants, the following Member States have started preparing or revising their national influenza pandemic preparedness plans: Australia; China; China, Hong Kong Special Administrative Region; Japan; Malaysia; Philippines; Republic of Korea; Singapore; and Thailand.

Recommended actions for national governments

1. A national influenza pandemic preparedness plan should be an integral part of the national disease surveillance and response for outbreak-prone diseases. Plans should include arrangements for regular testing and evaluation of the early warning and response systems.

2. Governments should include multiple sectors in the development of a national pandemic preparedness plan, as well as local administrative levels and the wider community, in order to ensure broad commitment.

3. International coordination is necessary to implement some measures (e.g. border control). In addition, seeking international collaboration may create opportunities to divide tasks and increase efficiency in planning. It can also be used to increase peer pressure on neighbouring countries with limited progress.

4. As surveillance is a cornerstone for response and policy decisions, it is a priority to ensure a communicable disease surveillance system for humans and animals is in place.

5. Governments should develop or review laws and legislation, especially those addressing the legal basis for the imposition of quarantine and isolation. During the development or review, the new IHR should be taken into account.

6. Although it will take at least several months before vaccines become available during a pandemic or potential pandemic, governments should identify priority groups for immunization in advance. The same also applies for allocation of antivirals, although their availability is even more uncertain in the absence of stockpiles.

7. In addition, governments should explore possible national (governmental) funding opportunities and mechanisms for the procurement and licensing of pandemic vaccines.

8. Governments need to identify essential services and encourage the development of contingency plans within these services to maintain basic activities.

9. Open and transparent risk communication is an essential part of the response during a pandemic. It is crucial that governments designate an official spokesperson(s).

10. Every country should try to estimate the impact on their country of a pandemic.

11. Governments should ensure there is a strategy to monitor adverse events related to antivirals or vaccines.

12. Governments should make provisions for psychosocial support to professionals (especially health-care workers) and affected citizens during a pandemic or potential pandemic.

Recommended actions for WHO

1. WHO should advocate the importance of pandemic preparedness with Member States that have not started pandemic preparedness activities. This may involve reference to the World Health Assembly resolution on pandemic planning.[1]

2. WHO should revise its current pandemic preparedness plan, especially to:

    a. review pandemic phases based on discussions at this meeting;

    b. issue guidance on surveillance needs during the different phases;

    c. harmonize advice about preparedness planning with the IHR and further clarify reporting requirements.

3. WHO should provide support to countries with limited resources in responding to outbreaks in pre-pandemic phase, including laboratory services.

4. WHO should be responsible for:

    a. issuing guidance on public health measures, including travel advisories;

    b. providing early alerts and updates on continuing outbreaks.

5. WHO should work with other international organizations and associations (e.g. the International Air Transport Association) to develop and implement standard measures for travellers on international conveyances.

[1] Resolution WHA56.19. *Prevention and control of influenza pandemics and annual epidemics*. Fifty-sixth World Health Assembly, Geneva, 19–28 May 2003.

6. WHO should develop scenarios that can be used by national authorities for desktop evaluation of their national pandemic preparedness plans.

7. WHO should evaluate existing surveillance systems in countries with limited resources.

8. WHO should work with research institutes to:

    a. obtain more information on the effectiveness of public health interventions, e.g.

        – what minimum personal protective equipment (PPE) would be protective?

        – Can PPE replace antivirals or vice versa?

    b. to increase knowledge on the transmission behaviour of the potential pandemic virus (e.g. animal to human, human to human, and wild birds to domestic birds).

9. WHO should work with representatives from pharmaceutical manufacturers to explore increasing vaccine and antiviral production capacities.

10. WHO should work with the Food and Agricultural Organization of the United Nations and the World Organisation for Animal Health to increase collaboration on animal surveillance and protection of people at risk for infection by avian influenza.

11. WHO should continue with the development of pandemic planning tools including a checklist and guidelines for developing a national pandemic preparedness plan.

Agenda

Day 1 – 23 June 2004

Chair: Dr Norshahidah Khairulla, Malaysia

Plenary session I

8:30–9:00 Welcome address

Dr Han Tieru, WHO Representative, WHO, Malaysia

Dr Ramlee, Director General of Public Health, Ministry of Health Malaysia

Self-introduction of participants

Workshop objectives and programme – Dr Heath Kelly

9:00–9:20 Avian influenza outbreak in Asia and implications for pandemic preparedness – Dr Conchy Roces

9:20–9:40 Influenza pandemic preparedness: challenges and issues. Brief summary of global meeting in March 2004 – Dr Marja Esveld

9:40–10:00 Use of antiviral drugs during a pandemic: possible scenario and mathematical modelling – Dr Yasushi Ohkusa

10:00–10:30 BREAK

10:30–11:00 Draft pandemic preparedness checklist – Dr Heath Kelly

Split simultaneous sessions

11:00–12:00 Group discussions

Group1: Process for developing a national pandemic preparedness plan

Facilitator: Dr Marja Esveld; Rapporteur: to be nominated from participants

Group 2: Gaps in pandemic preparedness

Facilitator: Heath Kelly; Rapporteur: to be nominated from participants

Group 3: Gaps in pandemic preparedness

Facilitator: Dr Conchy Roces; Rapporteur: to be nominated from participants

12:00–13:30 LUNCH

Plenary session II

13:30–15:00 Feedback from morning discussion groups and reactions/consensus

15:00–15:30 BREAK

Plenary session III

15:30–16:30 Legal and Ethical Issues – Dr Sohn Myong Sei

16:30–17:00 Instructions for Day 2 and meeting of group facilitators and rapporteurs

Day 2 – 24 June 2004

Chair: Dr Jagvir Singh, India

08:30–09:00 The intersection of animal and human surveillance for communicable diseases – Dr Ong Bee Lee

09:00–10:00 Group discussion

Surveillance Issues

Facilitator: Dr Conchy Roces; Rapporteur: to be nominated from participants

10:00–10:30 BREAK

10:30–12:00 Split group discussions

Group 1: Public health interventions during a pandemic

Facilitator: Dr Hitoshi Oshitani; Rapporteur: to be nominated from participants

- Isolation and quarantine measures
- Travel advisories/restrictions
- Other public health measures

Group 2: Medical interventions during a pandemic

Facilitator Dr Marja Esveld; Rapporteur: to be nominated from participants

- Use of antivirals/antibiotics
- Vaccination policies

Group 3: Public health interventions during a pandemic

Facilitator: Dr Conchy Roces; Rapporteur: to be nominated from participants

- Isolation and quarantine measures
- Travel advisories/restrictions
- Other public health measures

12:00–14:00 LUNCH

Plenary session

14:00–15: 00	Feedback from discussion groups and reactions/consensus from workshop participants
15:00–15:30	BREAK
15:30–16:30	Maintaining health and other essential services during a pandemic – Dr Marja Esveld
16:30–17:00	Meeting of group facilitators and rapporteurs

Day 3 – 25 June 2004

Chair: Dr Luningning Villa, Philippines

Plenary session

8:30–10:00	Risk communication experiences in the avian influenza crisis in Thailand, 2004 – Ms Nitaya Chanruang Mahabdol
10:00–10:30	BREAK
10:30–12:00	Summary of conclusions and recommendations – Dr Hitoshi Oshitani and Dr Marja Esveld

- Components of national pandemic plan and key recommendations for each component
- WHO's role in assisting countries in developing their national pandemic plan

12:00–12:15	Closing remarks – Dr Hitoshi Oshitani

List of participants

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