

# **WHO pandemic influenza draft protocol for rapid response and containment**

27 January 2006



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## Note

This initial draft is expected to evolve considerably over the coming weeks and months in response to comments received from expert reviewers. The protocol will also be modified and updated as new information becomes available and the epidemiological situation changes.

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## Introduction

The world is now closer to another influenza pandemic than at any time since 1968, when the last of the previous century's three pandemics began. While influenza pandemics are infrequent events, they are rightly feared as they spread very rapidly to affect all countries and cause abrupt and significant increases in morbidity. Neither the timing nor the severity of the next pandemic can be predicted, but severe pandemics in the past have resulted in tens of millions of deaths. As the SARS experience clearly demonstrated, the first influenza pandemic of the 21st century could have significant economic and social consequences that go well beyond the absolute impact on health.

At present, two primary strategies have been implemented for addressing the current avian influenza situation and reducing the related pandemic threat. The first strategy, which aims to reduce opportunities for a pandemic virus to emerge, consists of efforts to contain outbreaks of highly pathogenic H5N1 avian influenza in poultry, prevent the spread of this disease to new countries, and thus reduce opportunities for human infections to occur. The prevention of high-risk behaviours is part of this strategy, as is the strengthening of the early warning system.

The second strategy, which is being introduced in tandem, is to intensify the world's preparedness to cope with a pandemic, both nationally and internationally. Activities taking place within this strategy include the formulation of national preparedness plans, improved access to antiviral drugs, the development of pandemic vaccines and of plans for increasing their accessibility and affordability, planning for implementation of public health measures to reduce morbidity and mortality, and the development of

communication plans and messages to improve compliance with recommended measures and reduce social and economic disruption.

In this document, WHO provides an initial draft protocol for implementing a third complementary strategy, in which national and international planning and resources are coordinated and focused for the purpose of rapidly detecting, and potentially stopping – or containing – an emerging pandemic virus near the start of a pandemic. The purpose of this protocol is to facilitate rapid detection and assessment of potential “signals” that the virus is improving its transmissibility, and to guide implementation of effective response interventions before an emerging pandemic virus has spread beyond an initial outbreak zone.

Containment of a potential pandemic has never been attempted; the world has never before received an advance warning that a pandemic may be imminent. The practical and logistics challenges are formidable and success is not assured. Nonetheless, the strategy should be pursued for several compelling reasons.

- Successful containment will avert an enormous amount of human suffering and possibly millions of deaths, while also sparing the world considerable economic and social disruption.
- Even if containment efforts ultimately fail to stop the emergence of a fully fit pandemic virus, these efforts could slow the initial spread of the pandemic and give countries time to increase preparedness. Each day gained following the emergence of a pandemic virus – if rapidly detected – allows the production of around 5 million doses of a pandemic vaccine. Each added day gives countries more time to adapt routine health services to an emergency situation. Time gained also allows WHO to predict patterns of further spread and issue appropriate alerts.
- The preparatory work is, in itself, an important exercise that increases the interaction of WHO and the international community with countries and strengthens fundamental capacities within those countries. The required training, national and international coordination and agreements, and development of stockpiles, protocols and standard operating procedures will contribute greatly to strengthened public health capacity. This capacity can be adapted and used to address other aspects of pandemic influenza as well as future emerging infectious diseases. In its most fundamental sense, the effort to develop the capacity for rapid containment constitutes a significant step towards strengthening basic national, regional and international health capacities.
- The prospect of immediate assistance in the management of cases and prevention of further spread is a powerful incentive for countries to be more vigilant in their surveillance for cases, more transparent in their sharing of information, and more willing to share patient specimens and viruses.

## **Background**

Influenza pandemics arise when a “novel” influenza virus emerges, infects humans, and spreads efficiently and sustainably among them. Once such an event starts and reaches a

certain level of local or regional spread, continued worldwide spread of the virus is considered inevitable. A novel human influenza virus can start as a purely avian influenza virus that adapts, through gradual mutation, to humans or as a hybrid influenza virus that contains a combination of genes derived from both an avian and a human influenza virus. Regardless of its origin, such a virus is termed “novel” because it has not circulated widely among humans in the recent past, leaving most people with no pre-existing immunological protection against the virus.

Theoretically, many different avian influenza viruses have the potential to evolve into a pandemic virus. However, at this time, the virus of most concern is the H5N1 strain of avian influenza. Following outbreaks that began in mid-2003, this virus has become firmly entrenched in poultry populations in parts of Asia and has recently spread westwards to affect parts of Europe. In so doing, the virus has become a major agricultural and economic burden. Although the species barrier remains considerable, and people are not easily infected, more than 150 human cases have been laboratory confirmed since December 2003. More than half of these cases have been fatal.

To date, H5N1 viruses have not been associated with the type of community-wide outbreaks that are characteristic of human influenza. However, all influenza viruses have the capacity to undergo genetic and antigenic change in unpredictable ways. Concern is great that such change could allow the H5N1 virus to spread efficiently and sustainably among people. Should an H5N1 virus anywhere in the world develop this ability, and if the outbreak caused by its initial emergence is not contained, the chances are very high that the virus will spread globally and cause a pandemic. The 1918 pandemic virus, which is thought to have originated as a purely avian influenza virus, resulted in an estimated 40 to 50 million deaths worldwide within one year.

The strategy of rapid containment reflects several considerations including the following:

1. In 1997, decisive public health actions in Hong Kong SAR (China) showed that rapid action by agricultural and public health authorities could stop an H5N1 outbreak involving poultry and people. While stopping an avian influenza outbreak and related human cases and stopping an emerging virus with improved pandemic potential are not directly comparable, this event demonstrated that decisive action can prevent an ominous situation involving an influenza virus from evolving further.
2. In 2003, the global response to SARS further demonstrated the power of rapid, coordinated and effective international and national action to change the natural course of a disease, effectively preventing the SARS coronavirus from establishing endemicity.
3. In 2005, two different scientific groups published findings from epidemiological modeling that suggested that the use of antiviral drugs for prophylaxis and treatment, combined with other actions such as restrictions on population movement and social distancing, might be able to stop the further evolution or spread of an emerging pandemic virus under certain circumstances and provided certain rigorous conditions were met.
4. Early containment of an emerging pandemic virus represents an opportunity to stop or delay an event of predictably severe consequences for human health and the

global economy, and this opportunity must be seized, even in the absence of any guarantees of success.

Successful containment will be difficult to achieve and will succeed only if a strategy for rapid response and containment is integrated into existing national pandemic preparedness plans. Success further requires that first detection of a “signal” of improved transmissibility of the virus be followed, within days to a few weeks, by full implementation of containment measures. If implementation takes place outside this narrow timeframe, the chances of success are substantially reduced.

## **Objective**

Develop, through a coordinated international approach, the capacity to rapidly detect, assess, respond to, and if possible, contain, the earliest emergence of a pandemic virus.

## **Overall concept**

Countries will be responsible for conducting surveillance to monitor for signals that may indicate that a novel influenza virus has begun to spread from person to person and thus trigger the intervention. Potential signals include the identification of a virus with certain genetic features, the detection of certain epidemiological patterns, or an unforeseen combination of laboratory and epidemiological findings. In line with requirements set out in the International Health Regulations (2005), the country is expected to report the event to WHO within 24 hours. Upon notification, WHO will rapidly assess the situation using all necessary means, including urgent discussions with the reporting country and relevant external experts and partners as well as consultations with the WHO Pandemic Task Force. On the basis of discussions during virtual consultations, WHO will provide immediate recommendations to the affected country that can be expected to reflect one of the following main options:

- Refrain from initiating rapid containment measures because the evidence indicates the pandemic threat is minimal.
- Urgently continue investigations, perhaps with international assistance, to collect more information needed to adequately assess the situation.
- Begin containment procedures without delay as evidence is sufficient to conclude that a pandemic virus has emerged.
- Take actions other than containment measures because pandemic activity has begun and is already too extensive to contain.

If a decision to initiate containment is made, WHO will become the coordinating body for all international support. WHO and its global partners will work with the country to mobilize necessary resources and implement necessary actions using pre-trained staff, pre-developed protocols and standard operating procedures, the existing dedicated stockpile of antiviral drugs (oseltamivir) and other supplies.

## Primary responsibilities

- Countries will be responsible for ensuring rapid reporting of all signals, for mobilizing all possible staffing and providing other support, including compliance with national legal requirements, needed to facilitate rapid response or containment activities and for conducting active surveillance to monitor the situation.
- WHO will be responsible for mobilizing and coordinating all international and regional support for the affected country, including staff, expertise and stockpiles containing antiviral drugs and other supplies, such as personal protective equipment.
- Other partners will be responsible for providing support, including supplies from stockpiles, as needed under the direction and coordination of WHO.
- National authorities and WHO jointly will coordinate all containment activities within the affected country.
- National authorities and WHO will coordinate on communication issues and messages but will maintain separate responsibility for media communications.

## Key concepts

**Rapid response.** This refers to rapid assessment and response of any kind after possible early pandemic activity has been detected.

**Rapid containment.** This refers specifically to the attempt to stop further spread of an emerging pandemic virus.

## Operational definitions

**Stockpile.** A compilation of supplies and equipment acquired (and distributed) to meet a specific objective. The stockpiles associated with pandemic containment and rapid response will comprise the supplies and equipment needed to achieve containment.

**National stockpile.** A stockpile that is under the control of a specific nation and positioned within the borders of that nation. A national, or “domestic”, stockpile is usually reserved for the response to outbreaks within the country or the treatment of citizens during a pandemic.

**Regional stockpile.** A stockpile developed to support any of the countries within a defined region. The definition of a region may vary depending on the group controlling the stockpile (such as WHO or another group). The stockpile may be physically located in the region or elsewhere.

**Global stockpile.** A stockpile created to support containment, either directly or by replenishing other stockpiles that were used to support containment, anywhere in the world. Following donations by industry, WHO currently has a global stockpile containing 1.5 million treatment courses of oseltamivir. The stockpile will increase by an additional 1 million doses by end February 2006, and reach a total of 3 million treatment courses by May 2006.

**Supply chain.** The integrated management of logistics and activities from vendors to the ultimate consumers necessary to provide material efficiently and effectively. The supply chain provides information and material management to ensure the product is available where it is needed, when it is needed

## Specific procedures and actions

### 1. Protocols and standard operating procedures

Staffing and coordination of activities needed to develop specific protocols to support a rapid response and rapid containment strategy.

- **Creation of a WHO working group.** WHO will dedicate 3– 5 staff members to develop this project and also will ask partner organizations to second staff to WHO to work fulltime on this project. The final composition of the team has not been determined, but the team will consist of some staff who will work full time and others who will work part time on this project. Regardless, staff will be recruited to ensure that the following areas are covered:

- Team leadership
- Operational planning
- Logistics
- Supply procurement and storage
- Epidemiological and modelling aspects
- Influenza expertise
- Medical aspects
- Laboratory testing
- Legal aspects
- Social mobilization aspects
- Communications
- Education and training
- Ethics
- Security
- Regional and country liaisons

The staffing needs and composition for this project will be re-assessed after six months.

- **Drafting of protocols, plans and standard operating procedures.** The WHO working group will work closely with countries in an iterative process to draft practical and realistic working protocols and standard operating procedures. Two general principles will guide this work:

- To promote standardization and efficiency, steps and procedures will be identical for all countries wherever possible. For example, the identification of potential pandemic signals will trigger the same investigation and assessment activities and consultations for any country.

To respect the unique situation in individual countries, some parts of some protocols may vary from country to country. For example, the procedures for distributing, administering, and monitoring antiviral drugs are likely to vary from country to country, as will methods of issuing information to the affected community.

- **Meetings and consultations.** A series of technical meetings will be held with countries and other partners to develop the protocols and standard operating procedures and ensure they are aligned with the needs and capacities of countries. A large meeting of global experts and other representatives will be convened to finalize the protocols and plans, with an anticipated meeting date of 6 to 10 March 2006.

## 2. Training programmes

This activity involves the development of the training programs to support a rapid response and rapid containment strategy.

- **Training of staff for the response team.** Implementation of rapid response and containment activities requires the availability of a pool of highly trained and qualified staff who have been pre-identified by WHO and who can quickly mobilize into teams. These persons will include in-country staff from affected countries who understand the goals, concepts and operational details of rapid response and rapid containment.

The international response teams will be drawn from a pool of pre-identified persons representing national and international organizations, utilizing the large number of institutions in the WHO Global Outbreak and Response Network (GOARN) and, if needed, other sources.

Qualified individuals for teams will be selected to provide a variety of background skills, including those in the areas of laboratory diagnostics, epidemiology, clinical management, infection control, veterinary medicine, logistics, communications, database management, and ethics), and to represent a variety of countries (initially, primarily countries within Asia, and later, other countries and regions) and major technical agencies.

These persons will receive additional training to cover topics such as influenza, rapid response or containment goals, concepts and activities, and team roles and responsibilities. WHO will establish a teaching faculty and course materials.

Each training session will last approximately two weeks per group. The initial teaching venue will be in Geneva but future courses will be held in regional venues.

Once team members have been trained, educational materials to develop country-level skills in rapid response and rapid containment activities will be developed.

## 3. Stockpiles

This activity involves the development of international and regional stockpiles, and associated operations and logistics, needed to support the rapid response and rapid containment strategy.

- **General principles.** The concept of rapid containment depends upon the rapid availability of antiviral drugs and additional supplies and equipment. Currently, some governments have created national stockpiles primarily for treating their own citizens while other groups are planning, or have started, to create separate regional stockpiles. In addition, WHO has developed an international stockpile of antiviral drugs for supporting a rapid containment strategy. At this time, there has been little coordination among these groups and the existing and planned stockpiles are not connected by a coordinated supply chain.

WHO expects that, in principle, regional stockpiles will be made available, in addition to the global stockpile, for rapid response and rapid containment purposes and that all controlling authorities will agree to allow WHO to coordinate the release and use of these stockpiles for this purpose. Donations from national stockpiles would be managed according to the same principle.

One of the major tasks of the WHO working group will be to define the operational relationships between the various stockpiles, so they are complementary and provide an integrated capacity to support rapid response and containment. Several different relationships among the various stockpiles can be foreseen. The underlying principle will be to ensure that the supply chain can mobilize these resources as rapidly and efficiently as possible.

- **Management of the supply chain.** Once the strategic use and operational relationships between the stockpiles have been defined, the supply chain management must be addressed, which is a significant undertaking. The WHO working group will develop options, including the possibility of outsourcing the operational management to another international organization, or to a private sector third party with a global network.
- **National stockpiles.** National stockpiles, when they exist, will be drawn upon first for containment purposes if they are able to provide supplies more rapidly than other stockpiles. Depending on the circumstances, supplies drawn from these stockpiles may be replenished by the country, by donations from the international community, or by drawing on the WHO global stockpile.
- **Regional stockpiles.** At present, regional stockpiles exist in some parts of the world but not in others. Regional stockpiles are expected to be larger than most national stockpiles. These stockpiles will be used, if needed, to support multiple countries if required for containment and to provide adequate surge capacity. These stockpiles need to be positioned close to transportation hubs that routinely move products throughout the region. If deemed necessary by WHO for containment purposes, supplies from regional stockpiles may be reallocated to different regions based on the situation.

- **WHO global stockpile.** An international stockpile of oseltamivir has been donated by the manufacturer to WHO.

This stockpile currently contains 1.5 million treatment courses (10 capsules per treatment packet). This supply will expand to 3 million treatment courses by May 2006. Most recently, the manufacturer has announced plans to augment the stockpile by an additional 2 million treatment courses. Three million treatment courses will be held in reserve for containment purposes; use of the additional two million treatment courses is flexible and under discussion.

For reasons of security and logistic flexibility, one half of the supply is stored in Switzerland and one half in the USA.

Depending on the region and the rapidity with which supplies can be mobilized, this stockpile may be used to directly support containment in a country or used to replenish national or regional stockpiles that were used to support containment.

If used directly for containment, the manufacturer has developed detailed plans to transport the international stockpile to the major airport nearest to the outbreak site, immediately upon receipt of a request from WHO.

Once the antiviral drugs arrive at the airport, responsibility for managing the drugs will be transferred to WHO. The recipient country will assist WHO with transportation of the drugs to the containment site, with safe and secure storage of the drugs, and with distribution and administration of the drugs, in accordance with protocols and standard operation procedures developed by WHO, countries, and international partners.

- **Uses of the stockpile for non-containment purposes.** The WHO working group will be given the responsibility to explore options for using national, regional and international stockpiles for non-containment purposes.
- **The stockpile inventory, including non-drug items.** Ideally, all stockpiles will contain essential supplies in addition to antiviral drugs. The ideal inventory will vary depending on circumstances in individual countries and regions. For containment purposes, WHO proposes that strong consideration be given by all stockpile controlling authorities to include the following:

Personal protective equipment (PPE) kits consisting of:

- Surgical and N-95 masks
- Surgical gloves
- Goggles
- Disposable boot covers
- Disinfectant wipes for equipment
- Biohazard bag for proper disposal of contaminated items
- Pictograph directions

Hand-washing soap or hand disinfectants (alcohol-based hand rubs)

Disinfectant for cleaning surfaces in health care settings

Instructions written so they are easily understandable in multiple cultures

Antiviral drugs (oseltamivir in 75mg tablets)

Antibiotics to cover the most common secondary pneumonias

NOTE: Supplies needed for other purposes, such as the control of avian influenza outbreaks in poultry, are not covered in the list.

- Consideration should be given to stockpiling a small number of ventilators (for example, 10 to 20) regionally. However, if ventilators are stockpiled, then the groups maintaining the stockpiles must also plan for having respiratory staff and technicians available to use and maintain these machines plus all associated supplies needed to use these machines.
- Next steps in implementing a stockpile strategy: The WHO work group will address several necessary steps including the following:

- Development of the protocols for use of medical and non-medical materials.

- Work with epidemiological modelers to help make estimates of the quantities of materials required at national and regional levels to rapidly respond and contain an outbreak.

- Develop the architecture to coordinate and manage the supply chain

- Develop the operational management plan for the supply chain

- Develop the policies and procedures for reporting material usage and replenishing material

- Address issues such as customs processing, use of drugs in countries in which they are not licensed, secure transportation and storage of drugs.

#### 4. “Signal” detection and reporting

Once a country identifies a signal suggesting person-to-person transmission of a novel influenza virus, the country is expected to immediately begin investigations and simultaneously notify WHO of the event. The country should not wait to complete investigations before notifying WHO.

- The first potential signal of early pandemic activity cannot be known in advance; precise “triggering criteria” cannot be fully developed ahead of time. For example, the signal could follow isolation, from a single infected person, of an influenza virus with certain genetic and antigenic features (such as a virus with surface proteins derived from an animal influenza virus and internal genes derived from a human influenza virus), or detection of an expanding cluster of human cases of avian influenza closely related in time and place, or detection a community outbreak of respiratory illness of unknown etiology. Because these and other scenarios are plausible signals that a pandemic virus may be emerging, maintaining vigilance, a high degree of suspicion, and a capacity for rapid expert assessment and reporting are the most reliable way to ensure that signals are not missed.
- Each country is responsible for undertaking disease surveillance and virological studies that contribute to the rapid detection of signals. Many countries will require support in order to undertake this responsibility. WHO and its partners will respond to such requests for support.
- Once national authorities have been notified by local authorities of an event that could be the start of an influenza pandemic, the ministry of health is expected to notify WHO within 24 hours.

#### 5. Signal assessment

Once WHO has been notified by a country that a signal has been detected, WHO will, within 24 hours, convene one or more virtual conference with the country and, based on the available information and the level of concern, the WHO Pandemic Task Force and other partners to assess the situation.

- **Technical risk assessment.** After the country has provided all relevant information and sufficient discussion has taken place, the country, WHO technical staff, and the WHO Pandemic Task Force will jointly review the available information.

The WHO Pandemic Task Force will be asked to make an independent assessment and to provide recommendations to WHO.

Based on this recommendation and further assessment by WHO technical staff, WHO will make recommendations to the affected country.

- **Decisions.** Decisions to conduct additional investigations as part of a rapid response or to specifically begin containment activities are considered technical decisions that will be guided by the specific circumstances.

Nonetheless, containment will be strongly considered in the following circumstances:

An influenza virus isolated from an ill person has a haemagglutinin gene derived from a nonhuman influenza virus and one or more internal genes derived from a human influenza virus.

There is epidemiological evidence that infection from a novel influenza virus has been transmitted from an index case to 5 or more secondary cases.

There is epidemiological evidence that infection from a novel influenza virus has been transmitted from 3 or more secondary cases to tertiary cases.

There is other evidence strongly suggestive or indicative of sustained person-to-person spread of a novel influenza virus.

NOTE: Although modeling studies have relied heavily upon estimates of the basic reproduction number (RO) for modeling purposes, it is highly unrealistic to assume the availability of accurate estimates during a rapidly evolving outbreak situation.

Containment will not be attempted in the following circumstances

There is no laboratory confirmation (PCR, isolation or seroconversion) of infection caused by a novel influenza virus.

The distribution of cases of infection caused by a novel influenza virus occurs over an area that is considered too large to implement quarantine or in a population that is too large to be covered by available supplies of antiviral drugs.

The time from onset of the index case to implementation of quarantine and administration of antiviral drugs is considered too prolonged (greater than 6 weeks).

## **6. Pandemic phase assessment**

A WHO decision to change the phase of pandemic alert will be made separately from the decision to initiate a rapid response or rapid containment effort. Since a change in phase is expected to trigger a number of potentially cascading actions by countries, possibly including travel restrictions and border closures, such a decision will be highly visible and is expected to have significant political, social and economic implications. The decision to declare a phase change will be made by WHO Director-General after briefings and consultation with WHO technical staff, the WHO Pandemic Task Force, and other advisers as deemed necessary by the Director-General.

## **7. International support and mobilization**

Rapid mobilization of international support may be necessary for reasons ranging from general support, to specific support during investigations, to full containment operations. WHO will coordinate mobilization and support from the international community, including mobilization of field teams and use of international and regional stockpiles.

Investigations and disease control activities conducted within a country will be coordinated jointly by the country and WHO

## **8. Country responsibilities in a containment situation**

If a containment effort is undertaken, the country, in consultation and coordination with the WHO field team, will be responsible for the following:

Implementation and maintenance of quarantine of all persons and vehicles around the area of the outbreak. The size of the quarantined area is expected to vary depending on the specific situation. If the area or size of the population within the quarantine appears to be too large for available staff and supplies, then an immediate consultation will be held between the field team, the country authorities, and WHO to decide whether to terminate containment procedures or whether to proceed.

Distribution and administration of antiviral drugs and monitoring of their use and effects (including adverse effects) within the area of the quarantine. The drugs will be provided to ill persons for treatment, and to persons without symptoms for prophylaxis. Doses and duration of treatment will be based upon the most up-to-date information available at the time. Prophylaxis will continue for at least one week after the last day of the infectious period of the most recent case. It is anticipated that the quarantine and prophylactic use of antiviral drugs will continue for 4 to 6 weeks and possibly longer.

Implementation and maintenance of all necessary public health measures (such as isolation of the ill, postponement of large gatherings) inside and outside of the quarantine area needed to further reduce opportunities for further transmission of the virus.

Monitoring and addressing the physical and mental well-being of the population within the quarantine zone. Examples include the provision of necessary support (food, water, medical care, shelter, mental and psychological support) and ensuring the safety of people within the quarantine zone.

The country will be responsible for conducting active surveillance of the area surrounding the quarantined area to identify other cases and for implementing heightened surveillance in the rest of the country. If the response is thought to have successfully achieved containment, then heightened surveillance throughout the country will continue for six months or longer

## **Conclusion**

The current draft protocol for rapid response and containment provides an initial core document for future development. The protocol will evolve significantly as further discussions take place and as specific protocols are developed. The protocol highlights the need for coordinated regional and international action as well as very significant pre-event planning concerning training, infrastructure, stockpiling, stockpile inventories, and other issues.

## Next steps and timeline

Period between 1 February and 6 March 2006

- Initial discussions with regions and countries
- Identification and recruitment of key project staff, including secondments
- Identification of all key issues and scope of work
- Drafting of a detailed core plan, key protocols and standard operating procedures

6 to 10 March 2006

- Global meeting in Geneva to reach agreement on all fundamental concepts and critical procedures. Prior to this meeting, the WHO working group will have contacted or visited each relevant member state .

Period between 11 March and 1 April 2006

- Finalization of all details
- Incorporation of comments from countries and other partners

By 1 May

- Development of teaching materials
- Recruitment of a training faculty.

May and onwards

- Start training of staff for the rapid response teams

## Funding

Sufficient initial funding has been promised to start this project and additional funding is anticipated.

## Other issues

- A very strong communications component will be needed to explain the project both as it develops and once it is activated. Although communications were not covered in this proposal, future drafts will include this component.
- Given that some potential actions such as quarantine and movement restrictions can raise questions related to individual liberties, ethicists will be brought into the planning process.
- At this time, many specific questions exist about some foreseen actions, such as the size and extent of quarantine and social distancing. As this proposal moves forward, some modeling groups will be recruited to provide input to help address certain logistics issues in detail.

- International field teams will be deployed to a country only at the request of that country. WHO will use the GOARN mechanism to assemble and deploy a team of responders. Each team will be configured to address the tasks at hand, but a typical team may consist of a 1) a team leader, 2) epidemiologists (some with clinical backgrounds), 3) laboratory testing experts; 4) communication specialists (media and community relations specialists); 5) data base managers; 6) infection control specialists, 7) a logistician; and 8) an ethicist. If quarantine is instituted, the team will be split with some members within the quarantine zone and others outside the zone.
- Each country is expected to provide extensive input on how several steps and activities will be handled within the country on practical issues, such as the management of antiviral drugs once they arrive within the country. While WHO can provide guidance on general requirements, each country will be expected to address details such as import clearance, transportation from airport to outbreak location, local storage of the antiviral drugs and other stockpiles items, and how use of antiviral drugs can occur in the absence of national licensing.