Report on the

Intercountry meeting on avian influenza and preparedness for pandemic influenza

Cairo, Egypt
28–30 November 2005
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1. **INTRODUCTION**

The first intercountry meeting on avian influenza and preparedness for pandemic influenza in the Eastern Mediterranean Region was held in Cairo, Egypt, from 28 to 30 November 2005. The meeting was attended by the Minister of Health and Population, Egypt, and the Minister of Health, Sudan, and by participants from all Member States of the Region, in addition to representatives from the Food and Agriculture Organization of the United Nations (FAO), the Epizootic International Organization (OIE), WHO Mediterranean Zoonosis Control Programme (WHO/MZCP), US Naval Medical Research Unit (NAMRU-3), the United Nations Relief and Works Agency for Palestine Refugees in the Near East (UNRWA), the US Department of Agriculture in Cairo and the Centers for Disease Control and Prevention (CDC) in Atlanta. National representatives from human and animal health sectors and public health laboratories also attended the meeting and experts from WHO headquarters. WHO Regional Office for Europe (EURO) was represented by Dr Guenael Rodier, a Special Adviser for Communicable Diseases Control to the Regional Director. Also present were WHO representatives (WRs) from Congo, Djibouti, Lebanon, Libyan Arab Jamahiriya, Oman and Saudi Arabia. Donor agencies such as the US Agency for International Development (USAID), the African Development Bank (ADB) and the World Bank (WB) attended the meeting in addition to a representative from the Embassy of Japan.

The objectives of the meeting were to:

- promote epidemiological, laboratory and response capacities for pandemic influenza in public and animal health sectors in the Region;
- discuss non-pharmaceutical public health interventions, vaccines and antivirals related to pandemic influenza;
- assist Member States in developing their own preparedness plans for pandemic influenza; and
- ensure rapid sharing of appropriate technical information related to pandemic influenza among national, regional, global and other relevant stakeholders.

The meeting was inaugurated by Dr Hussein A. Gezairy, WHO Regional Director for the Eastern Mediterranean. Dr Gezairy raised the problem of emerging infectious diseases which for the past three decades have constituted a major cause of morbidity and mortality in the Region. He underlined the fact that the existing avian influenza virus (H5N1) would result in the emergence of a novel virus in humans through reassortment or adaptive mutation which would lead to the human influenza pandemic. He said that there were three prerequisites for an influenza pandemic to start: the emergence of a new virus, the ability of the new virus to replicate and cause disease in humans and the ability of the new virus to spread efficiently from human to human. He noted that the first two prerequisites had already been met and that the Eastern Mediterranean Region was surrounded by foci of outbreaks of avian influenza. Migratory birds passed through the Region, particularly through Asian countries, and through this migration, influenza had resulted in the Region. The *hajj* and *umra* pilgrimages to Makkah also provided an opportunity for the further spread of the disease to the whole world.

Dr Gezairy concluded by calling the animal and human health sectors in Member States and supporting agencies to be prepared and to cooperate in order to fight the anticipated pandemic. He said that this required the building of capacities in surveillance and laboratories.
and the establishment or strengthening of the collaboration between the human and animal health sectors.

Dr Zuhair Hallaj, Director for the Division of Communicable Diseases for WHO Regional Office, was elected Chair of the meeting. The programme and list of participants are included as Annexes 1 and 2, respectively.

2. DEVELOPMENT OF PREPAREDNESS PLANS FOR PANDEMIC INFLUENZA

2.1 Influenza pandemics and H5N1: Why should we be concerned?

Dr K. Stohr, WHO headquarters

Seasonal influenza causes epidemics which result in considerable health and economic implications every year. Together with the highly pathogenic avian influenza virus may lead to the emergence of the human pandemic strain, which will cause a global pandemic. Pandemics are rare. There are two prerequisites for the occurrence of a pandemic: the emergence of a new subtype influenza virus and efficient human-to-human transmission of the new pandemic strain.

The current risk of a pandemic is worrisome. Thirty seven (37) years have passed since the previous pandemic in 1968. The next pandemic, according to modelling, even in a mild scenario, will result in significant health and economic impacts. This is due to the rapid progression of the highly pathogenic avian influenza virus in Asia. Moreover, the list of highly pathogenic avian influenza virus, H5N1-affected countries is getting longer and it appears that this virus is spreading along the pathways of migratory birds from South-East Asia. Migratory birds may play an important role in spreading the virus. The risk of H5N1 spreading to countries of the Middle East and Africa is increasing.

There are several reasons to be concerned. Firstly, there has been an acceleration of events with pandemic potential since 2003, and secondly, there is an unprecedented H5N1 epidemic among poultry and the increasing pandemic potential of the H5N1 virus. The challenges to both animals and humans are summarized by the ability to eliminate the virus in poultry, to contain the sporadic occurrence of the virus in humans and to strengthen epidemiological and laboratory surveillance at national level and to identify means and skills for field investigation.

In conclusion, the highly pathogenic avian influenza virus risk will not disappear quickly. Hence, the risk for a human influenza pandemic will remain with unpredictable timing and an unknown subtype. National pandemic preparedness planning can assist in mitigating the impact of the anticipated pandemic, and therefore, there is a window of opportunity to act immediately.
2.2 Regional plan for strengthening surveillance and response for influenza in the Region including web-based information sharing

*Dr H. ElBushra, WHO/EMRO*

The Global Influenza Programme (GIP) represents a partnership between national influenza centres, WHO collaborating centres and reference laboratories involved in annual influenza vaccine composition recommendations and influenza vaccine manufacturers. All activities of GIP are dependent on having a reliable surveillance system.

The Eastern Mediterranean Region is at risk of experiencing avian influenza outbreaks as it is surrounded by foci of avian influenza in Asia and Europe, as it is traversed by paths of migratory birds. Large metropolitan areas, heavy human traffic in the Region associated with the movement of expatriate workers, tourism, trade and religious visitors, particularly during hajj and umra increases the risk. However, influenza is not a reportable disease in the Region. Nothing or very little is known about influenza circulation among populations of almost all countries in the Region. Until recently, only Egypt, the Islamic Republic of Iran, Morocco and Tunisia had laboratory-based surveillance programmes.

As part of a strategy to address the threat of emerging infectious diseases, the communicable disease control programme in the WHO Regional Office and the US Naval Medical Research Unit No. 3 (NAMRU-3) have developed a plan to conduct influenza surveillance in selected Member States in the Region. The goal of the memorandum of understanding is to define the epidemiology of influenza in the Region, including the circulation of subtypes and the emergence of new strains. The real-time information provided by the programme and shared with Member States is also useful to each country in determining the suitability of vaccine preparations and outbreak response. Six countries co-signed this memorandum of understanding: Egypt, Morocco, Oman, Pakistan, Saudi Arabia and Syrian Arab Republic. The memorandum of understanding was used to assess the capacities and training activities in participating countries and the provision of technical assistance during the hajj in 2004, in addition to training activities.

The WHO Regional Office formed a regional task force for avian influenza and the preparedness for human pandemic influenza to finalize the regional preparedness plan and to mobilize resources among other activities. The regional surveillance advisory group (SRAG) is expected to contribute towards regional and global health security by providing guidance on the scope, function and primary responsibilities of the department and in assisting in developing strategies for combating the spread of outbreaks of epidemic-prone diseases with available resources in the Region.

In addition, a web-based surveillance system with advanced features is being established. WHO Regional Office is building a strategic health operation centre that uses state-of-the-art communication technology, a well-tested intelligence system to access the best scientific expertise and ensures timely response and close collaboration between countries should a global public health emergency arise.
The Department of Emerging Diseases in the Regional Office will continue to keep all Member States informed by forwarding information received from WHO headquarters, information bulletins, intercountry and scientific meetings and the media and by answering specific queries and coordinating efforts. The challenges include the fact that there is only one regional reference laboratory for influenza, the need for the timely translation of documents into Arabic, resource mobilization, (including funding), stockpiling of antiviral medicines (production at regional level), access to new influenza vaccines and developing adequate capacities (retraining the trained).

2.3 National preparedness plans: status and challenges

Dr K. Stohr, WHO headquarters

Since December 2003, more than 130 laboratory-confirmed cases of human infection with highly pathogenic avian influenza A/H5N1 were reported to WHO, all in South-East Asia. Most were sporadic cases and most likely due to direct infection from an animal source. Several small clusters of H5N1 infection have been detected since December 2003 with human-to-human transmission suspected in some instances. When suspected, this inter-human transmission has occurred under very specific conditions, while providing unprotected care to H5N1-infected patients and transmission was inefficient and unsustained. We are now in phase 3 of the pandemic scale during which “Human infection(s) with a new subtype, but no human-to-human spread, or at most rare instances of spread to a close contact” are expected to occur. To date, avian influenza affects firstly the poultry and bird population and all efforts should be made to control the infection in the animal population and to limit human exposure to infected animals. No one can predict when the next pandemic will start, if it will be linked to a mutated H5N1 virus or how many people will be affected or will die, but the threat linked to the circulation of highly pathogenic avian influenza A/H5N1 is unprecedented and countries need to be prepared.

Planning for a pandemic means choosing the measures to be implemented to mitigate the impact of the pandemic and to prevent/control possible massive infrastructure melt-down and major social disruption as the pandemic hits countries. It is an informed decision on the national response to a global/national health emergency. The measures adopted will depend on the countries’ resources and strategies. Depending on availability, the public health response may include pharmaceutical intervention with the use of pandemic vaccines and antivirals following pre-established protocols. However, very few countries will have these resources. Non-pharmaceutical public health interventions must also be planned.

Before the pandemic occurs, countries must also plan for the means of detecting influenza viruses of pandemic potential and to take adequate measures to prevent and respond to human infection with an influenza virus of pandemic potential, during the pandemic alert period. Leadership and coordination are required for pandemic preparedness planning.

WHO has developed tools to support countries in pandemic preparedness planning. These include: the WHO global influenza preparedness plan, The role of WHO and recommendations for national measures before and during pandemics (WHO/CDS/CSR/GIP/2005.5), the WHO checklist for influenza pandemic preparedness
planning (WHO/CDS/CSR/GIP/2005.4), and *Responding to the avian influenza pandemic threat* (WHO/CDS/CSR/GIP2005.8). WHO is also working on developing other tools, such as a model plan and table-top exercise, as well as guidance for investigation and response to avian influenza outbreaks.

In November 2005, a few countries have published pandemic preparedness plans and are ready to implement them. But many other countries are engaged into planning and others are encouraged to do so. Ranking interventions will depend on resources or other competing priorities and political choices. In addition, national pandemic preparedness plans are considered to be the key for developing international funding proposals.

### 2.4 Influenza surveillance for potential pandemic strains

*Dr Klimov, Centers for Disease Control and Prevention (CDC)*

Pandemic influenza surveillance is established to rapidly detect the introduction and early cases of a pandemic influenza virus into a country, to track the virus’ introduction into local areas, to monitor changes in the pandemic virus, including the development of antiviral resistance and to assist in identifying effective control strategies and to re-evaluate recommended priority groups for vaccination and antiviral therapy. Surveillance for the novel strain will include collection of specimens from suspected cases of human infection with novel influenza viruses and testing them in laboratories with proper biocontainment facilities such as RT-PCR, biosafety level 1, rapid diagnostic tests, biosafety level 2 and virus isolation and biosafety level 3 with enhancements.

### 2.5 Veterinary activities vis-à-vis influenza in the Region, laboratory capacity, migratory pathways and the poultry industry

*Dr Talib Ali, FAO*

Although the highly pathogenic avian influenza (HPAI) virus strain H5N1 has been known to be circulating in Asia since 1996–1997, it was only in late 2003 that expansion of the strain caused severe outbreaks in over 10 countries and in administrative areas in eastern and southeast Asia in a matter of weeks resulting in a high death toll among poultry and the infection of numerous people, some of whom died as a result of the virus. The H5N1 strain further expanded its geographical scope with incursions into Croatia, Kazakhstan, Mongolia, Romania, the Russia Federation, and Turkey from mid-2005 to early January 2006. Since early 2006, HPAI has moved to Afghanistan, Egypt, Iraq, Islamic Republic of Iran, Jordan, Palestine and Sudan. These new incursions are likely due to the movement and migration of wild birds carrying the virus which puts virtually all countries around the globe at some level of risk.

FAO strongly believes, as does WHO and OIE, that countries need to review their contingency plans for avian influenza and any other transboundary animal disease; ensure that there is laboratory competency to diagnose avian influenza viruses and other diseases; improve hygiene at the farm and market levels; and strengthen veterinary services as a whole through enabling legislation, a central command facility, with subnational (regional or provincial) capability for early detection and effective response.
In the wake of the H5N1 outbreaks in Asia, FAO was quick in its emergency response by providing funding to national and regional projects to assist countries in addressing the disease and its prevention and attracting additional funds from various donors for the purpose of disease containment, capacity-building across the Region, establishing networks between veterinary epidemiological units and laboratories and interfacing with WHO and regional organizations, such as the South Asian Association for Regional Cooperation and the Association of South-East Asian Nations. With the expansion of H5N1 out of eastern and south-east Asia, FAO provided additional funding in September 2005 for action on disease prevention and public awareness, wild bird surveillance and contingency planning through regional networks (epidemiology and laboratory) in Eastern Europe, the Caucasus, the Near East, North Africa, and eastern, central and southern Africa. The African Union, and particularly the Inter-African Bureau for Animal Resources, is a regional partner in this endeavour. Further links are suggested with interregional groups, such as with the Union du Maghreb Arabe, the Gulf Cooperation Council (GCC) and the Arab Organization for Agricultural Development. The Near East Network for HPAI is hosted by the OIE regional representation in Beirut and for North Africa at the FAO Regional Office in Cairo.

The threat of avian influenza and of other transboundary animal diseases could represent risks for food security in the Near East region. For several reasons the production of ruminant animal products in the majority of Near East countries has not progressed on a par with other sectors. On the other hand, there has been a strong expansion of the regional poultry industry over the last three decades with a concomitant expansion of poultry consumption. At present, per capita poultry consumption in the Near East is double the worldwide average and varies from country to country. In Iraq it is more than 70%, in Egypt it is 46%, in Sudan it is less than 10%. Thus, any transboundary animal diseases that significantly affect the poultry sector will have a detrimental impact on food security in the Region.

2.6 Preparedness activities in Europe

Dr G. Rodier, WHO headquarters

The WHO Regional Office for Europe is triggering regional and national preparedness for the influenza pandemic primarily through a series of workshops organized jointly with the European Union (EU) and involving all countries of the Region and WHO headquarters. The first workshop was held in March 2005, the second in October 2005, and the third one is planned for spring 2006.

In parallel, to better understand the real level of national preparedness in the Region, a sample of six countries was selected for an in-depth assessment, the sample included: Greece, Kazakhstan, Poland, Turkey, Ukraine and the United Kingdom. These country assessments were undertaken jointly between WHO Regional Office for Europe, the European Commission (EC) and the European CDC (ECDC). They were conducted from August to October 2005 and more are planned as a number of countries are requesting WHO’s assistance. In late October, WHO led a risk-assessment mission in Romania to support the Government and evaluate the actual risk to public health posed by the introduction, by migratory wild birds, of the H5N1 virus in local poultry flocks.
In late November 2005 the WHO Regional Office for Europe participated in an exercise organized by the European Commission to test the overall coordination between Member States and regional health authorities (WHO, EC, ECDC). This also tested WHO Regional Office for Europe’s emergency steering committee and its ability to mobilize internal back-up resources to work under “emergency mode”.

The main lessons learnt and conclusions included, in summary, points to the national preparedness plans in the WHO European Region, the risk of the spread of the HPAI virus, H5N1, and the importance of non-pharmaceutical interventions in containing the anticipated human pandemic influenza.

Discussion

The discussion related to the interval between one pandemic and another; the nature of the highly pathogenic avian influenza virus; the possibility of its mutating into a novel human pandemic strain; the anticipated location of the pandemic; and possible Regional Office assistance to Member States.

Pandemic influenza will have no timing or seasonality, it can occur at any time and during any season and is different from seasonal influenza. H5N1 is still an animal virus. It will need to undergo genetic mutation in order to become a human pandemic virus. Authorities are concerned as it is the first time that a HPAI virus has persisted in nature. It has a high possibility of crossing species barriers and so has the potential to infect many of them. There is a possibility of other subtypes transmitting to humans as well, but H5N1 is the most eligible candidate.

WHO Regional Office will provide Member States with guidelines, other technical materials and related tools to start developing their national preparedness plans on avian influenza and human pandemic influenza. It is imperative that countries act promptly but do not overreact. It is at the very least necessary to prepare people on how to deal with the coming pandemic and not to panic.

The lack of coordination between UN agencies and governments and nongovernmental organizations was highlighted. Intersectoral collaboration needs to be revived and strengthened to face the threats of avian influenza outbreaks. Building capacity in epidemiological and laboratory surveillance and strengthening diagnostic capacities are needed at national level to face the avian influenza outbreaks and the anticipated human pandemic. Reference was made to antiviral medicine stockpiled at the premises of WHO headquarters, which will be used to contain the first wave of the epidemic, wherever it occurs.
3. IMPLEMENTATION OF THE PANDEMIC SURVEILLANCE PLAN

3.1 WHO global surveillance networks: operation and functions  
*Dr W. Zhang, WHO headquarters*

The WHO global surveillance network was established in 1948 and has been the mainstay of the WHO global influenza programme. So far there have been 115 national influenza centres, four WHO collaborating centres and representative national reference laboratories involved in the annual vaccine composition recommendation. The goal of this network is to serve as a mechanism for the early detection of new subtype influenza strains and to act as an early warning system. The network operates through subnetworks and working groups. The general objectives are to monitor the circulating strains of influenza viruses and epidemics, to provide recommendations on influenza vaccine compositions and to serve as a global alert mechanism for the emergence of influenza viruses with pandemic potential.

The national influenza centres serve as the key point of contact between WHO and the country of origin in all questions relating to virological and epidemiological surveillance of influenza; provide seasonal influenza virus isolates to the WHO collaborating centres for reference and research on influenza to support annual seasonal vaccine composition recommendations; and serve as national reference laboratories for avian influenza diagnosis in humans in many countries. The role of the national centres during different pandemic preparedness periods is still under consideration. WHO collaborating centres for reference and research on influenza provide references, analysis and other laboratory services for seasonal influenza surveillance and response and advise WHO on the annual recommendations of seasonal influenza vaccine composition.

The WHO H5 reference laboratory network, an ad-hoc network with eight members at present, provides references for diagnosis of avian influenza A/H5 in humans; selects, develops and validates prototype pandemic vaccine strains; develops WHO diagnostic reagents and adjusts WHO recommended diagnostic protocols; provides laboratory-related technical support to affected countries; and monitors, to better understand, the evolution of influenza viruses and their public health significance, including antiviral susceptibility monitoring.

WHO will explore all opportunities to improve surveillance capacity; to enhance international awareness and support; to strengthen the WHO global influenza surveillance network; to integrate influenza surveillance on human and animals; to better integrate influenza epidemiological and virological surveillance for better networking; to improve collaboration and complementation (not competition) among network members and subnetworks, as well as with avian influenza-affected countries; and to improve timely data utilization for public health purposes.
3.2 Scaling up national epidemiological and laboratory surveillance activities during an influenza pandemic

Dr H. El Bushra, WHO/EMRO

Scaling up to meet priorities such as pandemic influenza should, as much as possible, be based on surveillance principles of improving performance, enhancing cost–effectiveness and addressing sustainability. Influenza surveillance should build on existing systems including national surveillance systems, integrated disease surveillance, systems for surveillance of respiratory infections/influenza-like illnesses. Although capacities for surveillance exist in all countries there is still weak public health infrastructure in some countries, limited alliances/collaboration with other sectors and partners, limited national resources for surveillance and response and a further need to strengthen structured epidemic intelligence and flexible early warning systems, investigation and response capacity, field epidemiology and laboratory capacity, and capacity to limit cross-border/international spread of disease. The process of building core capacities for the implementation of international human resources is also an opportunity to develop these capacities in countries.

Different phases of the pandemic have different objectives and any scaling up should take into account the objectives of the system. For the pandemic alert phase, for instance, the objective of surveillance is to detect as early as possible unexpected patterns of influenza-like illness and characterize the virus responsible for the timely design and implementation of specific response measures. Challenges for pandemic influenza surveillance will include detecting the start of the pandemic in time, defining the role of surveillance at the pandemic phase, involving and coordinating new organizations, new partners, sustainability and the impact on other surveillance activities. The objective of surveillance should be to be able to detect the arrival of the pandemic virus and describe the outbreaks and their spread, to allow implementation of response measures and assess their impact, to monitor the course of the pandemic and the effectiveness of interventions.

In scaling up epidemiological surveillance capacities, preparation is a key. This includes: planning for easy and fast up-scaling of activities; surveying of existing resources and networks; drafting protocol for surveillance, investigations, monitoring and research; building human capacity; increasing awareness; sensitizing; ensuring coordinating mechanisms are in place for investigation and surveillance; and having pre-established lines of work between clinicians and outbreak investigation teams to ensure an early triggering of investigation.

Some actions with regards to preparedness include: assessment of capacities and resources; development preparedness plans that address issues such as public awareness, laboratory supplies and reagents; infection control in health settings; antiviral medicines; vaccines; guidelines and tools; and technical support. Simulation exercises should also be carried out. In terms of structure and organization, there is a need for coordination mechanisms to be in place, as well as national structures, such as multisectoral national task forces, to coordinate national steering committees, technical committees and national focal persons. Existing structures at all levels of the system should be included (community,
peripheral, intermediary, national), in addition to intercountry collaborative structures and mechanisms.

In terms of tools and processes, there should be appropriate surveillance policies and legislation, surveillance, laboratory and virology protocols, guides and norms should be available, as well as surveillance tools and formats which should fit into the routine surveillance framework for cluster detection, event (rumours) monitoring and verification and early warning systems.

Laboratory tests for diagnosing all influenza strains of animals and humans are rapid and reliable. National level laboratory capacities should be scaled up for: high-level identification and typing/subtyping; defining capabilities including available biosafety levels; considering the establishment of a national influenza centre designated by WHO, or ensuring that the existing centre meets the terms of reference for these laboratories; transmitting to international reference laboratories; and defining and training on sampling and transport protocols.

All countries, whether they have local laboratory capacity or not, should ensure access to a designated reference laboratory and regional networks and local laboratories should be aware of packing and transportation requirements for diagnostic specimens and infectious agents in accordance with the International Air Transport Association (IATA) regulations and WHO principles for sharing live viruses.

3.3 Maintaining functional surveillance in the Region in the face of a pandemic

Dr Erhart, NAMRU-3

Surveillance has to be initiated before the pandemic phase: Once the pandemic occurs, resources will no longer be available. One must rely on whatever baseline surveillance has been established. All countries should include in their existing surveillance systems a respiratory component. It can range from aggregate syndromic ILI data to laboratory-supported virologic monitoring. At a minimum it should have an outbreak/response component to identify and characterize clusters of diseases and incorporate appropriate sampling and referral to include local, regional and international laboratories.

Communication must be open and prompt. This should occur within a country between sectors. For example, the agricultural sector may first document the introduction of novel viruses among the animal population and the public health sector noting movement into humans. This must then be expanded to include health care, private and other relevant sectors per national plans. Information and viral isolates must move smoothly to the regional level and/or global level, this is an issue of international scope and information must be shared between countries in order that all can prepare accordingly. Table 1 shows surveillance activities in relation to each pandemic phase.
Table 1. Surveillance activities in relation to each pandemic phase

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<td>Establish baseline human influenza patterns</td>
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<td>++</td>
</tr>
<tr>
<td>Detect severe respiratory disease</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Monitor circulating viruses</td>
<td>++</td>
<td>++</td>
<td>++</td>
</tr>
<tr>
<td>Monitor febrile illness among high-risk groups</td>
<td>++</td>
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<td></td>
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<tr>
<td>Monitor among health care workers</td>
<td></td>
<td></td>
<td>++</td>
</tr>
<tr>
<td>Conduct early case detection</td>
<td>+</td>
<td>++</td>
<td></td>
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<tr>
<td>Contact management</td>
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**Discussion**

The wish to support countries in strengthening their laboratory capacities in order to assume their responsibilities for surveillance activities required for the current stage of the pandemic (phase 3) was discussed. Participants raised the issue of why although the main activity needed for the current phase was surveillance, was most of the investment directed towards stockpiling medicines with little attention paid by WHO to supporting national laboratory capacities. WHO was requested to avail necessary reagents and primers to all countries to be able to detect the virus, although currently, reagents are being distributed to all national influenza centres to detect seasonal influenza viruses. It is not yet advisable to distribute primers necessary for confirming H5N1 to all countries as the virus was not yet affecting all countries and it was uncertain when a country would be hit by the HPAI virus.

Several questions were raised about the current phase of the pandemic and on the issue of declaring pandemic phases. It was stressed that WHO was responsible for declaring the phase that was applicable to the world as a whole. The current global phase is “phase 3”. In addition, WHO does not encourage countries to divide each phase into subphases.

The value of the rapid test for identifying H5N1, regional laboratory capacity and regional reference laboratory capacity was debated. WHO does not recommend using such a test due to its low sensitivity and specificity. The regional reference laboratory (NAMRU-3) has strong laboratory capacity for confirming H5N1 and is currently providing this service to all countries of the Region. In addition, NAMRU-3 is supporting national capacity building in some countries of the Region through the tripartite agreement on influenza surveillance. A WHO collaborating centre is also available in Kuwait but it does not assume the responsibility
expected from a designated WHO collaborating centre. The identification of more reference laboratories was requested in the Region.

4. VACCINES, ANTIVIRALS, TREATMENT AND CONTROL MEASURES FOR PANDEMIC INFLUENZA

4.1 Risk communication of the pandemic to the public

Dr I. Kerdany, WHO/EMRO

The media has an important role in communicating information to the public on avian influenza and the risks of it. There is a need to be able to present rapid, comprehensive and transparent information when pandemic alert phases 3 to 6 are in operation.

4.2 Non-pharmaceutical interventions in the face of a pandemic

Dr John Jabbour, WHO/EMRO

Given the problems of inadequate vaccine supplies and the uncertain role of antiviral medicines, several efforts have been made to determine whether non-pharmaceutical interventions could mitigate the initial impact of a pandemic. Non-pharmaceutical interventions are considered to be the principal protective tools pending the augmentation of vaccine supplies. In resource-poor settings, non-pharmaceutical interventions may be the main line of defence throughout the first wave of a pandemic. However, the effectiveness of most of these interventions has not been tested under the unique conditions of a pandemic.

The effectiveness of many interventions depends on the behaviour of the virus as determined by its pathogenicity; principle mode of transmission (droplet or aerosol); concentration among different age groups; duration of virus shedding and susceptibility to antiviral medicines. In addition, selection of appropriate measures is driven by questions of feasibility, which are closely linked to costs, ease of implementation within existing infrastructure, likely acceptability to the public and the potential to cause social and economic disruption.

Non-pharmaceutical interventions include: public health information and communication; measures to reduce the risk that cases will transmit infection; measures to reduce the risk that contacts will transmit infection; measures to increase social distance, the disinfection procedure, cordon sanitaire; and measures for persons entering or exiting an infected area within a country.

Influenza surveillance is an important non-pharmaceutical intervention to deal with the anticipated pandemic. The production of guidelines for efficient implementation and expanding the influenza surveillance network in the Region is essential. Providing correct information to travellers strengthens their capabilities for self-reporting. WHO should advise on the appropriate communication means for the reporting of epidemiological and laboratory data. Building analytical capacities at national level to be capable of producing reports quickly should be implemented in the near future.
Pandemic influenza is considered far more difficult to control than SARS as influenza A viruses are much more contagious than the SARS coronavirus. The incubation period of influenza pandemic cases is shorter and the virus can be spread prior to the onset of symptoms. Fever checks and border screenings will not be able to detect people during the incubation period who have no symptoms and pandemic influenza will rapidly and widely spread within the community rather than remain confined to hospital settings as was the situation with SARS.

There are important challenges facing the implementation of non-pharmaceutical interventions in the Region. The most important and crucial is to share the utmost information and updates needed for decision-makers to select appropriate non-pharmaceutical measure(s). Other challenges include: strengthening human and animal health surveillance systems; enhancing intersectoral collaboration; improving laboratory capacities for detecting and isolating the virus; ensuring the ability to produce and disseminate guidelines and educational material to health professionals and the public; and to share and update information quickly among all concerned parties.

4.3 Scaling up the health care response: maintaining essential services

Dr H. El Bushra, WHO/EMRO

An explosive surge in the number of illnesses and deaths will be sufficient to temporarily paralyze public medical services as cases of influenza will represent an additional burden to already over-burdened health services in many countries of the Region. Member States need to ensure the provision of adequate and appropriate emergency care services, intensive care services to increase morgue capacities and to ensure medical supplies for both hospital care and self-medication. The pandemic will spread globally within a few weeks and will occur in several waves.

The pandemic is expected to disrupt the economy and social and political life in all countries by reducing capacities for law enforcement, transportation, utilities and telecommunications among other vital services. It will adversely affect medical services and essential disease control function due to lost lives among health care providers, absenteeism (sick/refusal to work), and disruption in the supply of essential medicines.

The objective of scaling up health care services during pandemic influenza is to reduce morbidity, mortality and related disruptions. There will be a need to promote non-pharmaceutical interventions as vaccines and antiviral medicines will not be available or in inadequate amounts at the start of the pandemic. It will be necessary to optimize utilization of health services.

FluAid Analysis is CDC software for estimating morbidity and mortality that could result from influenza pandemic released on September 2005 (World Health Statistics of 2005) and using an expected attack rate of 35%, it is expected that in the Region more than 180 million people will fall ill; 96–168 million will require medical care; 6.4–28.1 million will need hospitalization; and 0.15–0.75 million people may die. Narrowing the range of estimates
cannot be undertaken until the pandemic emerges. However, the level of preparedness influences the death toll.

There needs to be a series of measures and public campaigns to ensure prompt self-diagnosis and to ensure the institutionalization of infection control practices at health facilities. The preparedness plan should not overlook the provision of necessary services for vulnerable groups such as children, refugees and displaced populations. There is also a need to collate nationwide weekly statistics on morbidity and mortality, to establish functional communication systems and to perform detailed costing of country plans to ensure successful implementation of national preparedness plans. Services for travellers during influenza pandemic would be necessary. Enforcement of public health laws will be necessary to contain or delay the spread of disease. Important documents, guidelines, standard operating procedures should be in place. Countries may also consider conducting desk-top drills.

4.4 Influenza vaccines and antivirals: are they going to be available during a pandemic?

Dr K. Stohr, WHO headquarters

WHO has produced a set of guidelines presenting options for the use of antivirals and vaccines during a pandemic. It can be downloaded from the “influenza pandemic preparedness” section of the WHO influenza web page at http://www.who.int/csr/disease/influenza/. Pandemic vaccines will probably be the single most efficient public health intervention in preventing human infection with a new influenza pandemic virus. Pandemic vaccine production capacity will depend upon the readiness of the industry to engage in mass production and in full production capacity. To date, the vaccine production capacity for seasonal influenza vaccines is approximately 300 million doses, which are produced in eggs with very little surge capacity. An immediate sudden increase in production is not possible. Vaccine production is demand-driven. Vaccine production and consumption are highly localized.

The availability of pandemic vaccines will be conditioned by the time needed for the detection of the emergence of the pandemic; the timing for access to the novel virus strain and further availability of prototype seed strain; outcome of research on safety and immunogenicity; and production capacity (in quantities and in time).

It would take at least six months from the emergence of a new pandemic vaccine to the start of mass production. A pandemic vaccine may not be available during the first wave of a pandemic. If a pandemic due to avian influenza A/H5N1 occurred in October 2005, it would be unlikely that a pandemic vaccine would be available before March 2006 at the earliest, and if it were available it would be in very limited quantities. The expected production capacity of a pandemic vaccine may be increased and sped up through application of antigen-sparing strategies and the use of adjuvants; investigating possible new application forms (intradermal); increasing seasonal vaccination coverage at least in developed countries to increase seasonal vaccine production capacity; extending seasonal manufacturing capacity; and creating new vaccines and production technologies (cell-culture vaccine, etc.). Vaccine manufacturers also need to register their pandemic vaccine(s) with licensing agencies. This
can be done with a “template” influenza subtype which will eventually be replaced by the strain actually causing the pandemic in order to gain time in starting mass production.

Several antiviral medicines may be used in response to an influenza pandemic. Two classes of medicines can be used, the M2 inhibitors (amantadine, rimantadine), and neuraminidase inhibitors (oseltamivir and zanamivir). M2 inhibitors are less expensive than neuraminidase inhibitors, but when used to treat cases of infection with seasonal influenza, the M2 inhibitors are more likely to lead to the emergence of antiviral resistance than the neuraminidase inhibitors. Primary resistance to amantadines may exist. Virus resistant to amantadine may be transmissible. Many of the avian influenza A/H5N1 circulating to date are resistant to amantadine. The susceptibility of the antivirals to the next pandemic virus cannot be predicted. Countries wishing to engage in national antiviral stockpiling should develop protocols for use (target, indication) and dispatch.

WHO has established an international “rapid response stockpile” of oseltamivir. A total of 1 million treatments will be available by the end of 2005 and an additional 2 million treatment doses will be available by March 2006. This stock is intended to try and extinguish a pandemic virus before further spreading from the source. It implies that the virus is detected in time and that other complementary measures can be put in place simultaneously to antivirals mass prophylaxis.

In conclusion, antivirals and vaccines are only two of the tools which may be used to fight a pandemic. Vaccines would not be available and the use of antivirals would be very limited if a pandemic started tomorrow although options for ensuring increased availability are being explored. Meanwhile, it is essential for countries to develop policies for the use of non-pharmaceutical interventions which could have a chance of mitigating the impact of a pandemic. Recommended non-medical interventions can be found in the annex of the WHO global influenza preparedness plan, *The role of WHO and recommendations for national measures before and during pandemics (WHO/CDS/CSR/GIP/2005.5).*

**Discussion**

In terms of communication with the media and the public, information given to the public should be consistent and accurate to avoid creating unnecessary panic. Spokespersons should have received adequate training on how to deal with the media. The medical community should also be properly trained and educated on how to prevent any counter messages appearing in the media.

Seasonal vaccines are those directed against seasonal influenza while those that will be needed to control the pandemic can not be identified before the human-to-human virus is identified. In order to speed up the production of suitable vaccines, WHO is counting on Member States to immediately share any information they have on a suspected pandemic virus.

In the meantime, countries should consider wider use of the seasonal vaccine in order to reduce the current burden on health systems, to decrease the severity and risk of a pandemic

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and delay its occurrence in order to give more time to WHO to increase developing countries’
capacity in vaccine production and to ensure adequate antiviral stockpiles, and to establish
that WHO is ready to provide all countries that have a vaccine production capacity with all
necessary technical assistance (technology transfer, strengthening national regulatory
authorities, etc). In this regard, the four vaccine-producing countries in the Region will be
invited to consider seasonal vaccine production in order to be ready when needed to shift to
production of a pandemic vaccine with the support of WHO Regional Office. Member States
will be invited to seriously consider the introduction of seasonal vaccine production which
will encourage vaccine production in the Region, in addition to the direct impact of vaccine
introduction on each country’s health system. Animal vaccines are available and their use is
recommended by OIA and FAO, with clear indications.

In terms of antiviral medicines two products are currently available, one is produced in
industrial quantities by Roche and the second in very small quantities by Glaxo Smith Kline,
but with an expected production capacity of 600 million doses by 2008.

In view of the current relative shortage in antivirals, and in order to be ready to control
or at least to stop the eventual pandemic, WHO headquarters has been establishing a global
stockpile (1 million doses by the end of 2005 to be increased to 3 million doses by March
2006). This stockpile is to be used in-country first as a pre-emptive strike to try and extinguish
the pandemic virus before further spread from the source. It is actually estimated that if the
first cluster of human-to-human transmission occurs in a population to which more than 80%
of the population can receive the antiviral, the pandemic can be stopped at source or delayed
for at least 6 months during which sufficient quantities of the vaccine can be produced.

Several countries have been trying to constitute antiviral stockpiles, however, the use of
antivirals should not be haphazard but should have clear indications and follow an action plan
(for example, they should be used for severe cases as well as for close contacts of severe
cases).

All participants agreed on the fact that the main objectives of preparedness are to
minimize morbidity, reduce mortality and prevent social disruption. Countries should be well-
prepared to detect the pandemic as soon as possible which requires strong and adequate
country surveillance systems; and there is a need to consider all non-pharmaceutical measures
that can help to achieve the objectives and to make the right decisions accordingly (countries
should build their preparedness plan regarding non-pharmaceutical measures). Countries also
need to consider wider use of seasonal vaccines (agree on age groups to be targeted, coverage
objectives, etc.), and have clear guidelines and plans for antiviral medicine use.

Several other issues were discussed such as the need for countries to have clear
guidelines on medicine use (therapeutic and prophylactic), the issue of validity of antiviral
stockpiles and the possibility of stockpiling raw material to avoid this issue, the importance of
using lessons learned from previous influenza pandemics to collect information on age groups
that will most probably be the most affected, the need of equity in distributing vaccines and
medicines when the pandemic hits and the availability of medicines in the private sector, etc.
5. GROUP WORK

Countries were divided into three working groups during the second day of the meeting to critically review national preparedness plans for the anticipated human pandemic influenza including alternative activities, costing, challenges and suggested improvements, and to discuss leadership and coordination and development of standard operating procedures, including alternative activities, costing, challenges and suggested improvements.

5.1 Findings

The group placed strong emphasis on the path of migratory birds and the prohibition of hunting during migratory seasons. They suggested that FAO establishes guidelines to limit the contact of migratory birds with poultry, including regulations requiring farmers to keep poultry in closed areas during the migratory birds’ season and implementing a compensation strategy for farmers.

An efficient system of surveillance of avian influenza among animals and humans should be established and the WHO Regional Office should provide standardized surveillance methods/questionnaires in Arabic in order that active surveillance can be implemented immediately. Transparency and speed in sharing information is the milestone for any response and intervention during the phases of the pandemic. Member States should strengthen their seasonal influenza surveillance to provide baseline information on the circulating influenza strains for the improved production of seasonal influenza vaccine. Active animal surveillance involving regular inspections exists in Pakistan and could act as a role model for the Region. The WHO Regional Office should work on guidelines for sentinel and active surveillance, including effective collaboration between human and animal sectors.

The group suggested that the training of trainers for investigation and response to outbreaks among birds and humans should be conducted to establish a roster of experts in the Region. All of the countries agreed that it was of high priority to accelerate the capacity-building of epidemiological and laboratory surveillance. In summary, establishing and/or improving early warning systems in Member States and training field epidemiologists on surveillance and data analysis is required at this stage. The laboratory component cannot be strengthened without the support of NAMRU-3. This support is currently given through the provision of relevant guidelines, diagnostic kits and necessary laboratory equipment with an emphasis on assisting Member States in the isolation and sequencing of the isolated virus.

Member States need clear instructions from the Regional Office on the use of antiviral medicines for prophylaxis and treatment. Representatives proposed producing guidelines on that issue covering target groups, indications, side-effects and stockpiling, etc. As medical supplies would not be sufficient to meet the demands of the world market during the human pandemic, Member States would need to prioritize the distribution of limited resources. Some Member States felt that the Regional Office should lay out the criteria and target population groups for fair distribution of limited medical supplies, antivirals and vaccines. The criteria and priority target population need to be revised in accordance with the availability of products and changes in the epidemiological situation. Guidelines on the use of the seasonal...
vaccine were discussed. Egypt, Islamic Republic of Iran, Pakistan and Tunis expect technical support from the Regional Office in vaccine and medicine production.

Technical support for the research and development of vaccine and antiviral medicines should be provided by enabling certain governmental or private pharmaceutical organizations in countries with a substantially developed pharmaceutical industry such as the Islamic Republic of Iran, Egypt, Pakistan and Tunis to develop the generic form of oseltamivir. Self-reliance in the production of vaccines and medicines can be achieved by collaborating with other countries in: (1) the transfer of production technology; or (2) joint investment in production capacity; and/or (3) negotiating appropriate purchase agreements.

Guidance on the implementation of non-pharmaceutical interventions according to the different phases of the pandemic is needed by Member States. It was agreed that prevention guidelines should be set for different phases of the pandemic which could occur in accordance with the progress of the outbreak. The rapid response teams including veterinarians, medical workers and poultry workers should wear personal protective clothing and equipment according to specific guidelines produced by WHO. In addition, WHO should provide guidelines for infection control practices, including biosafety and medical waste management to Member States.

Dissemination of accurate information on the current avian influenza situation among the public will help to prevent hysteria and panic. There is a need to standardize the guidelines for the public communication system to support information dissemination. It is also necessary that risk communication skills for official spokespersons be developed. WHO Regional Office and ministries of health in each Member State need to set up a working group comprising all informed and designated official spokespersons to coordinate and communicate briefings on the avian influenza outbreak at different phases. There is a need to run an awareness campaign for all the medical staff at each phase of the human influenza pandemic in order to prepare medical professionals to be able to respond efficiently and quickly to it. The training of media workers and the production of clear messages to the public were the main issues cited to be supported by WHO. Guidelines for information on hygiene and hygienic practices are needed to reduce animal and human disease transmission. Community participation in preparedness and response is a must. Member States have urged the Regional Office to produce guidelines to strengthen psychosocial support for families affected by the pandemic.

Political commitment at the highest level of government is strongly needed at this stage. National preparedness plans should be the starting point of the implementation of the new International Health Regulations (2005). There should be a national committee involving the relevant ministries and stakeholders to implement the preparedness plan and committees at various levels should be established within each Member State.

6. CONCLUSIONS

The anticipated pandemic of influenza is now considered inevitable and is expected to cause high morbidity and mortality which could result in social, economic and political
disruption throughout the world. Good preparedness plans based on sound technical advice will help to reduce the associated death toll, mitigate the impact of the epidemic and prevent politically-driven decision-making.

Lessons learnt from the SARS experience and from the sharing of preparedness plans of different countries within the Region and from other countries were useful in identifying areas for improvement of national preparedness plans. The training of health professionals is a key component in ensuring successful implementation of national preparedness plans. Early and correct diagnosis during the pandemic will be crucial. Medical doctors need to be trained on the clinical presentation of patients to ensure proper diagnosis of pandemic influenza cases.

To ensure global health security for humans through a more effective enforcement of the international legal framework, the Fifty-eighth World Health Assembly adopted revised International Health Regulations (2005) on 23 May 2005. The regulations have significantly broadened the scope of the previous regulations from 1969, from notification by States to WHO of single cases of cholera, plague and yellow fever only, to notification of all events that may constitute a public health emergency of international concern. In the revised International Health Regulations (2005), pandemic influenza caused by a new subtype is classified as one of four diseases in which a single case would be unusual enough to be considered a public health emergency of international concern, and thus must be immediately notified to WHO. To fulfil this requirement, the revised regulations also emphasize the need to strengthen core capacities to detect and respond to public health emergencies, such as an influenza pandemic. Addressing the countries’ generic core capacities will be necessary in order to assist countries in the development of, and in sustaining the implementation of, their national influenza pandemic preparedness plans.

Different phases require different plans. The transparency of information from countries and prompt sharing of information cannot be compromised. Preparedness for an influenza pandemic is of concern to everyone and all potential stakeholders and resources within countries and across borders at regional and international levels should be mobilized and involved in the development of preparedness plans and their implementation. Appropriate non-pharmaceutical interventions need to be identified and incorporated into national preparedness plans.

Appropriate and correct messages should be relayed to the public to avoid unnecessary panic and to increase the level of awareness concerning the gravity of the problem and to encourage their involvement.

7. **RECOMMENDATIONS**

*To Member States*

1. Revise national influenza pandemic preparedness plans and incorporate the different issues and recommendations of this meeting in them. All countries are expected to send a copy of their revised preparedness plans to WHO Regional Office, with a costing component before the end of 2005.
2. Clearly identify lines of leadership, with clear terms of reference, pertaining to implementation of the pandemic plan by, but not limited to, establishing:
   - a political body, comprising high-level representatives from relevant ministries, the main role of which will be stewardship;
   - a national emergency body, if not already present, comprising representatives from technical and related disciplines across different ministries;
   - a focal point within the ministry of health responsible for communication with the Regional Office;

3. Ensure full transparency and the timely exchange of information related to confirmed cases of avian influenza and human pandemic influenza.

4. Ensure public health authorities work closely with animal health and other related sectors, both private and public.

5. Promote community participation and empower nongovernmental agencies, scientific societies, academic institutions and others through involving them in the preparation and implementation of national preparedness plans.

6. Include in preparedness plans protocols for the prescription of antiviral medicines, the novel vaccine (when it is available) and other curative or supportive medicines.

7. Promote non-pharmaceutical interventions and incorporate appropriate interventions in national preparedness plans.

8. Pay serious attention to the role of risk communication to the public in order to avoid unnecessary panic and to increase the level of awareness among the public and specify the need to assign responsibility for such within the preparedness plan.

9. Further strengthen epidemiological and laboratory surveillance systems for communicable diseases, particularly acute respiratory tract infections.

10. Enhance public health laboratory capacities for the diagnosis of communicable and emerging diseases.

11. Enhance enforcement of implementation of national and international health regulations in relation to pandemic influenza.

12. Develop or further strengthen national influenza programmes for the control of seasonal influenza.

13. Where capabilities and technical capacities exist to produce an influenza vaccine, develop and support local production of the influenza vaccine to meet regional needs.
To WHO Regional Office

14. Support countries in revising and updating their national influenza pandemic preparedness plans and in particular, promote capacity-building in the Eastern Mediterranean Region to improve the preparedness of Member States by:
   - strengthening laboratory networking, organizing meetings or workshops to enhance different activities geared to information exchange and further strengthening epidemiological and laboratory capacities to cope with the surge in workload during a pandemic, infection control and promote intersectoral collaboration;
   - preparing training modules and conducting courses to train trainers on epidemiological surveillance, investigation of outbreaks and response and laboratory diagnosis of influenza, etc;
   - developing guidelines and practical manuals for different activities relevant to pandemic preparedness plans, including risk communication, laboratory testing and field epidemiological and laboratory activities.

15. Support development of intersectoral collaboration and cooperation among organizations (including OIE and FAO), maintain a standing committee to deal with zoonotic diseases in general and avian influenza in particular, and strengthen the Regional Office’s capacity in veterinary health.

16. Further support and strengthen laboratory capacities in Member States as appropriate by expanding the present network of influenza surveillance at all levels, both within the countries and among countries by:
   - expanding the memorandum of understanding with WHO collaborating centres, including the trilateral agreement with NAMRU-3;
   - strengthening national influenza centres not participating in the current memoranda of understanding;
   - conducting training (from collection of specimens to testing);
   - supporting technical capacity-building in laboratories for: human influenza; veterinary services (through FAO and OIE);
   - providing reagents whenever feasible;
   - ensuring quality assurance at national influenza centres;

17. Support development of a special preparedness plan for hajj and umra regarding influenza and the expected pandemic.

18. Encourage and support development of vaccines and antivirals in the Eastern Mediterranean Region.

19. Strengthen regional capacity, including in veterinary public health, in order to be able to extend expert support to countries when needed.

20. Develop a strategic risk communication plan for avian and pandemic influenza and assist countries in developing their own plans.
Programme

Monday, 28 November 2005

08:30–09:00 Registration

09:00–09:30 Opening session

Address by Dr Hussein A. Gezairy, Regional Director, WHO/EMRO
Address by H.E. Dr Mohammed Awad Afifi Tag-El-Din, Minister of Health and Population, Egypt
Objectives of the meeting
Introduction of participants
Election of officers
Adaptation of the programme

Moderated by
Dr Z. Hallaj
WHO/EMRO

09:30–10:10 Influenza pandemics and H5N1: Why should we be concerned?

Dr K. Stohr
WHO HQ

10:10–11:00 Regional plan for strengthening surveillance and response for influenza in the Region including web-based information sharing

Dr H. El Bushra
WHO/EMRO

Development of preparedness plans for pandemic influenza

11:00–11:25 National preparedness plans: Status and challenges

Dr K. Stohr
WHO/HQ

11:25–11:50 Influenza surveillance for potential pandemic strains

Dr Klimov
CDC USA

11:50–12:10 Veterinary activities vis-à-vis influenza in the Region laboratory capacity, migratory pathways, the poultry industry

Dr Talib Ali
FAO

12:10–12:30 Preparedness activities in Europe

Dr G. Rodier
WHO/EURO

12:30–14:00 Discussion
Implementation of the pandemic surveillance plan

14:00–14:25  WHO global surveillance networks: operation and functions  
Dr W. Zhang  
WHO/HQ

14:25–14:50  Scaling up national epidemiological and laboratory surveillance activities during an influenza pandemic  
Dr S. Chungong  
WHO/HQ

14:50–15:30  Maintaining functional surveillance in the Region in the face of a pandemic  
Dr Earhart  
NAMRU-3

15:30–16:20  Discussion  
Moderated by  
Dr G. Rodier  
WHO/EURO

Vaccines, antivirals, treatment and control measures for pandemic influenza

16:20–16:40  Risk communication of the pandemic to the public  
Dr I. Kerdany  
WHO/EMRO

16:40–17:00  Non-pharmaceutical interventions in the face of a pandemic  
Dr J. Jabbour  
WHO/EMRO

17:00–17:20  Scaling up the health care response – maintaining essential services  
Dr H. El Bushra  
WHO/EMRO

17:00–17:30  Influenza vaccines and antivirals: are they going to be available during a pandemic?  
Dr K. Stohr  
WHO/HQ

17:30–18:00  Plenary discussion on other issues related to availability to antiviral medicines for pandemic influenza  
Moderated by  
Dr A. Saleh  
WHO/EMRO

Tuesday, 29 November 2005

Reviewing national preparedness plans for human pandemic influenza

09:00–9:30  Critical review of national preparedness plans for human pandemic influenza: Alternative activities, costing, challenges and suggested improvements  
Plenary session moderated by  
Dr H. El Bushra  
WHO/EMRO

11:00–12:00  Working groups continue

12:00–14:00  Presentations of the working groups and recommendations

Leadership and coordination and development of standard operating procedures

14:00–14:30  Leadership and coordination and development of standard Operating procedures: Alternative activities, costing, challenges and Suggested improvements  
Plenary session moderated by  
Dr S. Kharabsha  
SRAG/EMRO

14:30–17:00  Working groups

17:00–18:00  Presentations of the working groups and recommendations
Meeting with surveillance regional advisory group (SRAG), EMRO

18:00–19:00 Implementation of the regional and national preparedness plans for human pandemic influenza: Making implementation of the preparedness plans the concern of all

Plenary session

Moderated by
Dr S. Lazzari
WHO/LYO

Wednesday, 30 November 2005

09:00–12:30 Plenary discussions and drafting conclusions and recommendations

Moderated by
Dr Z. Hallaj
WHO/EMRO

12:30–13:00 Closing session

13:00–14:00 Press conference

Moderated by
Dr Z. Hallaj
WHO/EMRO
Annex 2

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Professor Salih Yassin Salih
President, Sudan Medical Specialization Board
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Dr Noureddine Achour
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** Unable to attend
Other organizations

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Dr Talib Ali Elam
Regional Animal Production and Health Officer
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Dr Samuel L. Yingst
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Dr Moustafa M. Mansour
Director for Science
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World Organization for Animal Health (OIE)
Dr Ghazi Yehya
Regional Representative for the Middle East
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United Nations Relief and Works Agency for Palestine Refugees In the Near East (UNRWA)
Dr Humaid Salem Abu Mousa
Chief, Disease Prevention and Control
UNRWA/HQ
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JORDAN

U.S. Agency for International Development (USAID)
Ms Mildred Howard
Health Reform and Policy Adviser
Population and Health Division
New Maadi
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**U.S. Department of Agriculture in Cairo**
Dr Mahmoud Orabi Ag. Specialist
USDA-APHIS
Serving North Africa, East Africa,
Middle East and Near East
Embassy of the U.S.A.
Cairo
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**African Development Bank**
Mrs Almaz Amine
Country Operations Officer
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**Centres for Disease Control and Prevention (CDC) Atlanta**
**Dr Alexander Klimov**
Chief, Surveillance Section
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**World Bank**
Dr Dina M. El Naggar
External Affairs Officer
World Trade Centre
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EGYPT

**WHO Mediterranean Zoonosis Control Programme**
Dr Aristarhos Seimenis
Director, MZCP
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**Embassy of Japan**
Dr Kastsuaki Mikamo
Counsellor and Medical Attache
Cairo
EGYPT
WHO Secretariat

Dr Hussein A. Gezairy, Regional Director, WHO/EMRO
Dr M. A. Jama, Deputy Regional Director, WHO/EMRO
Dr Abdel Aziz Saleh, Special Adviser to the Regional Director (Medicine), WHO/EMRO
Dr Zuhair Hallaj, Director, Communicable Disease Control, WHO/EMRO
Dr Guenael Rodier, Special Adviser for Communicable Disease Control to the Regional Director, WHO/EURO
Dr El Fatih El Samani, WHO Representative, Oman
Dr Jihane Tawilah, WHO Representative, Djibouti
Dr Jaouad Mahjour, WHO Representative, Lebanon
Dr Ibrahim Al Hadi Sherif, National WHO Representative, Libyan Arab Jamahiriya
Dr Awad Abuzeid Mukhtar, WHO Representative, Saudi Arabia
Dr Yada Alzouma Adamou, WHO Representative, Congo
Dr Alice Crosier, WHO Global Influenza Programme, CSR, Department of Communicable Disease Surveillance and Response
Dr Hassan El Bushra, Regional Adviser, Surveillance, Forecasting and Response, WHO/EMRO
Dr Stella Chungong, CRS/CDS, WHO Lyon Office
Dr R. Ben Ismail, Regional Adviser, Tropical Diseases and Zoonoses, WHO/EMRO
Dr Ibrahim El Kerdany, Regional Adviser, Media and Communication, WHO/EMRO
Dr Ezzeddine Mohsni, Medical Officer, Vaccine Preventable Diseases and Immunization, WHO/EMRO
Dr Nadia Teleb, Scientist, Vaccine Preventable Diseases and Immunization, WHO/EMRO
Dr John Jabbour, Technical Officer (Epidemiologist), International Health Regulations Surveillance, Forecasting and Response, WHO/EMRO
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Dr Feras Ismael Moustafa, WHO Focal Point, SSA, WHO/Iraq-Mosul Sub Office
Dr Suzette Rene Graber Kakar, STP/CSR, WHO Pakistan
Dr Hashim Suleiman El Wagie, Medical Officer, STP/CSR, WHO Somalia
Dr Shr-jie Wang, Medical Epidemiologist, STP, WHO Sudan
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Ms Jehane Khadr, Senior Secretary, Division of Communicable Disease Control, WHO/EMRO
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