Workshop on Deployment of Influenza A(H1N1) Vaccine in a Pandemic

Manila, Philippines
31 August–4 September 2009
REPORT

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NOTE

The views expressed in this report are those of the participants of the Workshop on Deployment of Influenza A (H1N1) Vaccine in a Pandemic and do not necessarily reflect the policies of the World Health Organization.

Keywords:

This report has been prepared by the World Health Organization Regional Office for the Western Pacific for governments of Member States in the Region and for the participants of the Workshop on Deployment of Influenza A(H1N1) Vaccine in a Pandemic, which was held in Manila, Philippines, from 31 August to 4 September 2009.
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Definition</th>
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<tbody>
<tr>
<td>Chain of command</td>
<td>The order of authority between managers at different levels – national, state, provincial, district and local.</td>
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<tr>
<td>Chief of logistics (CoL)</td>
<td>The person responsible for planning and managing the logistics of delivering vaccines, ancillary supplies and other items during an influenza pandemic.</td>
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<tr>
<td>Civil society</td>
<td>Sectors of society such as religious institutions and their leaders, local and national nongovernmental organizations, private philanthropic organizations, universities, schools, teachers’ associations, trade unions, civic groups and parent–teacher associations.</td>
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<tr>
<td>Command and control</td>
<td>The collective methods for managing the deployment of vaccine and ancillary items.</td>
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<td>Deployment</td>
<td>The movement and use of a pandemic influenza vaccine, including any pharmaceuticals and other items that may be required to reduce the impact or severity of influenza infections, once they are available in a country.</td>
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<tr>
<td>Distribution</td>
<td>The transport of vaccine and other items from point of origin, through multiple processing points to the final destination.</td>
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<td>EPI</td>
<td>Expanded Programme on Immunization (of the World Health Organization)</td>
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<td>Incident commander (IC)</td>
<td>The person responsible for overseeing all aspects of a pandemic influenza response.</td>
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<tr>
<td>Inventory management system (IMS)</td>
<td>An active control programme that provides information on the quantities, status and location of stocks within a store or warehouse to assist in the management of related activities such as ordering, receipt, filling requests and/or shipping/forwarding these items. The IMS tools available today support many functions including automated billing (accounts receivable) and the issue of authorization to pay suppliers.</td>
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<td>IT</td>
<td>Information technology</td>
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<tr>
<td>Logistics</td>
<td>The management and control of the supply chain to assure the flow of medical supplies, vaccines, ancillary supplies and other resources during distribution within a country or region.</td>
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<tr>
<td>Term</td>
<td>Definition</td>
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<td>Management information system (MIS)</td>
<td>Any system that: (1) routinely assembles, integrates, processes and/or stores information according to a prescribed set of rules that it receive from the users, units, departments and/or other sources, and (2) provides this information to management and other users to support their operations. In the simplest form, the information collected is generally driven by the goals and objectives of the users and/or the business or mission of the overall organization.</td>
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<tr>
<td>Pre-event</td>
<td>The period before a pandemic occurs.</td>
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<td>Private sector</td>
<td>Commercial enterprises – sectors of the national economy that are not under direct state control.</td>
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<tr>
<td>Public sector</td>
<td>Sectors of the national economy under state control.</td>
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<tr>
<td>Supply chain action plan</td>
<td>Plan for the packaging, scheduling of shipments and the required transport of the vaccine and ancillary supplies.</td>
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<tr>
<td>Surge capacity</td>
<td>The ability to call forth the additional resources and capabilities required to respond to an emergency such as a pandemic.</td>
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<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<td>WHO</td>
<td>World Health Organization</td>
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SUMMARY

In May 2009, the Director-General of the World Health Organization (WHO) raised the pandemic alert level for influenza A (H1N1) to phase five. After that, the Western Pacific Regional Office began to plan workshops on influenza A (H1N1) vaccine deployment in a pandemic in Manila for 16 non-Pacific island countries and in Fiji for 20 Pacific island countries (PICs). The first workshop was held in Manila from 31 August to 4 September 2009.

The main objectives of the workshop were:

(1) to discuss the operational framework and guidelines for deployment of pandemic influenza A (H1N1) vaccine;

(2) to enable participants to understand and manage the processes and structures related to pandemic vaccine deployment; and

(3) to enable Member States to undertake required advance preparations, including establishing the required surge capacity to deploy vaccine and ancillary items.

Dr Shin Young-soo, WHO Regional Director for the Western Pacific, opened the workshop and provided the introductory remarks.

The five-day workshop was jointly organized by the Expanded Programme on Immunization (EPI) and Communicable Disease Surveillance and Response (CSR) units in the WHO Regional Office. The first half-day included presentations on the global and regional status of pandemic A (H1N1) 2009 and on progress in vaccine production. For the next four and a half days, the EPI workshop was held separately from the CSR workshop and focused on the development of a pandemic deployment plan.

The pandemic influenza A (H1N1) vaccine deployment workshop was designed and conducted along with the development of pandemic vaccine deployment guidelines of seven core areas of vaccine deployment, namely: legal and regulatory, management of deployments, information and communication systems, human resources and security, supply chain logistics, health care waste management, and termination of deployment operations. Participants were divided into three groups to read documents, to review checklists, to major challenges in these seven core areas, and to come up with solutions. Participants did brainstorming according to their country situation and experiences. All groups presented their findings on challenges and solutions at the plenary session. On computers, participants used an Excel database to calculate vaccine storage capacity needed for pandemic A (H1N1) vaccine in each country, using different scenarios based on vaccine uncertainties. Participants also took part in whole-day computer exercise to develop outlines for the pandemic vaccine deployment plans on the fifth day of the workshop.

As pandemic vaccine deployment was a new topic to most member countries, participants were actively engaged in the interactive plenary and group work sessions. Participants were taught the standard operating procedures for all levels of pandemic vaccine deployment, effective management and co-ordination at all levels of the health system during pandemic vaccine deployment, vaccine storage and transport capacity for their respective countries, and how to plan for establishing surge capacity for each essential area of pandemic vaccine deployment.
Many countries have not yet finalized the prioritization of groups or percentage of population to be vaccinated for the pandemic influenza A (H1N1) vaccine when it becomes available. As such, these countries were not able to prepare outlines for their pandemic vaccine deployment plans; rather, they did the exercise on different scenarios.

It is recommended that countries should prioritize the population groups to be vaccinated for pandemic influenza A (H1N1) vaccine. High-level advocacy should be conducted by the participants when they return home. Countries should also involve people from several departments and organizations in developing the final details of the pandemic vaccine deployment plan. Finally, it is recommended that countries should incorporate the final pandemic influenza A (H1N1) vaccine deployment plan into the country pandemic response plan.
1. INTRODUCTION

A Workshop on Influenza A (H1N1) Vaccine Deployment in a Pandemic was held from 31 August to 4 September 2009 in Manila for 16 non-Pacific island countries.

1.1 Objectives

(1) To discuss the operational framework and guidelines for deployment of pandemic influenza A (H1N1) vaccine.

(2) To enable participants to understand and manage the processes and structures related to pandemic vaccine deployment.

(3) To enable Member States to undertake required advance preparations, including establishing the required surge capacity to deploy vaccine and ancillary items.

1.2 Participants

Attending the meeting were three resource persons from WHO Headquarters, 25 participants from 13 countries, four officials from the United Nations Children's Fund (UNICEF) Regional and country offices, and 16 participants from the WHO Regional and country offices. The workshop agenda and the list of participants are provided in Annexes 1 and 2, respectively.

1.3 Opening ceremonies

Dr Shin Young-soo, WHO Regional Director for the Western Pacific, welcomed the participants to the workshop. He also thanked everyone for making themselves available for the ongoing influenza A (H1N1) pandemic—the first influenza pandemic of the 21st century.

He informed the audience that the Western Pacific Region is much better prepared than before, seeing the real benefits from the national capacity strengthening and pandemic preparedness efforts made over the past years. WHO has been working closely with Member States to monitor the evolving pandemic situation and to provide technical advice accordingly, especially to mitigate the pandemic.

He mentioned that although safe and effective vaccine was not used in any of the previous pandemics, prospects for using vaccine to fight the A (HINI) pandemic virus were really good and may be one of the most important components of the mitigation strategy of the current pandemic. Pandemic (H1N1) vaccine was in the advanced stage of clinical trials at the time of the workshop, likely available for use in September or October 2009. Dr Shin further noted that although many high-income countries in the Region have advance purchase agreements with many manufacturers, WHO is in continuous dialogue with many manufacturers for pledges of donations and for reserving a proportion of their real-time production at a reasonable price for developing countries to ensure equity and fairness in access to pandemic A (H1N1) vaccine. As of July 2009, 150 million doses had been assured to WHO as donation from two big manufacturers.
However, Dr Shin emphasized that while efforts are being made to secure vaccine supplies, it is equally important to make advance preparations to ensure efficient use of the limited supplies of vaccine to maximize its public health impact. In this regard, he reminded the audience of the recent Strategic Advisory Group of Experts (SAGE) recommendation for identifying the priority groups for vaccination and making preparations for expedited regulatory approvals of in-country vaccine licensing and importation; and rapidly distributing vaccine to the priority high-risk groups as identified in the country earlier.

Dr Shin also acknowledged the contributions of the participants and sincerely hoped that the common sessions between the two groups would mark the beginning of stronger and sustainable dialogue in joint planning and coordinated pandemic response in countries for the coming days.

2. PROCEEDINGS

2.1 Overview of current situation of pandemic A (H1N1) 2009 and seasonal influenza

2.1.1 Global situation update: pandemic A (H1N1) 2009

Dr Anthony Mounts from WHO Headquarters presented the global update of pandemic A (H1N1) 2009. Globally, as of 13 August 2009, more than 180,000 cases of influenza A (H1N1) 2009 had been detected and 1,800 deaths had been reported in 177 countries, territories and areas. In terms of virus characteristics, he noted that all viruses to date had been homogeneous antigenically, that they reacted well with antisera raised against California/4/2009 and California/7/2009, and that very little drift and no further reassortment events had been found. It has been found that pandemic A (H1N1) 2009 virus replicates more in lungs and causes more severe pneumonia in animals (e.g. ferrets, mice, primates) than seasonal H1N1.

Pandemic A (H1N1) 2009 virus is sensitive to neuraminidase inhibitors (oseltamivir, zanamivir) and resistant to amantadine and rimantadine. There were reports of sporadic resistance to oseltamivir, but very few in relations to total numbers of cases.

In terms of outcome, a majority of cases have uncomplicated influenza illness that resolves without antiviral treatment. A majority of deaths are caused by severe viral pneumonia, renal failure or multiple organ failure, hypotension and shock. Around 50%–80% of severe cases have underlying conditions that vary by country and by definition. Risk factors might include pregnancy, asthma and other lung disorders, cardiovascular disease, diabetes, immunosuppression, neurologic disorders and obesity, but further study is required. Severe cases and deaths have occurred in young and previously healthy adults and less often in children.

Currently, the rates of illness appear to be dropping in temperate areas of the southern hemisphere. Temperate areas in the northern hemisphere are experiencing intense, local spread to areas previously unaffected, and tropical areas are now seeing an increase in the number of cases.

The number of pandemic A (H1N1) 2009 cases is high, but variable transmissibility in countries appears to differ with the season. People aged 5–25 years old are most commonly affected. Groups at risk for severe illness are similar to those most affected by seasonal influenza. However, rates of severe disease are low in the oldest segment of the population. Seasonal and pandemic viruses are co-circulating in some countries. It is still unclear if replacement will occur.
2.1.2 Regional situation update and pandemic response strategies in the Western Pacific Region

Dr Takeshi Kasai, WHO Regional Adviser for Communicable Disease Surveillance and Response (CSR), presented an update on the pandemic A (H1N1) 2009 situation in the Region and described response strategies taken by the WHO Western Pacific Regional Office. Pandemic impact still remains uncertain and is currently being monitored. The impact of the pandemic on a population has many dimensions: health, social and economic. There has been no reported severe impact on health care services as a result of acute respiratory disease. Pressures on local hospitals and potential economic loss have been reported from some countries.

Dr Kasai also talked about the Third Meeting of National Influenza Centres (NIC) in the Western Pacific and South-East Asia Regions held from 18 to 20 August 2009, in Beijing, China.

Key NIC meeting recommendations were:

1. strengthen comprehensive national influenza surveillance systems, including surveillance of influenza diseases, viruses, severe acute respiratory infection (SARI) and outbreak events;
2. develop NIC contingency plan;
3. shift from "containment" to "mitigation" strategies smoothly; and
4. strengthen regional influenza information sharing mechanisms.

Dr Kasai concluded that the epidemiological situation differs by country, the virus has not made any significant mutations, and the majority of cases have been mild. However, cases of severe illness and death have been reported from countries with sustained community transmission. Intervention differs by different epidemiological stage – it is important to shift accordingly. The WHO Western Pacific Region and South-East Asian Region have developed a framework for action to assist preparation in order to minimize preventable deaths and accelerate the development of core capacities required under IHR (2005).

2.1.3 Pandemic A (H1N1) 2009 vaccine development and vaccination strategies

Dr Manju Rani, Scientist for EPI unit, gave a presentation on pandemic A (H1N1) 2009 vaccine development and vaccination strategies. She mentioned that pandemic vaccine was not used in previous pandemics. In 1918, no vaccine was available, and in 1957 and 1968, vaccines arrived too late. When vaccine became available in 1976 for the swine flu outbreak in the United States of America, the vaccination campaign was halted due to a higher-than-normal rate of Guillain-Barré Syndrome (GBS) cases among the vaccinated group.

Dr Rani presented the differences and similarities of pandemic A (H1N1) 2009 vaccine with seasonal influenza vaccine:

1. monovalent (HIN1 2009) versus trivalent (H1N1, H3N2, type B);
2. inactivated, versus live;
   - Live vaccines are licensed in a few countries with restricted age group for administration.
(3) multiple formulations (whole virus, spilt virus, virus subunit) by different manufacturers;

(4) adjuvants: alum or oil in water (many current EPI vaccines are adjuvanted, e.g. hepatitis B vaccine) versus non adjuvants;
    - Only one vaccine was licensed earlier with MF-57 by Novartis.

(5) production substrate: egg based or cell-culture based (Baxter);
    - Only one of the currently licensed seasonal influenza vaccines is cell-culture based (2007).

(6) route of administration: intramuscular (inactivated), nasal spray (live attenuated); and

(7) dose: single versus double (at one month interval)

Multiple formulations and types of vaccine (with or without adjuvant), new virus-like particle (VLP) vaccines and recombinant vaccines may be available in the markets, which can be challenges in low- and middle-income countries.

However, the objectives of vaccination strategies may vary by country depending on the epidemiology and severity of the pandemic, vaccine supply in terms of quantity and timing, programmatic capacity to deliver vaccine, and political will.

She also presented the rationale for prioritization as per WHO recommendations for vaccination and on operational feasibility.

She concluded by announcing that vaccine against pandemic A (H1N1) 2009 would soon be available and would be ONE of the components of the mitigation strategy. Since vaccine supply will not be sufficient for the whole population, countries will have to implement staggered availability and prioritization of population groups depending on vaccination objectives.

2.1.4 Seasonal influenza: vaccine and vaccination

Dr Md. Shafiqul Hossain, Technical Officer of EPI unit, presented an overview of seasonal influenza vaccine and vaccination. Of the three types of influenza viruses, influenza A virus is the leading cause of large epidemics and high mortality.

There are two types of influenza vaccine: trivalent inactivated and live attenuated. They are composed of two strains of influenza A virus (H1N1, H3N2) and one B type. Influenza vaccines are different each year and vaccine virus strains are adjusted annually. Virus strains are usually changed therefore one seasonal vaccine has no or limited effect for other seasons. The seasonal vaccine strains recommended for the northern hemisphere are announced in February and for southern hemisphere are announced in September.

Trivalent inactivated influenza vaccine is a liquid multi-dose preparation with preservative (thioemersal) and single-dose vials (with no preservative), licensed for children older than six months. Trivalent inactivated vaccine (TIV) can be administered to a person receiving an influenza antiviral, can be simultaneously administered with other vaccines and can be administered to a person at risk for complications.
Live attenuated influenza vaccine (LAIV) is based on genetic reassortment technologies. It is genetically stable, cold adapted, temperature sensitive and licensed for use in 2–49 years age group in the United States of America, the Republic of Korea and the Russian Federation. Live attenuated influenza vaccine, which is kept in a pre-filled, single-use sprayer containing 0.2 ml of vaccine, is easy to administer. It induces broad mucosal and systematic immune response in children.

Compared to other EPI vaccines, influenza vaccines need to be given every year to all cohorts. Protection will depend on the match between vaccine antigens and circulating viruses. On average, protection against clinical disease is 70%–90% and duration of protection is 4–6 months.

2.2 Introduction of training course

Mr Peter Carrasco, resource person for the workshop, provided an overview of the training course of influenza A (H1N1) 2009 vaccine deployment in a pandemic. The training course is based on the WHO prepared guidelines, which also support rapid deployment of antivirals, pharmaceuticals and personal protective equipment (PPE). The guidelines can be used to support logistics in almost all emergencies. The guidelines assume that most countries will use their immunization programme and its built-in capacity to support the deployment of pandemic vaccine.

The main objectives of the training course are to develop a deployment plan for delivery of pandemic influenza vaccine and other ancillary products in seven days, as well as understanding the core concepts/activities discussed in the guidelines related to:

1. pre-event planning,
2. planning for a required surge capacity,
3. conducting exercises to test a country’s deployment capacity,
4. core management activities to achieve a seven-day deployment, and
5. command and control.

The workshop is outlined in eight chapters, namely: Introduction, Managing deployment efforts; Legal and regulatory planning issues; Information and communications management; Human resources and security; Supply chain logistics processes; Managing waste; and Termination of deployment. Illustrative checklists for chapters 2, 4, 5, 6, 7 and 8 were discussed in the group work.

2.3 Management of deployment efforts

Mr Peter Carrasco presented on the management of deployment efforts. The goal is to define and plan an effective managerial framework that will ensure deployment of vaccine to designated distribution points within seven days.

When preparing for a pandemic, it is critical to involve people from multiple agencies as no single institution would have all the resources required to deploy a pandemic influenza vaccine in seven days. Deployment committees should be established at each level and should include representatives from government agencies (e.g. agriculture, civil protection, defence, energy, forestry, police/fire services and transport), medical societies, nursing/nursing societies,
schools of medicine, civil society organizations, private sector such as vaccine manufacturers, associations of governors and/or mayors, nongovernmental organizations, the Red Cross/Red Crescent, community organizations and religious groups. Multi-sectoral representation on deployment committees is also important for planning and obtaining additional resources to complement government resources. In many countries, the emergency services at regional and district levels are managed under different conditions and by different local agencies. Serious problems will arise if an agency does not understand its part in the country’s deployment plan or the need to coordinate its efforts with others in the chain of command.

For the deployment of vaccine within seven days to be successful, activities must be effectively managed and coordinated. Managers need to begin by asking: “What will it take to deliver vaccine in seven days?” The answer will identify what the manager needs to plan, establish and exercise to achieve the seven-day delivery.

The person who is responsible for all pandemic-response actions is coined as the incident commander (IC). Whether the IC manages the deployment of vaccine or delegates the responsibility to another person will depend on the scale of the event and other activities that the IC must manage. A pandemic will undoubtedly be a large national event so the IC will probably delegate responsibility for vaccine deployment to the person who will manage the logistics. Countries may have other titles for the person who fills this function but can refer to him/her as the chief of logistics (CoL). The CoL reports directly to the IC. The IC and the CoL need to understand the functions and the supporting processes and structures that have to be managed at all levels for the successful execution of the deployment plan.

Effective management of the deployment depends on: (1) how effectively the deployment plan is structured and detailed to provide counterparts with a clear understanding of what needs to be accomplished, by when and by whom; and (2) the establishment (by the COL) of a clear line of command between managers at the national, intermediary and local levels. This structure is commonly known as a chain of command. Managers at every level in the chain of command will: (1) receive guidance from, and submit progress reports to, those in the level above them; and (2) in turn, provide guidance to, and receive progress reports from, those working in levels below them. An effective chain of command will assure the uniform execution of activities to deploy pandemic influenza vaccine within seven days to all distribution points.

Effective deployment of the vaccine will depend on the ability of managers at all levels to make rapid decisions. A communications grid and related equipment are needed for all government agencies, the military and civil authorities to communicate rapidly with one another, monitor the dispatch and arrival of vaccines and other items, and identify and resolve deployment problems at levels where they occur. A supervisory structure is needed to support staff to guide others in their work and ensure timely execution of the required activities, identify and resolve problems quickly, and document operations, successes and failures and provide recommendations.

The efforts to manage deployment at all levels are known collectively as command and control. The command-and-control structure provides the oversight, accountability and framework for rapid decision-making processes and the management required to execute a planned response. The CoL will have to establish a command-and-control protocol that defines the structure, decision-making processes and lines of command to assure that the vaccine and ancillary supplies reach each distribution point according to the country’s deployment plan within seven days.

Experience from other disease-control efforts has shown that the establishment of an effective command-and-control protocol depends on five essential management functions: (1)
decision-making; (2) communication; (3) supervision; (4) evaluation and monitoring; and (5) simulation exercises. The CoL needs to establish a command-and-control protocol at state/provincial and district levels and assure that counterparts at those levels agree to use it.

The CoL and his/her counterparts at each level need to carefully estimate: (1) the cost of providing the required resources to support management activities; and (2) the cost of supporting all operations to achieve a seven-day deployment, including the possible deployment of a second dose. The IC has to ensure that these costs are incorporated into the county’s pandemic preparedness plan and presented for approval to the government and other organizations at the highest levels. The CoL and other managers should periodically review and update these estimates.

2.3.1 Group work

Challenges:

(1) Uncertainty of vaccine availability
(2) Prioritization in selecting target populations
(3) Communication: command control, multisectoral coordination and public relations
(4) Political will
(5) Securing the budget in pre-pandemic phase
(6) Challenges to distribution if there is a perception of panic from the pandemic
(7) Difficulty in accessing high risk first
(8) No deployment plan and national preparedness plan does not consider the use of the vaccine (use of vaccine is not clearly explained in many Member States)
(9) Lack of funds to purchase vaccines and injection equipment, operational costs
(10) Lack of a national policy to coordinate and manage transportation assets to quickly deploy all vaccines to the end-point users
(11) Insufficient capacity in waste management and cold chain capacity
(12) Inadequate management information systems to support a seven-day deployment
(13) Lack of trained staff

Solutions:

(1) Prepare several plans based on different scenarios.
(2) Be proactive in communicating and collaborating more closely with partners (e.g. WHO, UNICEF, donors, manufactures).
(3) Establish a national panel consisting of leaders and experts from different groups, including medical doctors, public health, and civil society.
(4) Develop general guidelines for defining target populations.
(5) Establish a prioritization plan for vaccination of target populations.
(6) Establish a national committee for vaccine deployment and define clear responsibilities for each member/sector.
(7) Appoint a national incident commander and chief of logistics.
(8) Develop a national communication plan and guidelines, including community health education.
(9) Develop a national plan, test the plan through implementation of a simulation exercise and identify gaps for further improvement of each plan.
(10) Present the budget plan to:
    (a) national government for approval, and
    (b) stakeholders (national and international).

2.3.2 Legal and regulatory issues for deploying vaccines
Mr Peter Carrasco presented the legal and regulatory issues for deploying vaccines. The goal of legal and regulatory planning is to assure that the agency or ministry responsible for regulating the importation, transportation and use of vaccines and medical devices completes the necessary legal and regulatory steps to permit the importation and use of pandemic vaccine. Although legal and regulatory concerns technically are not logistics issues, they were included in the guidelines and in the workshop because national and international laws and regulations concerning vaccine must be followed even during an emergency.

These laws and regulations apply to the movement and use of vaccine from the time it leaves the manufacturer or WHO stockpile to the time it is administered. Failure to comply with legal requirements in advance of an event will seriously delay the delivery of vaccine when operations commence. With good preparation, a country can avoid the stresses and delays of having to comply with legal requirements during an event.

The CoL must: (1) understand the legal and regulatory requirements for importing and using vaccine; (2) contact the offices that are responsible for complying with the requirements and find out what additional information they require; and (3) ensure that the responsible offices take the necessary steps in advance to assure that the deployment of vaccine is not impeded by any unforeseen legal constraints during the deployment.

The CoL should start these activities immediately. It will take time to clarify the legalities and satisfy all the requirements. Every Member State has its own laws and regulations for the importation and use of vaccine. Each step of the vaccine deployment may have different legal and regulatory implications that the CoL must understand. The CoL should also analyse existing laws and regulations and seek the assistance of legal counsel. Before the vaccine is available, each Member State should assure that the regulatory control authority briefs customs officers and other authorities at all levels of government to ensure the rapid clearance of the vaccine through customs and during interstate transport.

Some countries may need to modify existing laws to allow the deployment of a pandemic vaccine during an emergency. For instance, a new pandemic vaccine may not yet be fully licensed under a country’s current regulations at the time it is needed, or a country’s laws or regulations may have to be changed to allow an official to issue a conditional license for import and use.

2.3.3 Information and communications management

Mr Henry Tuell made a presentation on information and communication management. The goals of information and communication management are: (1) to review the current information system and recommend ways to improve it so that it provides the CoL, other deployment managers and staff with information to make effective decisions and manage the deployment; and (2) to evaluate whether the communications hardware requires upgrading and, to the extent possible, arrange for redundant capabilities in case the primary system fails.

Effective decision-making is one of the procedures that assures effective implementation of the deployment plan and permits adjustments to be made to the activities. Rapid communication of information and data is critical as it assures good understanding of the impact of the event, effective action to mitigate or address it, and good decision-making. In the event of an influenza pandemic, questions raised concerning the impact, the control measures in place, and the use of pandemic influenza vaccine will need to be addressed effectively.

Effective information and communications management ensures that real-time answers are provided to the questions outlined below.
(1) Where are the pandemic influenza vaccine and ancillary items?

(2) What problems exist? Why do they exist? Do they relate, for instance, to mechanical transport problems, lack of fuel, security, weather, human resources, or legal issues concerning the documentation required for vaccine being transported through provinces or across borders?

(3) Who are the persons we need to contact (include names and contact details of all personnel involved in the deployment operations)?

(4) Where are the waste disposal sites?

The answers to the questions assist the CoL, the CoL’s staff, and public and private authorities in making the best possible decisions during the emergency response.

The CoL and IC need to work with the office responsible for overseeing the design of the management information system that underpins the response to the overall event. They need to assure that the important information is recorded and stored: resources used in the deployment, the performance achieved in relation to the planned supply chain activities, lessons learnt and any other basic supply chain information relative to the support of the deployment plan, including names and contact details of all personnel involved in the deployment operations.

The CoL and IT manager and/or human resource manager should review the existing human resource information system and consider whether it can produce the information that will be required to support deployment activities at all levels. The CoL should assure standardization of information that facilitates personnel management such as making decisions on which staff members have the skills to replace others who, for some reason, cannot fulfil their duties during a pandemic. Human resource information should be stored in a form that is easily accessible, either in a secure computerized system or in a paper-based filing system.

Many countries have inventory management systems to manage their medical and pharmaceutical inventories. These systems track the arrival, amount, storage, dispatch and shipment of vaccines and medical supplies. In countries where the private sector dominates the provision of health services, governments select private contractors that have similar systems to manage and distribute vaccines and other medical supplies. The ministries of health and private contractors have routine methods for communicating inventory information on vaccines and other medical supplies. During a pandemic, however, the speed and timeliness of their information exchange may not be adequate to support the deployment of vaccine and ancillary items within seven days. The CoL needs to look at existing systems to see if they can effectively provide data to support a seven-day deployment.

The CoL and the offices responsible for the collection of health care waste need to determine the actions to be taken to assure the safe and appropriate disposal of the large amounts of waste that will be produced by pandemic vaccination activities. To make a decision on whether or not it will be necessary to establish surge capacity to assure the timely collection and disposal of medical waste, the CoL will have to review information on currently available waste facilities.

It is crucial to maintain and protect the information in the management information system to assure that it is accurate and available to managers and staff throughout the deployment. Countries must have clear procedures for updating, accessing and protecting information in the management information system to prevent any information being lost or compromised.
If the pandemic influenza virus is causing severe complications and is associated with many deaths, sectors of the public may panic or become aggressive in demanding the vaccine. During a pandemic, it will be critical to manage the media to keep the public informed and to gain their trust and cooperation. Failure to do so may create security risks that could threaten deployment personnel and hinder vaccine distribution efforts. The CoL is generally responsible for managing communication with the media, but he or she should work with appropriate ministries and civil authorities to:

1. assign responsibility for media relations to specific staff members at national, state/provincial and district levels;

2. establish guidelines and standard operating procedures for personnel who communicate with the media – this should be done in consultation with the information office of the ministry of health or the appropriate entities designated by senior officials;

3. draft messages and information material in advance of the deployment for the media to use in informing the public and minimizing rumours; and

4. establish budgets at each level to support media communications efforts.

2.3.4 Group work

Challenges:

1. Lack of information about the vaccine on safety efficacy/clinical trials
2. Hard to prioritize the target group
3. Difficult to develop a communication plan
4. Difficult to reach and communicate the vaccine program to the people in isolated remote areas;
5. Lack of information about the vaccine: package size, consignment schedule and quantity
6. Uptake of vaccine (if there is no demand) for different priority groups
7. Concomitant administration of H1N1 and seasonal influenza vaccine
8. Information on personal protection and moral responsibility;
9. Inadequate communication infrastructure to facilitate rapid transmission of data regarding vaccine delivery
10. Inadequate performance and motivation of health care workers to provide timely information on vaccine deliveries
11. Lack of intersectoral coordination to facilitate timely communication at all levels
Solutions:

(1) Use updated data from WHO; WHO to provide quick and accurate information on vaccine safety and vaccine information.
(2) Develop communication plans for target groups.
(3) Develop communication plans based on clinical data to support limited vaccination. For those who will not get the vaccination, be ready to explain why they are not higher in the priority list.
(4) Work through trusted individuals in the local communities, e.g. tribal leaders and religious leaders, to ensure a successful vaccination programme.
(5) Liaise with the police or defense organizations to guarantee security.
(6) Identify requirements for funds early in the planning process to try to secure funding.

2.4 Human resources and security for deploying vaccines

Mr Souleymane Kone gave a presentation on human resources and security for deploying vaccines. The goal for human resources and security is to assure the availability of enough people who are trained and motivated and have the right skills to deploy pandemic influenza vaccine in a working environment that is supportive and secure.

A well-planned and fully supported human resource management system is essential for the effective deployment of vaccine. The human resource system needs to address the categories and the numbers of personnel that will be required for the deployment, their roles and responsibilities, the support they will need and, above all else, their safety. The skills that deployment personnel have, and the training they receive, will be a major determinant in the quality of their performance during the deployment. It is imperative to train staff and managers both as individuals and as team members within their teams. Training individuals assures that each person knows how to perform his or her assigned task and how to work with other members in the team. Training teams assures that each team member understands what the team must accomplish and how it is expected to coordinate with other teams throughout the chain of command. Conducting exercises to identify gaps in the skills that are available or required provides a basis for developing the appropriate training.

Acute shortages of staff will exist during a pandemic. By the time vaccine is available, it is probable that personnel on whom the CoL has counted may be sick or unable to work. There may not be a sufficient number of people to fill the positions at all levels to deploy the vaccine. The CoL must recognize this fact and work with health and planning authorities to create a contingency plan that will minimize the impact of personnel shortages during deployment operations. Many countries that conduct mass vaccination campaigns have teams of trained personnel with experience in deploying vaccine and supplies for disease-control initiatives. However, as time passes, those individuals may retire, leave to take up other jobs or be unavailable for other reasons. Without a continuous effort to recruit individuals, assess their skills and train them, a country will discover that it has too few staff members to perform effectively when a pandemic occurs.

Training supervisors is particularly important. Supervisors need to understand the overall deployment plan, their responsibilities within the plan, their reporting relationships to senior levels of management, and the information and communications systems that they will use to make decisions, solve problems, and manage deployment operations. Supervisors must understand the skills and experience that major categories of personnel need so that they can organize, manage and provide the training that staff require. Deployment of vaccine will also
involve personnel with a wide range of skills. Job descriptions prepared for every task will define the responsibilities and skills that each person, including volunteers, should have.

It is imperative to assure security for deployment personnel, the equipment they use, the facilities where they work, and the vaccine and supplies they distribute. A pandemic will generate a lot of public anxiety and possibly fear. This could result in lawless behaviour that might threaten the safety of personnel and the effectiveness of deployment operations. Moreover, the life-saving promise of vaccine and the public’s worry about getting it in time may encourage some individuals to try to steal vaccine and sell it on the black market. Once deployment routes and delivery points have been established, the CoL should meet with law enforcement and other officials to review the security requirements and develop a security plan for deployment staff, the equipment, facilities and vaccine shipments. The security plan should aim to protect the wellbeing of staff and their families. It is important to assure that staff can perform their functions without worrying about family members.

2.4.1 Group work

Challenges:

(1) Lack of health staff for a major pandemic event and health staff becoming sick or exhausted
(2) Lack of surge supervisors
(3) Lack of training on mass immunization process for all staff and supervisors
(4) Lack of funding to support a huge mobilization of personnel
(5) Lack of a security plan and risk assessment in certain areas
(6) High turnover of trained staff

Solutions:

(1) Plan to use nursing and medical students as extra surge staff. Prepare work schedules so staff are not overworked.
(2) Mobilize and train surge supervisor.
(3) Develop networks with other agencies and support teams to help in the event.
(4) Develop a vaccine plan in advance and submit it to the government for funds.
(5) Get assistance to evaluate security and partner with the military or other law enforcement groups.

2.5 Supply chain logistics for deploying vaccine

Mr Henry Tuell presented the process of supply chain logistics for deploying vaccine. The goal of this process is to document the capacity to receive, store, package and safely ship influenza vaccine and ancillary items to specified distribution points within seven days. Well-managed logistics underpin a good deployment plan.

Logistics as “the art of managing and controlling the supply chain to assure the flow of medical supplies, vaccines, ancillary supplies and other resources for distribution and/or redistribution within a Member State, country or region”. Information on the receipt and shipment of vaccine is essential in the deployment of vaccine within seven days. The timely and accurate provision of this information depends on the capability and compatibility of the software that each state/province/district and/or private sector company uses for stock-inventory management. All systems should use a standard format to present the information. Standard fields for filling in the required information not only reduce errors in transferring or sharing information, but also facilitate consolidation and processing of the information. Supply chain
logistics include receiving, storing (warehousing), packaging and transporting vaccines and ancillary supplies to designated points within a country. Providing effective support to supply chain logistics involves the management of critical information on inventories (including the accurate, real-time tracking of vaccine supplies), storage (including items delivered to and from warehouses), handling of materials, packaging, repackaging (including bundling and/or kitting products such as needles and syringes together), distribution schedules and transportation resources (for ground, air and/or waterways).

Each Member State should define the minimum logistical information it needs for tracking the movement of vaccine shipments during the deployment. This information should include location and details on the mechanical condition of the transport, the condition of routes (ground, water and/or air) and any security issues en route. The systems should use standard formats for receiving and sending information, and provide information on issues that are critical to rapid decision-making such as mechanical problems, re-routing of shipments (for whatever reason), and the need for security alerts.

Each Member State should designate one or more national warehouse as initial depots to receive deliveries of vaccine and ancillary items such as syringes, needles from manufacturers and other sources. The CoL will oversee the shipment of these items from the warehouses to distribution points throughout the country, including regional, district and sub-district warehouses. In Member States that produce influenza vaccine, the government may instruct manufacturers to ship the vaccine directly to regional, district or sub-district warehouses.

To ensure the successful deployment of a pandemic influenza vaccine and ancillary supplies, a Member State and its regions should: (1) define the supply chain processes prior to a pandemic; (2) identify the additional surge capacity that will be required by measuring the gap between “what is possible today” and “what deployment will require”; and (3) exercise the procedures to evaluate how well the country is prepared to respond. Countries should consider using current vaccine delivery systems as the basis for the deployment of a pandemic influenza vaccine. In many countries, the national EPI has the logistics capacity to support disease-control campaigns. This capacity will provide the basis for determining the additional capacity needed to accomplish a seven-day deployment of pandemic influenza vaccine. Countries that rely on public health logistics systems to deliver vaccines should consider using private sector networks to provide a part of the surge capacity that a pandemic response may require.

Like all vaccines, pandemic influenza vaccine needs to be stored and transported within a specified temperature range. Vaccine can lose its potency if it is exposed to temperatures that are too cold or too hot. Storage and transport equipment must therefore be inspected before an event to assure that it will maintain the vaccine at appropriate temperatures. Syringes must be stored in dry conditions and not exposed to materials or liquids that leach chemical gases. Information and reporting systems need to be in place to monitor the temperature of all temperature-sensitive items and detect/correct problems before valuable inventory is damaged.

If a Member State relies on its ministry of defence or other ministries to perform some or all of its supply chain processes, those ministries/departments should participate in all meetings to plan and assign resources and to practise the procedures. To possess a robust planning capability, the CoL and his/her staff must have sufficient experience and knowledge of supply chain management and logistics to draft a comprehensive supply chain action plan. Countries that have conducted vaccination campaigns in recent years will have collected information on logistics and supply chain issues. This will help them in their planning process.
The action plan should include the following:

(1) calculation of quantities/volumes of vaccine and ancillary items that must be shipped to each distribution point;
(2) calculation of the medical waste that will be generated during the deployment that must be collected and transported to disposal sites;
(3) calculation of the capacity required to temporarily store vaccine and ancillary items at each level;
(4) calculation of the quantities of cold boxes and/or other containers for delivering the vaccines and ancillary items to each site;
(5) calculation of the capacity to make ice or freeze ice packs at the sites that ship vaccine and an estimate of the surge capacity required;
(6) list of the air, land and water transport resources available for surge capacity and an estimate of the surge capacity required;
(7) procedures, processes, forms, checklists and reports to support deployment – including recall rosters, shift-roster forms, checklists to set up warehouses and other reception locations, repackaging processes, call logs;
(8) budgets and resources; and
(9) planned dates for evaluations/exercises.

In addition, countries should obtain information on various vaccines currently on the market, including the weight and volume of 1000 doses, different presentations, and the weight and volume of ancillary supplies. With this information, planners can estimate requirements for:

(1) the cold storage (volume) at different levels; (2) repackaging, including the time to bundle ancillaries; and (3) transportation.

The CoL should consider the following activities for deployment operations before and during events:

(1) receiving vaccine and ancillary items (stock inventory information process);
(2) storing vaccine and ancillary items at correct temperatures;
(3) repackaging vaccines and ancillary supplies;
(4) making or buying ice for packaging vaccine;
(5) transporting vaccine and ancillaries;
(6) managing supply chain information; and
(7) communications and information technology.

2.5.1 Group work

Challenges:

(1) Insufficient cold chain capacity
(2) Lack of surge warehouse with back-up generators
(3) Lack of or poor-quality vaccine management inventory system
(4) Lack of or poor-quality cold chain equipment (need to identify aging or out-of-service equipment)
(5) Lack of or poor-quality refrigeration storage at the clinic level
(6) Lack of or poor-quality transport, including lack of funds and poor transport management
(7) Lack of distribution plan
Solutions:

1. Conduct an inventory with gap analysis to determine what is needed. Partner with the food industry or other private individuals or companies that use temperature-controlled supply chains.
2. Develop a warehouse plan with gap analysis to determine how much space is needed at all levels.
3. Partner with other government agencies, the military or private companies to identify surge space.
4. Request funds to buy standby generators for selected warehouses.
5. Conduct a full assessment of the current/existing system and prepare a distribution plan.
6. Prepare contingency plans for every chain link.
7. Prepare and seek approval for a budget plan for supply chain processes for the distribution of pandemic vaccine.

2.6 Managing health care waste

Waste management is the process of collecting and disposing of the health care waste that vaccination activities will produce during a pandemic response. The goal for managing waste is to plan the surge capacity required to safely collect health care waste generated by vaccination activities during a pandemic, transport the waste to designated sites, and safely treat and dispose of it. Managed properly, the safe collection and disposal of hazardous health care waste will eliminate a potential health hazard to medical personnel and the public and safeguard the environment. Done poorly, infectious waste, particularly needles (needle-stick injuries), may cause hepatitis, HIV and other infections.

The safe disposal of equipment and supplies used to administer vaccine is generally regulated by national and/or local laws within each country. The CoL will have to become familiar with the regulations and ask the office responsible for setting standards for the management of health care waste to review its protocol to manage the disposal of used injection equipment and supplies. If no specific laws regulate the disposal of used injection equipment, the CoL and the office responsible need to establish plans for the safe disposal of medical waste generated by pandemic vaccination activities. Companies that provide injection equipment and ancillary supplies usually offer a method to dispose of these items as part of the purchase.

The CoL will need to coordinate with the health and/or municipal offices responsible for the safe collection and disposal of health care waste and make sure that they understand: (1) the amount of the waste that vaccination activities will generate, and (2) the importance of their active participation in planning the management of waste before an event, and in managing it during an event.

Safe waste management principles begin with each health care worker following safe injection practices by using appropriate safety boxes or sharps collection receptacles. Although the EPI includes a service for the disposal of medical waste, countries have found that the volume of medical waste generated during a standard immunization campaign frequently overloads the routine service and additional disposal efforts are required. The response to an influenza pandemic will generate a vast amount of health care waste, including vaccine vials, needles and syringes at vaccination sites around the country. Authorities must create the surge capacity required to safely collect the medical waste, transport it to designated sites and dispose of it. Plans for accomplishing this task must take into account, and attempt to minimize, the risks inherent in these activities.
Countries need to plan immediately to have sufficient capacity to handle the waste generated by the pandemic vaccination activities (volume in = volume out). Adequate surge capacity will minimize the risks inherent in the handling, transportation and final disposal of health care waste. The CoL should assess the existing capabilities and decide on methods of waste collection, transport, treatment and disposal. The CoL also needs to decide, on the basis of national laws and codes, the methods it will use to collect, transport, treat and dispose of waste. This decision must then be communicated to all the officials who will be responsible for waste management during the pandemic.

The creation of an effective waste management strategy includes the following activities:

1. Verify the regulations for transport of health care waste.
2. Establish training programmes to ensure that supervisors and staff comply with laws, codes, standards and practices governing the safe disposal of used injection equipment and supplies. To support this training authorities should:
   - assist health care facilities elaborate the “code of safe practices” for handling waste;
   - facilitate the distribution of documents on waste management, such as agreed-upon practices and methods, to all authorities, supervisors and health care workers well in advance of the event, possibly using a Job Aid to complete this task; and
   - devise simple indicators to monitor the quality of waste management practices.
3. Designate a trained supervisor at each level to oversee and assure compliance with the waste management processes.
4. Provide technical assistance to establish and/or improve waste management practices.

As with all logistics activities for responding to a pandemic, the successful execution of the waste management plan requires good supervision to assure compliance with waste management practices by private companies or public-sector services.

2.6.1 Group work

Challenges:

1. Insufficient capacity for the large amount of medical waste generated during a large pandemic event
2. Limited awareness of the health staff on the importance of waste management
3. Lack of funds and staff for inspection and supportive supervision before, during and after the pandemic event
4. Lack of policy regarding management of health care waste and appropriate health care waste disposal facilities and sites
5. Lack of documentation on compliance of waste management policy and unknown degree of implementation
6. Lack of advocacy for health care waste management
(7) No documentation on the surge capacity to adequately manage health care waste disposal

Solutions:

(1) Conduct a gap analysis and develop a plan for the surge requirements.
(2) Develop a plan for the large amounts of medical waste generated by a pandemic.
(3) Prepare and submit a solution plan to the relevant government agency.
(4) Look at contracting with every available facility.
(5) Provide waste management training to all staff as part of a pandemic training programme.
(6) Make routine inspections and make corrections.
(7) Prepare policy where needed and adequate waste disposal sites.
(8) Request for funds for this important activity.
(9) Document the experiences and lesson learnt.

2.7 **Injection safety - pandemic A (H1N1) mass vaccination campaign**

Mr Peter Carrasco presented on injection safety. He walked through the WHO-UNICEF-UNFPA joint statement on the use of auto-disable (AD) syringes in immunization services which included the following:

(1) AD syringes and safety boxes should be supplied as a bundle for all campaigns.
(2) As of January 2001, UNICEF has not entered into procurement service contracts for standard disposable syringes.
(3) By the end of 2001, all countries should use only AD syringes or sterilizable equipment.
(4) By the end of 2003, all countries should use only AD syringes.
(5) All partners requested to finance not only vaccines but also the safe administration of vaccines, AD syringes and safe management of waste.

It is critical to ensure injection safety and availability of adequate equipment to reduce the risks of transmission: patient to patient, patient to health worker, and patient to community.

Key elements for assuring injection safety are as follows:

(1) assessment of injection practices
(2) policy on injection safety
(3) plan of action on injection safety
(4) guidelines and/or training on injection safety
(5) monitoring and evaluation
(6) budget available for all injections.

2.8 **AEFI surveillance in pandemic A (H1N1) vaccination**

Mr Peter Carrasco gave a presentation on AEFI surveillance during pandemic A (H1N1) vaccination.
2.8.1 Types of reaction

There are two types of reaction that can occur for A (H1N1) vaccination.

1. Local inflammatory reactions
   - Most common reactions (≤65%) are pain, soreness, erythema and induration. Reactions are usually mild, rarely lasting longer than 24 to 48 hours. Other local reactions (e.g. local infection, bruising) occur as frequently as with other vaccines.

2. Systemic reactions
   - Most common reactions (≤15%) are fever, myalgia, arthralgia and headache. Reactions usually start 6 to 12 hours after vaccine administration and persist 1 to 2 days.

2.8.2 Rare events

There are some rare events of safety.

1. Guillan-Barré Syndrome
   - progressive subacute weakness of more than one limb
   - typically symmetrical with hyporeflexia or areflexia
   - elevation of cerebrospinal fluid protein (>0.4g/L) with no abnormalities of cells (mononuclear cell count <10/mL)
   - electromyogram showing abnormalities reflecting motor neuron involvement

2. Oculo-respiratory syndrome (ORS)
   - red eyes, acute respiratory syndrome (including throat tightness and/or chest discomfort), facial oedema, with or without systemic symptoms including high grade fever
   - self-limiting F>M, highest incidence in 40–59 year age group, high reoccurrence
   - 1995/1996 Czech Republic and 2000/01 Canada

3. Bell's palsy
   - paralysis of facial muscles, usually unilateral
   - occurs without exposure to vaccines, incidence 11.5–40.2 per 100,000 person-years worldwide
   - observed following immunization with TIV, but no access of cases
   - associated with an inactivated intranasal flu vaccine (virosome formulated and adjuvanted by heat labile enterotoxin of \textit{Escherichia coli}), licensed in Switzerland in October 2000, product removed from the market (+13 cases per 10,000 vaccinees)

4. Other neurological disorders: encephalopathy, optic neuritis/neuropathy, brachial plexus neuropathy. No cause and effect has been established. Onset of symptoms can occur as soon as a few hours and as late as two weeks after vaccination. Full recovery is almost always reported.
2.8.3 Contraindications and precautions

There are contraindications and precautions for influenza vaccine for both inactivated and live attenuated vaccine.

1. Trivalent inactivated influenza vaccine: Allergy to ovalbumin, antibiotics, thiomersal. Latex – special protocols available for immunization, case-based decision-making. Contraindication to individuals with history of GBS

2. Live attenuated influenza vaccine: pregnancy, immunodeficiency (inherited, HIV/AIDS, immunosuppressive therapy), persons in contact with immunodeficient individuals, individuals on aspirin/salicylates – Reye's syndrome. Avoid administration of other live vaccines for four weeks unless given concomitantly; avoid use of antivirals for two weeks.

The presenter also shared the steps of post-marketing surveillance for influenza vaccine and described how to establish the system. The steps are:

1. Vaccine utilization monitoring
2. Vaccine safety monitoring
3. Effectiveness monitoring
4. Disease burden monitoring
5. Signal evaluation.

2.9 Termination of deployment

Mr Henry Tuell presented on the termination of deployment. Deployment operations do not stop when all vaccine shipments have been dispatched; they continue until the completion of all vaccination activities. If a second dose of pandemic influenza vaccine is required to provide protection, staff at all levels will need to remain in place until the second dose has been shipped out. In the interim, between doses, staff should review their efforts in delivering the first dose and introduce any changes that could improve delivery of the second dose.

The goal for termination of deployment is to ensure that deployment operations are terminated in a planned manner, that resources and capital assets are returned to the offices that provided them, and that lessons learnt from the deployment are documented for future emergency responses.

When vaccination activities finally conclude, the CoL will need to officially terminate deployment operations. This will include sending personnel back to their original duty stations, returning resources and equipment to the ministries and agencies that provided them, and documenting lessons learnt from the deployment. The CoL and other deployment supervisors will prepare and submit reports on their activities. The reports will describe what they would do differently another time around and identify what went well and what should be changed to improve the efficiency of future responses. This information will be the basis of an overall consolidated country report on the response to the pandemic. No single best format exists for the reports. Each country will have to decide on a format for its reports and the information they contain.

The ministry of health should officially inform the public and national and international institutions involved in the response that the pandemic is over. Following this, the IC or an
appropriate figure should issue an official statement to announce that response operations are
terminating.

Once the ministry of health or designated office has publicized the end of response
activities, the CoL should:

1. recall excess stocks of vaccine and ancillary products and store them appropriately;
2. record the return of vaccines and ancillary products in the management information
system, including lot numbers and other information the system requires;
3. certify that all remaining stocks of vaccine, supplies and equipment have been
returned and stored appropriately;
4. close administrative files related to the deployment of the vaccine; and
5. confirm with those responsible for the disposal of medical waste that they have
completed their operations.

To perform the tasks effectively, the CoL will need reports on the number of doses of
vaccine and the quantities of other supplies sent to each designated point. Health staff at the
distribution points can assist in this effort by determining the amount of vaccine and other
supplies that remain, compared to the number of people vaccinated. This information will be
absolutely critical if a second dose of pandemic influenza vaccine is required 21 days after the
first.

The daily logs kept by supervisors should provide other information such as the factors
that affected the performance of staff, the problems they encountered, and the solutions to the
problems. This information will be important in preparing a final report for agencies/ministries
that supported the deployment. It will also be helpful when giving credit and recognition to staff
members for their dedicated service. The CoL should also document and report all the events of
deployment.

2.9.1 Development of a deployment plan

Many countries have not yet finalized the prioritization of groups or percentage of
population to be vaccinated for the pandemic influenza A (H1N1) vaccine. As such, these
countries were not able to prepare outlines for their pandemic vaccine deployment plan; rather,
they did exercises with different scenarios during the workshop. These countries will outline
their deployment plans according to lesson learnt and will identify what they need to do as next
steps when they are back in their countries. Countries and areas that knew their target groups, i.e.
Brunei Darussalam, Macao (China) and Singapore, were able to prepare outlines of their
pandemic vaccine deployment plans.
3. CONCLUSIONS AND RECOMMENDATIONS

3.1 Conclusions

As pandemic vaccine deployment was a new topic to the majority of member countries, participants actively participated in the interactive plenary and group work sessions to learn more about it. Participants were able to know the:

1. standard operating procedures at all levels for pandemic vaccine deployment;
2. effective management and co-ordination mechanism at all levels of health systems during the pandemic vaccine deployment;
3. vaccine storage and transport capacity for their respective country; and
4. plan to establishing surge capacity for each essential areas of pandemic vaccine deployment.

3.2 Recommendations

1. Countries need to prioritize the population groups to be vaccinated for pandemic influenza A (H1N1) vaccine. High-level advocacy should be conducted by the participants when they return to their countries.

2. Countries need to meet with a wide range of people from different departments and organizations for developing the final details of the pandemic vaccine deployment plan for their respective countries. Participants who attended the workshop should share lessons learnt from the workshop with others while developing the final deployment plan.

3. Countries need to establish required surge capacity for pandemic influenza A (H1N1) vaccine deployment and incorporate the final developed pandemic influenza A (H1N1) vaccine deployment plan in the country pandemic response plan.
### TENTATIVE TIMETABLE

**Monday, 31 August 2009**

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<td>0900-1030</td>
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<td>• Opening speech</td>
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<td>• Self-introduction</td>
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<td>• Objectives and agenda</td>
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<td>• Administrative announcements</td>
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**Notes:**
- Red box: Three participants from CSR and EPI focal person, Blue box: EPI focal person and Programme Managers of Emerging Infectious Diseases, Black box: Only EPI focal person.
ANNEX 2 – LIST OF PARTICIPANTS

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