Second WHO Meeting on Seasonal Influenza Vaccine Composition for the Tropics and Subtropics

Pune, India, 8–10 July 2015
Executive summary

The Second WHO Meeting on Seasonal Influenza Vaccine Composition for the Tropics and Subtropics was held in Pune, India on 8–10 July 2015 to review and further refine recently developed WHO guidance on epidemiological and virological considerations in this area.

During plenary and working group sessions meeting participants addressed the specific objectives of:

- reviewing the WHO guidance from the perspective of seasonal influenza vaccination timing and vaccine composition in tropical and subtropical countries;
- sharing national experiences of efforts to implement seasonal influenza vaccination policies;
- identifying the key players and implementation steps required to make progress and better elucidating the needs, priorities and challenges that need to be addressed by countries planning to implement WHO recommendations in this area;
- developing a framework of actions to be taken by countries and WHO to implement and support seasonal influenza vaccination initiatives in the tropics and subtropics.

Following an outline of the history and challenges of influenza surveillance and vaccine development, an overview was given of the WHO Global Influenza Surveillance and Response System and of the complex and highly time-constrained process of vaccine virus selection and vaccine production. Meeting participants were then provided with a recap of recent WHO efforts to better determine the patterns of influenza seasonality, virus evolution and optimal timing of vaccination in tropical and subtropical countries. Despite data limitations, variable patterns of influenza activity and year-round transmission in countries close to the equator, most countries in the tropics and subtropics had been found to exhibit distinct influenza seasonality. Current WHO draft guidance on epidemiological and virological considerations for seasonal influenza vaccination timing and vaccine composition in tropical and subtropical countries was then reviewed.

Meeting participants were also briefed on the findings of a systematic WHO literature review on seasonal influenza vaccine use and effectiveness in the tropics and subtropics. Key messages included the lead role played by countries in Latin America and the Caribbean in introducing and expanding seasonal influenza vaccination. A series of country perspectives were then presented on the experiences and lessons learnt in implementing national seasonal influenza vaccination programs, and on the major needs, priorities and challenges that must first be addressed. It is intended that the insights gained will be used to promote and inform evidence-based approaches to further implementation efforts.

During working group and plenary discussions a potential template roadmap for introducing influenza vaccination in countries was developed and refined. A number of specific required actions needed to progress such a roadmap were identified along with the key players and major stakeholders. Potential next steps were then outlined to meeting participants. It is intended that the roadmap for action will be used to guide further meetings. These meetings were likely to have both a global and regional-level focus and would bring together the broader range of stakeholders needed for implementation.
1. Backdrop

Despite increasing awareness of the persistent year-on-year burden of severe illness and death caused by seasonal influenza, there remains a lack of recognition of this major public health issue. Although recent trends in seasonal influenza vaccine production and coverage have resulted in a significant expansion of production capacity over the last 10 years the distribution of such capacity remains uneven, with zero capacity in the WHO African and Eastern Mediterranean Regions. As there is unlikely to be significant further capacity increases based on existing technologies, an expansion of seasonal influenza vaccination will be needed to drive further production-capacity increases. Increasing the availability and uptake of seasonal influenza vaccines would then result in production-capacity increases that could be harnessed during a pandemic. At present, despite the huge scale of the human–animal interface and associated risk of the emergence of an influenza virus with pandemic potential, global pandemic influenza vaccine production capacity remains insufficient. Expanding routine seasonal influenza vaccination programs in tropical and subtropical countries would therefore not only help to address the current glaring shortfalls in seasonal vaccine production and population coverage in some WHO Regions but is also a key strategic component of global pandemic preparedness.

There are a number of specific challenges inherent in determining the patterns of influenza seasonality in tropical and subtropical countries, and in deciding upon optimum vaccine composition and timing. Despite growing awareness, there is also insufficient data available (especially in low-income settings) on the impact of maternal influenza vaccination programmes on severe maternal, fetal and newborn outcomes to properly inform decisions on the routine immunization of pregnant women. It was expected that the results of a number of ongoing studies and systematic reviews would shortly become available as part of efforts to strengthen policy recommendations in this area.

For all target groups there is broad recognition of the significant regulatory, logistical and other programmatic requirements that need to be met in order to ensure that the most appropriate seasonal influenza vaccines were available when most needed. For some countries this may require year-round provision of influenza vaccine and/or approaches based upon some degree of flexibility in vaccine expiry dates following consultation with vaccine manufacturers and approval from regulatory authorities. In all cases, successful vaccine deployment will require that attention is paid to the identification and operationalizing of all required aspects beyond vaccine delivery. Such requirements will include advocacy campaigns, evidence gathering, programmatic considerations and the putting in place of national regulatory capacity. In these and other areas, WHO guidance and assistance are likely to be key requirements of progress.

2. What does the evidence say?

Meeting participants were provided with a recap of recent efforts to better determine the patterns of influenza seasonality, virus evolution and optimal timing of vaccination in tropical and subtropical countries. As discussed during a preceding WHO Expert Group Meeting, seasonality in the tropics and subtropics had now been independently assessed by CDC,  

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NIVEL, PATH, and WHO using different data sources and analytic approaches and the resulting data analyzed as part of the development of WHO guidance in this area.¹

Despite data limitations, variable patterns of influenza activity and year-round transmission in countries close to the equator, most countries in the tropics and subtropics had been found to exhibit distinct influenza seasonality. The optimal timing of vaccination was thus apparent for many such countries. Further analysis of local and subnational epidemiological and virological data, along with impact modelling of increased vaccination coverage, would potentially allow for the development of improved guidance on influenza vaccine policy and use, especially where data was lacking or where the aggregation of national data may mask local variations.

There was currently no evidence for unusual patterns of virus evolution or for the emergence of variant influenza viruses in tropical and subtropical regions compared to temperate regions following antigenic drift away from previously circulating viruses. There is no basis therefore for supplementing the current biannual WHO consultations for northern and southern hemisphere vaccine formulations, held in February and September respectively, with a third consultation on seasonal influenza vaccine composition for the tropics and subtropics. Current evidence indicates that the timing of vaccination should be determined solely by country seasonality with the most recent WHO recommended vaccine composition delivered prior to the largest peak of influenza activity. In support of this, influenza surveillance systems need to be strengthened in low- and middle-income countries of the tropics and subtropics, and detailed analyses carried out of local and regional activity patterns.

During discussion it was clarified that the focus of recent WHO efforts had been to resolve apparently discordant findings in relation to the degree of influenza seasonality and number of peaks in individual countries. Decisions on the best approach to take in countries would be a matter for national authorities and would likely be determined by competing demands and by available resources and capacities. In all cases, WHO guidance and support across a broad range of relevant areas was already available or in development, and further tailored guidance could be provided to individual countries as necessary in areas such as the optimum timing and frequency of national vaccination campaigns, and the most effective vaccine composition to use. It was suggested that WHO guidance and support could also usefully be provided in a number of the earlier steps as national efforts are implemented against a backdrop of competing national health priorities with a clear need for guidance on how best to use information and data for effective advocacy and decision-making.

### 3. Sharing experiences and identifying needs, priorities and challenges

#### 3.1 Experiences of countries in establishing seasonal influenza vaccination programs in the tropics and subtropics

Meeting participants were briefed on the outcome of a WHO systematic literature review² of seasonal influenza policy, use and effectiveness in the tropics and subtropics. Key messages included the lead role played to date by countries in Latin America and the Caribbean.


Despite ongoing challenges in accurately determining the optimal timing of influenza vaccination programs among target populations, evaluating vaccine coverage rates, effectiveness and impact, and ensuring that young children received the recommended initial two-dose schedule, it was clear that substantial progress had been made over the last decade in establishing seasonal influenza vaccination programs in a number of countries in the region. Important factors had been the issuing of Technical Advisory Group recommendations, the ability of some countries to switch the vaccine composition used, the step-wise approach taken in some settings to achieving greater coverage among target groups and the vital role played by the Pan American Health Organization Revolving Fund in facilitating vaccine availability.

Country perspectives were then provided from Costa Rica, Lao People’s Democratic Republic, Peru and Thailand. Recurring themes included the crucial importance of political will and advocacy among governments, nongovernmental organizations, scientific and other professional societies and universities backed up by supportive ministerial resolutions and other legislative support. In some countries, the role played by international agencies and by public–private partnerships was also a key element. The vital importance of clinical, epidemiological and laboratory surveillance data, and where feasible the results of burden, cost-effectiveness and other studies, to inform decision-making was also highlighted. There was also a need to clearly identify and reach target groups through organized campaign strategies that addressed logistical and other challenges to implementation. In some countries the vaccination of health care workers was a strategic first step and approaches ranged from a mandatory requirement to targeted advocacy campaigns. The development of guidelines and associated ongoing training and supervision of program personnel were also identified as important activities.

Monitoring the coverage and impact of influenza vaccination campaigns, including their direct and indirect beneficial effects in other areas of public health, in order to update recommendations and mobilize financial resources was viewed as a requisite of sustainability. Potential opportunities to ensure financial sustainability included direct negotiation of procurement intentions with ministry of health officials, the harnessing of other national vaccine-delivery platforms, ongoing public–private partnerships and the setting up of regional purchasing agreements. Sustainability would in all settings also depend upon the rigorous monitoring of vaccine safety and effective social communication to address any concerns among the public, including those raised by anti-vaccination campaigners.

During discussion the importance of well-defined criteria for the acceptance of study data was raised and caution urged in the interpretation of some findings, specifically in relation to relative vaccine effectiveness estimates in different target groups and across different parts of the world. In general, high-quality studies had consistently indicated higher vaccine effectiveness among children compared with the elderly and there seemed no reason to suppose that this pattern would not be replicated in low- and middle-income countries.

3.2 Needs, priorities and challenges

A series of regional, national and subnational presentations was then given on the needs, priorities and challenges associated with implementing seasonal influenza vaccination programmes and a number of approaches to addressing these proposed. Ensuring high levels of awareness of the impact of seasonal influenza epidemics and of the importance of pandemic preparedness was needed in order to generate strong political will and national
commitment to action. There was thus a need for persuasive and well-presented epidemiological, cost–effectiveness and other data, and for media sensitization particularly following serious outbreaks, to place influenza firmly on the national public health agenda.

Nevertheless, significant knowledge gaps existed in many countries in areas such as the health and economic burdens of influenza disease, vaccine effectiveness in specific settings and levels of social acceptance of influenza vaccination. Examples of concerted efforts by countries to systematically gather evidence to catalyze and inform policy-making were provided. In the WHO South-East Asia Region a selective emphasis was being placed on identifying and supporting a number of countries in which favorable conditions already existed for the introduction of influenza vaccination for use as a model in other countries of the Region.

In all countries, efforts to implement influenza vaccination take place against a complex backdrop of competing vaccine-preventable public health priorities. This encompasses the unfinished agenda of expanding the coverage of traditional immunization programs, the potential gains to be had in increasing the utilization of other currently available vaccines and the prospect of imminently available vaccines against other major long-standing diseases. In addition to the corresponding advocacy efforts needed there was a closely associated need for careful post-vaccination monitoring to detect any adverse effects following immunization, and for credible, effective and transparent social communication strategies to support public acceptance of any new vaccine.

The relatively high cost of influenza vaccines and need for annual vaccination of multiple cohorts presented acute challenges to the sustainable financing of influenza vaccination programs, typically exacerbated by a lack of external funding support. Related issues included the perception of influenza as a self-limiting relatively minor disease with additional doubts raised, including among medical staff, about the effectiveness (and thus cost–effectiveness) of vaccination.

Complexity in the timing of vaccination and best formulation to use in some countries is compounded by the need to optimize and ensure the uptake of delivery strategies for target groups not routinely accessed by the national immunization program. There were inherent and acute difficulties in identifying groups at high risk, leading to problems in accurately assessing both the numerators and denominators required to estimate coverage. For geographically or socially difficult to reach populations, including migrant populations, both implementation of vaccination and estimation of coverage was additionally problematic. Overcoming low levels of uptake among health care workers also presents a significant challenge in some countries as this represents not only a key target group in itself but also a key ally in advocating for routine vaccination.

Preventing a reduction in the number of manufacturers producing seasonal influenza vaccine due to potentially low returns on investment was a further challenge highlighted in some WHO Regions. Meeting participants were updated on manufacturing capacity projections in selected countries in the WHO South-East Asia Region where national-level support and a focus on pandemic preparedness were driving production capacity increases. In other WHO Regions a lack of both local production capacity and of supra-national and other funding mechanisms resulted in very limited availability of vaccine doses each year.
A number of key challenges in pandemic influenza vaccine deployment during the 2009 H1N1 pandemic in the WHO South-East Asia Region were also highlighted. These included the need to deploy vaccine within a short period of time, to resolve multiple regulatory and programmatic issues, and to address varying public concerns in relation to vaccine safety and efficacy. In many countries the building and strengthening of core capacities for pandemic influenza preparedness and response in support of the 2005 International Health Regulations was a key driver for progress in this area. It was recognized that strengthening existing influenza surveillance networks for seasonal influenza and other respiratory viruses was a key requirement along with institutional capacity development of national regulatory authorities in non-vaccine manufacturing countries to allow for the evaluation and registration of both seasonal and pandemic influenza vaccines. In all countries the deployment of both seasonal and pandemic vaccines would rely crucially upon the existence of such capacities and upon sufficient and sustainable health care infrastructures and resources.

4. Operationalizing epidemiological and virological considerations for seasonal influenza vaccine composition in the tropics and subtropics

4.1 Promoting the use of evidence-based approaches

As more and more data are generated in tropical and subtropical countries and regions there was a concomitant need to ensure effective use of the resulting datasets and other information. Key steps in promoting the use of evidence-based approaches included:

- virological surveillance of virus evolution;
- determining patterns of seasonality and the scale of associated health and economic burdens;
- use of special studies to bridge knowledge gaps;
- advocating for evidence-based policy change.

Effective and sustainable virological surveillance systems were required to monitor virus evolution in the context of both seasonal and potentially pandemic viruses. Ensuring national (and where required subnational) representation in such surveillance data remained a major challenge along with the feasibility and sustainability of monitoring severe acute respiratory infections, particularly in the face of diminishing funding. The timely submission of sequence data to GISAID and GenBank and prompt sharing of virus isolates from the tropics and subtropics with the WHO Global Influenza Surveillance and Response System (GISRS) would strengthen the vaccine virus selection process by ensuring that the viruses circulating in such regions are represented. The issuing of WHO guidance on optimal sampling and sequencing strategies would strengthen national surveillance activities and help countries to fulfill the requirements of the 2005 International Health Regulations. Efforts should also continue to be made by WHO and countries to ensure the harnessing of national capacity-building and related opportunities offered through the Pandemic Influenza Preparedness Framework and other international initiatives.

In order to generate the high-quality data needed to make the investment case for influenza immunization, surveillance systems needed to focus not only on virus evolution and geographical spread but also on disease trends, seasonality and the age distribution of disease. Determining patterns of seasonality and the scale and distribution of the health and economic
burdens would require improved coordination of epidemiological and laboratory surveillance systems, informed in some settings by optimally sized representative surveys. Opportunities existed for improved engagement with international initiatives such as those provided by CDC and WHO to develop sustainable and functionally integrated virological and epidemiological capacities and data reporting. In general, there was a need to identify the critical ongoing requirements of surveillance. The related issue of the degree to which influenza surveillance could be integrated into other national surveillance systems might also be usefully considered in some settings.

Given the difficulty of accurately estimating disease burden from surveillance there would also be a need to conduct special studies and to look beyond morbidity and mortality as outcome measures. Evaluation of a broad range of burden, costing and programmatic aspects (such as vaccine acceptability and uptake) would be required to inform vaccine introduction. Improved awareness was thus needed of the research support available in the context of the PIP Framework, CDC grants and other mechanisms. Standardizing influenza burden estimates would also allow for the impact of influenza vaccination to be meaningfully compared against other public health interventions.

Conveying the outcomes of surveillance and of research studies to policy-makers was a necessary part of making the case for influenza as an important public health priority and of translating results into policy decisions and action. Advocacy for evidence-based policy change would therefore require the convening of top-level meetings and consultations, including with key groups such as health care workers who were important determinants of the success of implementation efforts. Pro-active engagement with the media, including in the aftermath of serious outbreaks, was also likely to bring significant advocacy benefits.

### 4.2 Development of a national roadmap for action

During working group and plenary discussions a broad template roadmap for introducing influenza vaccination in countries was developed (Fig. 1).

**Figure 1: Roadmap for the introduction of influenza vaccine**
The process could be initiated by the Ministry of Health. A national agency involved in disease surveillance such as the National Influenza Center may be tasked to systematically review and analyze existing global and local evidence on influenza disease burden, seasonality, and virus antigenicity. Additional evidence on performance and safety characteristics of available vaccines, supply, economic and financial considerations as well as information on the health system capacities should also be considered by appropriate ministries. This process may be coordinated by an Interagency Coordination Committee. This evidence may then be reviewed by relevant stakeholders such as the national influenza technical advisory group (NITAG) and Ministry of Health to identify the need for additional evidence. The WHO has developed several tools to support this process, e.g. a manual to estimate influenza disease burden (http://apps.who.int/iris/bitstream/10665/178801/1/9789241549301_eng.pdf), a tool and user guide to estimate immunization costing and financing in form of a comprehensive Multi-Year Planning (http://www.who.int/immunization/programmes_systems/financing/tools/cmyp/en/), a detailed guidance on how to introduce new vaccines into their national programs (http://www.who.int/immunization/programmes_systems/policies_strategies/vaccine_intro_resources/nvi_guidelines/en/). A manual for introduction of influenza vaccine is currently under development. Based on the evidence, the NITAG could recommend to national authorities, the target groups for immunization, and determine guidelines for vaccine formulation, vaccine type, and timing.

A range of actions was discussed that could support the implementation of such a roadmap (Table 1). Overall proposed WHO actions included ensuring that the experiences of countries and the lessons learnt continue to be captured and shared through meetings and other platforms. Technical support in the form of protocols, guidelines, workshops, training, and data analysis in areas such as surveillance-capacity strengthening, burden of disease, vaccination timing, vaccine efficacy and safety, degree of vaccine matching, coverage and post-introductory cost-effectiveness and other evaluations would also be highly beneficial. WHO advocacy and support in the negotiation of vaccine availability and supply would potentially support the streamlining of programmatic costs and logistics.

5. The way forward

This meeting was viewed as part of a process of transforming evidence into policies in this area and WHO looks forward to working with countries in all Regions to move this along. Rather than attempting to be prescriptive, WHO will instead work to support countries in initiating or maintaining the necessary actions now needed for progress.

Many countries have already shown what can be achieved when action is taken in the face of seasonal influenza outbreaks or in response to the ever-present need for pandemic preparedness. Influenza focal points in countries were urged to continue to make efforts to emphasize to their ministry of health and other national decision-makers the range of available advocacy, capacity-building and other opportunities and benefits associated with full engagement with internationally agreed mechanisms for prompt influenza virus and related information sharing.

It is intended that the outcome from this meeting will be used to guide operationalizing the process of introducing vaccines in the tropics and subtropics.
Table 1: Stepwise approach to optimal decision of vaccine composition and vaccination timing in the tropics and subtropics

<table>
<thead>
<tr>
<th>Actions</th>
<th>Actors</th>
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<tbody>
<tr>
<td>Continue strengthening the seasonal influenza vaccine virus selection and development process.</td>
<td>WHO</td>
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<tr>
<td>Continue strengthening influenza surveillance and sharing of viruses with the WHO GISRS to ensure adequate representation of viruses from the tropics and subtropics in the global process of seasonal influenza vaccine composition selection.</td>
<td>NIC</td>
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<tr>
<td>Develop global guidance on optimal timing of vaccination and vaccine composition for individual low- and middle-income countries in the tropics and subtropics.</td>
<td>WHO</td>
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<td>Develop operational tools to support decision-making on vaccine composition and vaccination timing.</td>
<td>WHO</td>
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<td>Define influenza vaccination zones – group geographically contiguous countries with similar patterns of seasonality and virus evolution that can be given the same recommendation for vaccine composition and vaccination timing.</td>
<td>WHO</td>
</tr>
<tr>
<td>Review WHO recommendations on vaccination timing and vaccine composition.</td>
<td>NIC; MoH mandated agency</td>
</tr>
<tr>
<td>Generate and consolidate country-specific evidence on seasonality and virus evolution from national and subnational surveillance data.</td>
<td>NIC; MoH mandated agency</td>
</tr>
<tr>
<td>If national or subnational surveillance data are not available seek guidance from WHO.</td>
<td>NIC; MoH mandated agency</td>
</tr>
<tr>
<td>Provide technical support as needed, to countries to review their national surveillance data on seasonality and virus evolution to determine optimal vaccination timing and vaccine composition.</td>
<td>WHO (Headquarters/Regional Office/Country Office)</td>
</tr>
<tr>
<td>Convene and present findings of global and local evidence on seasonality and virus evolution to the NTAGI.</td>
<td>NIC; MoH mandated agency</td>
</tr>
<tr>
<td>Request technical support for reviewing recommendations from WHO or any other external agency if needed.</td>
<td>NTAGI; MoH</td>
</tr>
<tr>
<td>Provide review as needed, on recommendations issued by countries for appropriateness and feasibility.</td>
<td>WHO</td>
</tr>
<tr>
<td>Review evidence and issue recommendations for vaccination timing and vaccine composition prior to onset of influenza epidemic.</td>
<td>NTAGI; MoH</td>
</tr>
<tr>
<td>Procure appropriate vaccine and deliver prior to onset of influenza epidemic.</td>
<td>EPI; MoH</td>
</tr>
<tr>
<td>Monitor vaccine coverage, safety and effectiveness.</td>
<td>MoH; NTAGI; EPI; NRA</td>
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<tr>
<td>Periodically review evidence and update recommendations for vaccination timing and vaccine composition as required.</td>
<td>WHO</td>
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Annex 1

Meeting agenda

Day 1 Wednesday, 8 July 2015

10:00–10:30 Registration

10:30–11:00 Opening and welcome
  W Zhang
  Introduction, background and expected outcome

  Disclosure of interests
  Selection of chair, session co-chairs
  Appointment of rapporteur
  Adoption of agenda
  Chair

Session 1: Bringing up to speed
  Co-chair: M Rahman

11:00–11:20 WHO seasonal influenza vaccine virus selection – Overview of the process
  N Cox

11:20–11:40 Seasonal influenza vaccine composition – Challenges for the tropics
  J McCauley

11:40–12:00 Maternal influenza immunization – Update on WHO consultations
  J Ortiz

12:00–12:20 Making influenza vaccine available year-round – Logistics and supply considerations
  J Ortiz

12:20–12:40 Seasonal influenza vaccine production, capacity in the tropics
  – Global Action Plan for influenza vaccines
  W Zhang

12:40–13:00 Discussion

Session 2: What does the evidence say?
  Co-chair: J McCauley

14:00–14:20 Seasonal influenza vaccination – defining zones?
  S Hirve

14:20–14:40 When to vaccinate in the tropics?
  K Vandemaele

14:40–15:05 Which formulation to use in the tropics?
  N Cox

15:05–15:15 Discussion

Session 3: Sharing experiences, challenges
  Co-chair: D Mourya

15:35–15:55 Seasonal influenza vaccine policy, use and effectiveness in the tropics
  S Hirve

15:55–16:15 Latin America and Caribbean – a regional perspective
  AM Ropero-Alvarez
16:15–17:30 Experiences shared by countries with seasonal influenza vaccine in their national programme

Costa Rica       A Morice
Peru (via Webex)     V Solorzano
Lao People’s Democratic Republic (via Webex) A Xeuatvongsa
Thailand        T Thantithaveewat

17:30–18:00 Discussion

Day 2 Thursday, 9 July 2015

9:00–9:10 Summary of Day 1      Chair

Session 4: Needs, priorities and challenges      Co-chair: JM Heraud

9:10–9:30 South-East Asia – a regional perspective   P Wijesinghe
9:30–10:00 Needs, priorities, challenges faced by countries that plan to introduce seasonal influenza vaccine into their national programme

India        M Chadha
Maharashtra State, India   S Salunke

10:00–10:10 Discussion

10:30–12:00 Philippines       E Mercado
Myanmar     N Win
Morocco (via Webex) M Benazzouz
Jordan (via Webex) M Surour
Madagascar  J Heraud
Senegal      M Niang

12:00–12:30 Discussion

Session 5: Operationalization of considerations      Co-chair: S Salunke

13:30–15:00 First Working Group (WG) discussion:
Fostering the use of evidence-based vaccine compositions in countries

WG-A: JM Heraud (facilitator); P Gould (rapporteur)
WG-B: K Vandemaele (facilitator); A Waddell (rapporteur)
WG-C: M Rahman (facilitator); P Wijesinghe (rapporteur)

15:20–16:00 First WG feedback and discussion

16:00–17:30 Second WG discussion: Operationalizing the considerations for vaccine composition and vaccination timing – who does what and when?
Day 3 Friday, 10 July 2015

9:00–9:10 Summary of Day 2

9:10–9:50 Second WG feedback and discussion

Session 6: Way forward

9:50–12:15 Plenary discussion: Actions to support countries using evidence-based recommendations on influenza vaccine composition

12:15–12:25 Summary of meeting

12:25–12:30 Closure of the meeting
Annex 2

List of meeting participants

Pradipkumar Awate, Maharashtra Government Health Services, Mumbai, India
Eduardo Azziz-Baumgartner, Centers for Disease Control and Prevention, Atlanta, USA (via Webex)
Mohammed Benazzouz, Ministry of Health, Rabat, Morocco (via Webex)
Joseph Bresee, Centers for Disease Control and Prevention, Atlanta, USA (via Webex)
Mandeep Chadha, National Institute of Virology, Pune, India
Nancy Cox, Atlanta, USA
Jean-Michel Heraud, Institut Pasteur de Madagascar, Antananarivo, Madagascar
Kanchan Jagtap, Maharashtra Government Health Services, Mumbai, India
Jude Jayamaha, Medical Research Institute, Colombo, Sri Lanka (Unable to attend)
John McCauley, The Francis Crick Institute, London, United Kingdom
Kesinee Meesap, Department of Disease Control, Bangkok, Thailand
Edelwisa Mercado, Research Institute of Tropical Medicine, Muntinlupa City, Philippines
Anna Morice, National Institute for Research and Education in Health and Nutrition, Cartago, Costa Rica
Devendra Mourya, National Institute of Virology, Pune, India
Mbayame Ndiaye Niang, Pasteur Institut, Dakar, Senegal
Michael Pfleiderer, Paul-Ehrlich-Institut, Langen, Germany (via Webex)
Mahmudur Rahman, Institute of Epidemiology, Disease Control & Research, Dhaka, Bangladesh
Subhash Salunke, Public Health Foundation of India, Pune, India
Geeta Shakya, National Public Health Laboratory, Kathmandu, Nepal
Victor Edgar Fiestas Solorzano, National Institute of Health, Lima, Peru (via Webex)
Mohamad Ratib Surour Yousef, Ministry of Health, Amman, Jordan (via Webex)
John Tam, Hong Kong Polytechnic University, China, Hong Kong SAR (via Webex)
Thanawadee Thantihaveewat, Department of Disease Control, Bangkok, Thailand
Anthony Waddell, Stanley, United Kingdom
Ne Win, National Health Laboratory, Yangon, Myanmar
Anonh Xeuatvongsa, Ministry of Health, Vientiane, Lao People’s Democratic Republic (via Webex)

WHO Secretariat
Mohd Ahmad WHO/SEARO/SE/ACO/IND
Terry Besselaar WHO/HQ/HSE/PED/GIP
Sylvie Briand WHO/HQ/HSE/PED
Hien Doan WHO/HQ/HSE/PED/GIP
Julia Fitzner WHO/HQ/HSE/PED/GIP
Martin Friede WHO/HQ/HIS/EMP/PHI
Keiji Fukuda WHO/HQ/HSE
Philip Gould WHO/SEAR/HSE/IHR
Jan Hendricks WHO/HQ/HIS/EMP/PHI
Nancy Cox was selected as chair of the meeting. Mahmudur Rahman, John McCauley, Devendra Mourya, Jean-Michel Heraud, Subhash Salunke and Nancy Cox were appointed as co-chairs for sessions 1–6 respectively. Anthony Waddell was appointed as rapporteur.
Annex 3

Declaration of interests

With the exceptions of John McCauley, Subhash Salunke and John Tam, no personal current or recent (within the last 4 years) financial or other interests relevant to the subject of the meeting were declared, and no updates were made at the meeting.

After review, WHO concluded that the interests declared did not conflict with the objectives of the meeting and that the above individuals could participate in full. At the start of the meeting the interests that had been declared were disclosed to all participants.