Report of the Twelfth Bi-regional meeting
Kathmandu, Nepal
11-13 July 2018
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Summary</td>
<td>02</td>
</tr>
<tr>
<td>Introduction</td>
<td>07</td>
</tr>
<tr>
<td>Objectives and outcomes</td>
<td>08</td>
</tr>
<tr>
<td>Proceedings</td>
<td>08</td>
</tr>
<tr>
<td>Opening Session</td>
<td>08</td>
</tr>
<tr>
<td>Session A: Setting the Stage: Influenza’s history and updates on the current status of seasonal, avian and other novel influenza virus sub-types</td>
<td>10</td>
</tr>
<tr>
<td>Session B: Strategies to make influenza a priority in countries</td>
<td>12</td>
</tr>
<tr>
<td>Session C: Supporting the introduction of influenza vaccines</td>
<td>14</td>
</tr>
<tr>
<td>Session D: Influenza Pandemic Preparedness Planning: building capacity for pandemic response</td>
<td>16</td>
</tr>
<tr>
<td>Session E: Group Work - National Pandemic Preparedness Planning</td>
<td>18</td>
</tr>
<tr>
<td>Session F: Laboratory</td>
<td>20</td>
</tr>
<tr>
<td>Parallel Session G1: Reporting and using Data</td>
<td>22</td>
</tr>
<tr>
<td>Parallel Session G2: Laboratory: Shipping of Specimens</td>
<td>24</td>
</tr>
<tr>
<td>Session H: Practical Issues Around Virus Sharing (Roundtable and Floor Discussion)</td>
<td>26</td>
</tr>
<tr>
<td>Session I: Modular Training Tools for Pandemic Preparedness</td>
<td>28</td>
</tr>
<tr>
<td>Conclusions and Recommendations</td>
<td>29</td>
</tr>
<tr>
<td>Conclusions</td>
<td>29</td>
</tr>
<tr>
<td>Recommendations for Member States</td>
<td>30</td>
</tr>
<tr>
<td>Recommendations for WHO</td>
<td>31</td>
</tr>
</tbody>
</table>
Abbreviations

APARIS – Asia Pacific Consortium for Acute Respiratory Infections Surveillance
APSED – Asia Pacific Strategy for Emerging Diseases and Public Health Emergencies
ARI – Acute Respiratory Infection
CVV – candidate vaccine virus
EBS – Event Based Surveillance
EQAP – External Quality Assessment Programmes
GISRS – Global Influenza Surveillance and Response System
GSD – Genetic Sequence Data
HEBS – Hospital Event Based Surveillance
HLIP – High Level Implementation Plan
IATA – International Air Transport Association
IHR – International Health Regulations
ILI – Influenza like Illness
IVPP – Influenza Virus with Pandemic Potential
LN – Liquid Nitrogen
NIC – National Influenza Centre
NIID – National Institute of Infectious Diseases, Japan
NITAG – National Immunization Technical Advisory Group
OIE – World Organization for Animal Health
PCR – Polymerase Chain Reaction
PEF – Pandemic Emergency Financing Facility
PIP – Pandemic Influenza Preparedness Framework
PIRM – Pandemic Influenza Risk Management
PISA – Pandemic Influenza Severity Assessment
PIVI – Partnership for Vaccination Introduction
SARI – Severe Acute Respiratory Illness
SEARO – South-East Asia Regional Office
SII – Specialized International Instruments
SiMEX – Simulation Exercise
US CDC – United States Centers for Disease Control
VIDRL – Victoria Infectious Diseases Reference Laboratory
VTM – Viral transport Media
WHE – WHO Health Emergencies Programme
WHO – World Health Organization
WHO CC – World Health Organization Collaborating Centre
WPRO – Western Pacific Regional Office
Executive Summary

Influenza is one of the most serious, yet under-rated, public health challenges, globally as well as in the Asia-Pacific. Seasonal influenza affects more than a billion and kills an estimated 290,000 to 645,0001 every year globally. Influenza is also known to lead to pandemics at relatively frequent intervals, as the virus is constantly changing, which leads to the emergence of novel strains.

The National Influenza Centres (NICs), as part of the Global Influenza Surveillance and Response Network (GISRS), play a very important part in increasing our understanding of this virus, especially identifying the incremental changes, identifying the emergences of novel virus strains, detecting outbreaks, and providing other important information that lead to policy decisions. In addition, the individual NICs provide the organisms that support the development of candidate vaccine viruses (CVV), both for seasonal vaccines as well as pandemic vaccines. The meeting of NICs and others in the influenza community is an important opportunity to exchange information and further skills. The Twelfth Bi-Regional Meeting of National Influenza Centres (NICs) and Influenza Surveillance in the WHO South-East Asia and Western Pacific regions, held in Kathmandu, Nepal, from 11 - 13 July 2018, focused on pandemic influenza preparedness.

The meeting was inaugurated by the Deputy Prime Minister and Health Minister of Nepal, Mr. Upendra Yadav. In his special remarks, he spoke of bolstering influenza surveillance and response systems as part of strengthening universal health systems, reflecting the high political commitment towards influenza. Also present were the Nepalese Health Secretary, Ms Pushpa Chaudhury, and the Director General of Health Services, Nepal, Dr Gun Raj Lohani, as well as representatives of the three levels of WHO – Dr Khurshid Hyder, Acting WHO Representative for Nepal; Dr Roderico Ofrin, Director, WHO Health Emergencies Programme, SEARO; Dr Masaya Kato, Programme Area Manager, Country Emergency Preparedness and International Health Regulations, WPRO; and Dr Wenqing Zhang, Coordinator, and Manager, Global Influenza Programme, WHO HQ. The Regional Director, Dr Poonam Khetrapal Singh, in a speech read out by Dr Ofrin, spoke of the importance of strengthening human-animal health coordination for better pandemic preparedness.

Technical sessions on the first day provided an overview of the current influenza situation and policies. The experiences and lessons learnt from the first pandemic of the 20th century, the 1918 pandemic, which was one of the most severe, and its continuing relevance today were presented. Updates were provided on the current situation of the northern hemisphere and southern hemisphere seasonal influenza activity. The World Organization for Animal Health (OIE) informed on the current panzoonotics in the avian world. China’s experience in managing the A(H7N9) avian and human disease outbreak was shared, with the message that multi-sectoral coordination is key to managing and mitigating such outbreaks.

The draft Global Influenza Strategy 2018-2030, APSED III as a regional action framework, the second High Level Implementation Plan (HLIP-II) of the Pandemic Influenza Preparedness (PIP) Framework were the themes in the next session. In addition, two countries spoke of their own experiences – Timor-Leste on establishing an influenza surveillance system, and Mongolia on its new Disaster Preparedness Plan.

The final session of the first day explored influenza vaccines globally and in Asia Pacific, specifically. It highlighted the reasons for vaccination, the growing Partnership for Vaccination Introduction (PVI) programme, and regulatory capacity development in different country contexts. In a panel discussion, countries spoke about their experiences in introducing vaccines to pregnant women (Maldives), the role of the National Immunizations Technical Advisory Group (Myanmar), dealing with vaccine hesitancy in healthcare workers (Thailand), and with adverse events following vaccination (Mongolia).

While the first day provided the issues and the context, the second day saw discussions on the tools to move ahead. Participants were acquainted with the new WHO tools available for pandemic preparedness: the revised Pandemic Influenza Risk Management (PIRM) document which incorporates the recommendations of the IHR review committee following the 2009 pandemic; the checklist for pandemic influenza risk and impact management; and the essential steps for developing or updating a national pandemic influenza preparedness plan. The Asia-Pacific Strategy for Emerging Diseases and Public Health Emergencies (APSED III) was highlighted as a regional framework that incorporates all the key elements of International Health Regulations (IHR 2005) and other key Frameworks for emergency preparedness. The need for an Asia Pacific Consortium was also mentioned.

A key recommendation of the IHR (2005) review committee was to define and assess severity of a pandemic. Accordingly, the Pandemic Influenza Severity Assessment (PISA) tool has been developed, and was shared with participants of the meeting, along with a training on the Moving Epidemic Method (MEM) that supports the requirements of the PISA tool. The focus then shifted to the country level, as Indonesia and Cambodia shared their learnings from simulation exercises, involving a whole-of-society approach. One critical issue in an emergency response is funding, and this is where the World Bank’s Pandemic Emergency Response Funds, is important for countries. This was presented, including criteria on who is eligible, and the financial mechanisms involved.

Effective influenza surveillance involves good data analysis. In the separate epidemiology session, participants got to know how to report to FluMart, that is, to FluNet (for laboratory data) and Fluid (for epidemiological data). Sri Lanka and Vietnam then presented their perspectives on sharing of data. In the session on laboratory, participants learnt about new Terms of Reference for NICs, global external quality assessment programmes (EQAP), influenza genome sequencing platforms, RT-PCT support strategies, and the WHO Laboratory Biosafety Manual. Challenges to virus sharing, such as specimen shipping, were also discussed.
The draft Global Influenza Strategy 2018-2030, APSED III as a regional action framework, the second High Level Implementation Plan (HLIP-II) of the Pandemic Influenza Preparedness (PIP) Framework were the themes in the next session. In addition, two countries spoke of their own experiences – Timor-Leste on establishing an influenza surveillance system, and Mongolia on its new Disaster Preparedness Plan.

The final session of the first day explored influenza vaccines globally and in Asia Pacific, specifically. It highlighted the reasons for vaccination, the growing Partnership for Vaccination Introduction (PVI) programme, and regulatory capacity development in different country contexts. In a panel discussion, countries spoke about their experiences in introducing vaccines to pregnant women (Maldives), the role of the National Immunizations Technical Advisory Group (Myanmar), dealing with vaccine hesitancy in healthcare workers (Thailand), and with adverse events following vaccination (Mongolia).

While the first day provided the issues and the context, the second day saw discussions on the tools to move ahead. Participants were acquainted with the new WHO tools available for pandemic preparedness: the revised Pandemic Influenza Risk Management (PIRM) document which incorporates the recommendations of the IHR review committee following the 2009 pandemic; the checklist for pandemic influenza risk and impact management; and the essential steps for developing or updating a national pandemic influenza preparedness plan. The Asia-Pacific Strategy for Emerging Diseases and Public Health Emergencies (APSED III) was highlighted as a regional framework that incorporates all the key elements of International Health Regulations (IHR 2005) and other key Frameworks for emergency preparedness. The need for an Asia Pacific Consortium was also mentioned.

A key recommendation of the IHR (2005) review committee was to define and assess severity of a pandemic. Accordingly, the Pandemic Influenza Severity Assessment (PISA) tool has been developed, and was shared with participants of the meeting, along with a training on the Moving Epidemic Method (MEM) that supports the requirements of the PISA tool. The focus then shifted to the country level, as Indonesia and Cambodia shared their learnings from simulation exercises, involving a whole-of-society approach. One critical issue in an emergency response is funding, and this is where the World Bank’s Pandemic Emergency Response Funds, is important for countries. This was presented, including criteria on who is eligible, and the financial mechanisms involved.

Effective influenza surveillance involves good data analysis. In the separate epidemiology session, participants got to know how to report to FluMart, that is, to FluNet (for laboratory data) and Fluid (for epidemiological data). Sri Lanka and Vietnam then presented their perspectives on sharing of data. In the session on laboratory, participants learnt about new Terms of Reference for NICs, global external quality assessment programmes (EQAP), influenza genome sequencing platforms, RT-PCT support strategies, and the WHO Laboratory Biosafety Manual. Challenges to virus sharing, such as specimen shipping, were also discussed.
On the final day, there was a presentation on the training tools developed for pandemic preparedness, a collaboration between CDC and member countries from across the Asia Pacific bi-region. A panel discussed a variety of laboratory issues, including the implications of the Nagoya Protocol.

The Conclusions and Recommendations were discussed. A key recommendation is the formation of the Asia Pacific Acute Respiratory Infection Surveillance (APARIS) consortium, to provide critical evidence for burden of disease as well as for risk and severity assessments.
The impact of influenza on public health is well documented; yet, in national policy decisions, it often does not get the priority concomitant with its impact. Seasonal influenza is estimated to affect more than a billion people every year 3-5 million of them severely, and lead to 290 000 to 645 000 deaths every year. However, in public perception, influenza is frequently confused with less severe respiratory diseases.

Influenza has historically caused severe pandemics on average about once every 30 years, although sometimes as soon as 10 years between them (such as between the 1958 and 1968 pandemics). The influenza virus changes frequently, with small changes or “antigenic drift” which cumulatively leads to newer viruses, or occasionally a major change can occur such as recombination of two strains, which lead to an “antigenic shift” and the emergence of a novel virus. These novel viruses often lead to pandemics. There were three influenza pandemics in the 20th century, of which, the 1918 pandemic caused approximately 50 million deaths. The 21st century has also already seen a pandemic, in 2009. With greater population density and increased globalization, the next pandemic could be severe and rapidly spreading.

The National Influenza Centres (NICs), along with WHO Collaborating Centres (WHO CCs), as part of the Global Influenza Surveillance and Response System (GISRS), play a critical role in our understanding of influenza in public health, and especially in the early detecting of an outbreak or of the emergence of a novel virus. NICs and national influenza surveillance are also responsible for developing a range of important data to inform policy decisions. The Bi-Regional NIC meeting, held annually and hosted alternately by the WHO South-East Asia and Western Pacific Regions, allows the NICs, policy-makers, and the influenza community to share their findings and exchange information, experiences and best practices, which benefits all involved. This meeting, the twelfth Bi-Regional NIC meeting, focused primarily on the theme of pandemic preparedness.
Objectives and outcomes

The objectives and outcomes of this meeting are as follows:

- To provide global and regional updates on seasonal and zoonotic influenza viruses;
- To review progress and challenges in implementing surveillance priorities since last year including laboratory detection and characterization of influenza viruses;
- To prioritize multi-sectoral approaches to improve surveillance, risk assessment, response, and communication;
- To discuss optimal use of surveillance data in influenza tools, and use of disease burden estimates to guide vaccination strategies and pandemic preparedness planning; and
- To recommend priority activities for 2018-19.

Proceedings

Opening Session

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Upendra Yadav</td>
<td>Deputy Prime Minister and Minister of Health and Population of Nepal</td>
</tr>
<tr>
<td>Dr Pushpa Chaudhry</td>
<td>Health Secretary, Ministry of Health and Population, Nepal</td>
</tr>
<tr>
<td>Dr Gun Raj Lohani</td>
<td>Director General of Health, Ministry of Health and Population, Nepal</td>
</tr>
<tr>
<td>Dr Roderico Ofrin</td>
<td>Director, WHO Health Emergencies Programme, WHO SEARO</td>
</tr>
<tr>
<td>Dr Wenqing Zhang</td>
<td>Coordinator, Global Influenza Programme, WHO HQ</td>
</tr>
<tr>
<td>Dr M. Khurshid Hyder</td>
<td>Acting WHO Representative to Nepal</td>
</tr>
<tr>
<td>Dr Masaya Kato</td>
<td>Programme Area Manager, Country Health Emergency Preparedness &amp; IHR, WHO WPRO</td>
</tr>
<tr>
<td>Dr Philip Gould, Programme Area Manager</td>
<td>Programme Area Manager, Infection and Hazard Management (IHM), WHO SEARO</td>
</tr>
</tbody>
</table>
As Master of Ceremonies, Dr Philip Gould welcomed the Chief Guest, the Deputy Prime Minister and Minister of Health and Population of Nepal, Upendra Yadav, and all other guests and participants.

The introductory remarks were made by Dr Guna Raj Lohani. He highlighted the importance of strong National Influenza Centres, considering the significant threat influenza poses for public health.

Dr Roderico Ofrin conveyed the Regional Director’s message. He thanked the Minister of Health and Population for hosting this meeting. Quoting the Regional Director, he noted that as the National Influenza Centres of the WHO South-East Asia and Western Pacific regions, all in the meeting are at the frontline of the war against influenza – a virus that is intensely complex and capable of rapid mutation. In expressing thanks to the hosts of this vitally important meeting, the Regional Director also commended Nepal on the significant headway it has made in strengthening its laboratory capacity, influenza surveillance, and coordination between the animal and human health sectors.

The meeting was then inaugurated by His Excellency Mr Upendra Yadav, the Deputy Prime Minister, with the ceremonial lighting of the lamp. Addressing the meeting with Special Remarks, he emphasized that disease has no boundaries, and the poor and vulnerable are disproportionately affected by disease outbreaks. In Nepal, they are strengthening their health systems, including surveillance systems and laboratories. He also said, "this Bi-regional National Influenza Center and Influenza Surveillance meeting is an opportunity for all of us to learn from each other – from different countries, as well as different sectors."

Following his speech, Nepal Health Secretary Dr Pushpa Chaudhry described the progress made in Nepal in influenza outbreak preparedness, including capacity building in influenza detection and management which enabled districts to manage outbreaks, as well as strengthening of ties between human and animal health. Laboratory capacity has also been enhanced, and "this Bi-regional National Influenza Center and Influenza Surveillance meeting is an opportunity for all of us to learn from each other – from different countries, as well as different sectors."

Dr. Gould then announced the nomination of the co-chairs and rapporteur. The Co-Chairs were Dr Kedar Baral, Director, Patan Institute of Health Sciences, and Dr Wang Dayan, Acting Director, WHO Collaborating Centre for Reference and Research on Influenza, Beijing. The rapporteur was Dr Supriya Bezbaruah.
Session A:
Setting the Stage: Influenza’s history and updates on the current status of seasonal, avian and other novel influenza virus sub-types

Chair: Dr Wang Dayan, Director, WHO Collaborating Centre for Reference and Research on Influenza, Deputy Director, Chinese National Influenza Center, China

100 years since the 1918 pandemic

Dan Jernigan, Director, Influenza Division, National Center for Immunization and Respiratory Diseases, US CDC

To understand the future, we often need the aid of the past. The first technical session by Dr Dan Jernigan, a historic overview of the great pandemic of 1918, titled "100 years Since 1918: Are we ready for the Next Pandemic?" gave a glimpse of the terrible power of the novel influenza virus to wreak havoc, given the right social conditions, with relevance for the world today. The full picture required piecing together evidence from history, geography and modern science. This included extracting, culturing and sequencing the latent virus from a frozen body in from permafrost, to understand its virulence, and historical papers that showed how crowding due to industrialization and war response facilitated its rapid and deadly spread. He postulated that if such a pandemic were to happen today, it would infect 20-30% of the global population and lead to 105-110 million deaths, with high economic cost and disruption of transportation and supply chains and of healthcare services. While GISRS has greatly enhanced detection capacity, gaps remain limited flu testing capacity in many countries, inadequate surveillance in birds and swine, and "data deserts" of flu circulation in many parts of the world.

Influenza activity in the Southern Hemisphere

Prof. Ian Barr, Deputy Director, WHO CC for Reference and Research on Influenza, Victorian Infectious Diseases Reference Laboratory, Australia

Bringing us from the past to the possibility of “clear and present danger” and the effectiveness of the armour we have in vaccines, Prof Ian Barr provided an update the influenza viruses detected in the Southern hemisphere. He noted that it has been a low-severity influenza season in the current Southern Hemisphere winter, and many of the southern Hemisphere strains were also in the northern hemisphere tropical countries, and southern hemisphere vaccines were now recommended for many them as well. Most countries were reporting flu data to WHO. He compared the circulating viruses so far in 2018 with the vaccine virus: A/H1N1 was similar to the vaccine virus A/H1N1/Michigan/45/2015; circulating A/H3N2 was slightly different to vaccine virus A/H3N2/ Singapore, with some antigenic differences detectable between clades; Circulating B/Yamagata lineage was the dominant B-lineage and similar to B/Phuket/3073/2013 genetically and antigenically, while nearly all of the B/Victoria lineage detected were similar to B/Brisbane/60/2009 genetically and antigenically.
**Influenza activity in the Northern Hemisphere**

*Prof. Takato Odagiri, Director, WHO CC for Reference and Research on Influenza, National Institute of Infectious Diseases, Japan*

From the south, the session went to an overview of Northern Hemisphere viruses by Prof. Takato Odagiri. This winter influenza season of 2017-18 had the highest number of hospitalizations since surveillance started. Of the circulating viruses, all A/H1N1pdm09 viruses belonged to the HA subgroup 6B.1, and antigenically similar to the vaccine virus A/H1N1/Michigan/45/2015. A small number of viruses showed highly reduced inhibition by oseltamivir and peramivir. The majority of A/H3N2 viruses belong to the genetic group 3C.2a, 3C clade 2a2. Of the influenza B viruses, B/Victoria (genetic clade 1A0 and B/Yamagata (genetic clade 3) are co-circulating.

**Global updates on influenza A occurrences in birds**

*Dr Pasang Tshering, OIE Regional Representation for Asia and the Pacific, World Organization for Animal Health (OIE)*

Pandemics have occurred in the past when zoonotic influenza viruses cross species. Shifting the lens from human to avian, Dr Pasang Shering of OIE informed on the situational differences between past and current epidemics, and geographical characteristics of the countries and the impact on domestic birds in his presentation "Global Update on Infection with High Pathogenicity Influenza A in Birds." He highlighted that the disease epidemiology in the last 13 years is characterized by two main global panzoonotics – the first in 2004, peaking in 2006, and the second that started in 2013 and is continuing today, with maximal activity in 2015. Currently, since 2013, 68 countries have reported a highly pathogenic avian influenza at least once. Since February 2018, 37 new outbreaks in domestic birds were reported in Africa, Asia, the Americas and Europe. Approximately 120 million domestic birds were killed or died, 95% of them in Asia in February 2018. He concluded by emphasizing the new panzoonotic of Highly Pathogenic Avian Influenza (HPAI) with continuously changing virus behaviour, and therefore the importance of a "One Health" approach to continuously collect accurate, real-time information.

**Update on H7N9 in China**

*Dr Wang Dayan, Director, WHO Collaborating Centre for Reference and Research on Influenza, Deputy Director, Chinese National Influenza Center, China*

Indeed, one such avian influenza strain did cross the species barrier and infect humans in China in March 2013: A(H7N9). The novel reassortment virus was identified in 2013. This particular A(H7N9) had not been seen in either animals or people earlier. Wang Dayan described how China managed the outbreak – A(H7N9). There have been a total of 1567 cases, with 1536 cases in 27 provinces in mainland China, with 610 deaths. The outbreak has had five waves, of which the worst was the 5th wave in 2017. However, there has been no sustained human to human transmission. Among the lessons learnt from this experience from China is that sustained surveillance is essential. Other important lessons are the importance of multisectoral collaboration, and enhanced communication and activities to trigger behaviour change in the public e.g. changing eating habits for live poultry, cleaner live poultry markets.
**Session B: Strategies to make influenza a priority in countries**

**Chair: Kedar Baral, Director, Patan Institute of Health Sciences, Nepal**

- **Global influenza strategy**
  
  *Dr Wenqing Zhang, Coordinator, Global Influenza Programme, WHO HQ*

  The first session encapsulated the current status of influenza and lessons from the past. The underlying theme of the second session was strategies for the future. The first speaker, Dr Wenqing Zhang, made the case for a strategic global approach to the public health threats from seasonal, pandemic and zoonotic influenza, and current strengths and challenges. She then unveiled the draft comprehensive WHO Global Influenza Strategy, which will be posted to the public for comments in July-August 2018, having undergone internal and external consultations. The Strategy links to the goals of the WHO Global Programme of Work (GPW) of 1 billion more people for health coverage, 1 billion people are made safer and 1 billion more lives are improved. The draft Global Influenza Strategy has laid down the vision of attainment of the best possible seasonal response and pandemic preparedness for the health of all people, and identified three strategic priorities – strengthen pandemic preparedness and response; expand seasonal influenza prevention and control policies, and promote research and innovation.

- **Investing in pandemic preparedness through APSED III**
  
  *Dr Masaya Kato, Programme Area Manager, Country Health Emergency Preparedness and IHR, WHO WPRO*

  From global strategies, participants were brought to regional ones as Dr Masaya Kato provided a regional perspective about advancing implementation of the International Health regulations (IHR 2005) through the Asia Pacific Strategy for Emerging Diseases and Public Health Emergencies (APSED III), a bi-regional framework to prepare for and respond to all diseases and public health emergencies, including a pandemic. He also explained how it fits into the context of other frameworks and initiatives. It is a two-tier approach with emergency planning and system readiness.
Pandemic Influenza Preparedness Framework (PIP): Introducing HLIP-II

Dr Gina Samaan, Team Lead, PIP Partnership Contribution, WHO HQ

Dr Gina Samaan introduced the participants to another influential influenza framework – the Pandemic Influenza Preparedness Framework (PIP). The PIP Framework was adopted by all Member States in May 2011, and it aims to increase developing country access to vaccines and other products during a pandemic. The first High level Implementation Plan (HLIP-I) 2013-2017 was successfully implemented with 86% of indicators exceeded or met, and showed that PIP strengthened IHR core capacity. The second High Level implementation Plan (HLIP-II) runs from 2018-2023. It builds on progress in HLIP-I, and has six major outputs, including revising countries’ Pandemic Influenza Preparedness Plan. All countries are now PIP countries, with some supported through country-level workplans.

Progress of influenza surveillance in Timor-Leste: Ms Maria Angela Varela Niha, Head of Department for Surveillance and Epidemiology, Ministry of Health, Timor Leste

Pandemic influenza preparedness in Mongolia: Dr Oyungerel Darmaa, Epidemiologist for Influenza National Center for Communicable Diseases, Mongolia

How do the global frameworks function at the ground level? Two countries, Timor-Leste and Mongolia, illuminated the country-level experiences. Ms Maria Niha explained how Timor-Leste established the influenza surveillance system in the country, with 5 ILI sites and 3 SARI sites. She highlighted the achievements, which included enrolling in the External Quality Assessment Programme with WHO CC Melbourne – 32 EQA specimens were 100% consistent. Capacity was also built for field epidemiology and outbreak investigation. Dr Oyungerel Darmaa of provided an overview of Pandemic Influenza Preparedness in Mongolia. She described the policies available for pandemic influenza preparedness, the influenza surveillance system, and the capacities. She spoke about the disaster preparedness exercise in 2017, as a step in the right direction. However, challenges remain, include lack of clarity on multi-sectorial coordination, budget, and partner engagement.
Session C: Supporting the introduction of influenza vaccines

Chair: Dr Joseph Bresee, Associate Director for Global Health Affairs, Influenza Division, Centers for Disease Control and Prevention Atlanta USA

The previous session highlighted the strategies needed to battle seasonal and pandemic influenza, with vaccination as one of the tools in the armour. This session focused on how an increased number of countries could include influenza vaccination in their national programmes.

- Introducing and expanding a seasonal influenza vaccine programme
  
  Dr Joseph Bresee, US CDC
  
  Dr Joseph Bresee spoke about the reasons for countries to have a seasonal influenza vaccination programme – the influenza burden is increasing, seasonal vaccination is a test for pandemic vaccination, and finally, health systems strengthening. He then spoke about the Partnership for Influenza Vaccine Introduction (PIVI), which works in partnership with countries, contributing partners and technical collaborators to create and support sustainable routine seasonal influenza vaccination programmes.

- Augmenting national regulatory capacity to support pandemic preparedness
  
  Dr Jinho Shin, Medical Officer, Essential Medicines and Technologies, WHO WPRO
  
  Vaccination programmes need strong and efficient vaccine regulatory programmes, and Dr Jinho Shin presented on the important role of National Regulatory Authorities. Countries should establish National Regulatory Authorities for quality, safety and efficacy of products. He described countries producing influenza vaccines and highlighted the key country considerations for regulatory pandemic planning. These include establishing legal pathways to waive regulatory requirements of vaccines and antivirals in public health emergencies, have a harmonised regulatory approach, ensure good pharmacovigilance practices, good data sharing and strong supply chain and cold chain.
Roundtable: Strong seasonal influenza programmes as a foundation for vaccine policy, vaccine use, and effective pandemic response

Facilitator: Dr Joseph Bresee, US CDC

Participants:

<table>
<thead>
<tr>
<th>Dr Aung Myat Htay</th>
<th>Assistant Director, Central Epidemiology Unit, Department of Public Health, Myanmar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr Faisham Mohamed</td>
<td>Consultant in Medicine, Indira Gandhi Memorial Hospital, Maldives</td>
</tr>
<tr>
<td>Dr Nyamkuu Dulmaa</td>
<td>Director, National Influenza Centre, Mongolia</td>
</tr>
<tr>
<td>Dr Suthanun Suthachana</td>
<td>Public Health Technical Officer, Bureau of Epidemiology, Thailand</td>
</tr>
</tbody>
</table>

- The role of NITAG in seasonal vaccine introduction: In Myanmar, during the seasonal influenza outbreak in 2017, there was a demand from the people for vaccines. A NITAG meeting was held on 3 September. The Pandemic vaccine deployment plan was referred to, and it was decided to prioritise vaccination for health care workers, then those with chronic disease, then children between 1-3 years.

- The lessons for administering an influenza vaccine programme for pregnant women: Dr. Faisham from the Maldives spoke about using antenatal clinics to deliver vaccines to pregnant women, after a pregnant woman died in the flu outbreak in 2017. In Lao PDR, however, there were issues with vaccine acceptability among pregnant women. A Supply vs demand skew also leads to all priority groups not being covered in influenza vaccination in the country. Mongolia mentioned its surveillance for adverse effects of vaccination.

- Influenza Vaccination programme for healthcare workers: Influenza vaccine uptake among healthcare workers is important not only because it protects them, but also because healthcare workers are often also opinion leaders for vaccines. Thailand was asked to elucidate on the top three lessons on this. Suthanan Suthchana of Thailand said that under their influenza programme, vaccines were delivered to the hospital but vaccine supply was limited, and the first come first serve did not work as many of those who needed the vaccine most did not get it. The policy was therefore changed so that pregnant women got first priority, then those with chronic disease and healthcare workers. AEFI surveillance is in place, but there was no AEFI reported in the past 6 months.

- In the discussion, WHO’s ongoing project to understand healthcare workers perspectives on influenza vaccination, and the efforts to increase their awareness, were mentioned. Open WHO is also a resource for capacity building and creating awareness among healthcare workers.
Session D:  
Influenza Pandemic Preparedness Planning: building capacity for pandemic response

Chair: Roderico Ofrin, Director, WHO Health Emergencies Programme, SEARO

Introducing the session, Dr Roderico Ofrin emphasized the urgency in pandemic preparedness actions.

- Pandemic planning: public health emergency preparedness

  Dr Erica Dueger, Medical Officer, WHE, WHO WPRO

  Preparedness for pandemics is at the core of APSED III’s two-tier approach of emergency planning and system readiness, as Dr Erica Dueger explained. The IHR review Committee, after the 2009 A(H1N1) pandemic, recommended building capacity for risk management, improved severity assessments, and conduction of simulation exercises. For risk assessment including severity assessment, good hospital-based acute respiratory infection (ARI) data is essential. Therefore, an Asia Pacific Acute Respiratory Infection Surveillance (APARIS) consortium is needed, in line with similar networks in other regions.

- Pandemic Influenza Risk and Impact Management (PIRM): building sustainable and resilient capacity for pandemic response

  Dr Weigong Zhou, Medical Officer and Team Lead, Pandemic Preparedness, Influenza preparedness and Response (IPR), WHO HQ.

  Dr Weigong Zhou revealed that 101 Member States – more than 50% – did not have a Pandemic Influenza Preparedness plan or the plan was not publicly available. Only 13 countries had plans revised after 2014. Considering the threat of an influenza pandemic and its potential impact, a national Pandemic Influenza Preparedness Plan is essential. He introduced all the available WHO guidance – Pandemic Influenza Risk management (2017); A checklist for Pandemic Influenza risk and impact management (2018); Essential Steps for Developing/Updating National Pandemic Influenza Preparedness Plans (2018) and a Practical Guide for Developing and Conducting Simulation Exercises to test and validate Pandemic Influenza Preparedness Plans, and other guides on surveillance, risk and severity assessments, and public health measures.
Introduction to the Pandemic Influenza Severity Assessment (PISA) tool

Dr Katelijib Vandemaele, Team Lead, Epidemiology and Surveillance, Influenza Preparedness and Response (IPR), WHO HQ

Dr Katelijib Vandemaele then introduced one of the WHO tools – the Pandemic Influenza Severity Assessment (PISA). She explained the three factors for influenza severity – transmissibility, seriousness of disease and impact. PISA provides information on the timing, urgency, intensity and scale of the response, and explained the methodology with examples from various countries. She also identified that WHO requests that all countries use this tool for routine seasonal influenza to help guide the utility of the tool during the pandemic.

Country Experiences:

The 2017 Pandemic Influenza Preparedness Exercise: incorporating Whole-of-Government approach –

Dr Karnely Helena, Director of Prevention and Communicable Disease Control, Ministry of Health, Indonesia

Simulation exercises – assuring a whole of society approach

Dr Seng Heng, Director, Surveillance Bureau, Ministry of Health, Cambodia

Two countries – Indonesia from SEARO and Cambodia from WPRO – shared their experience of a pandemic simulation exercise. Dr Karnely Helena described the format of the simulation in Indonesia – pre-exercise, including planning, material development and set-up; the exercise; an post-exercise evaluations. In Indonesia, the scenario was a novel avian influenza and indication of human to human transmission. The focus of the exercise was epicenter containment. Cambodia’s simulation exercise, shared by Dr Seng Heng, focused on a multisectoral coordination SiMex for Public Health Emergencies. The Table Top Simex was used to identify roles/responsibilities and coordination mechanism among relevant health and non-health sectors.

Pandemic Emergency Financing Facility

Dr Manav Bhattarai, World Bank

One key feature of any emergency is resources. The World Bank's Pandemic Emergency Financing Facility (PEF) is meant to address this issue. Dr Manav Bhattarai of the World Bank acquainted the participants with the key features of this Fund. PEF is an insurance-based mechanism that provides surge financing. It covers specific diseases and disease families with pandemic potential, including influenza, coronavirus, filovirus, Lassa fever, Rift Valley fever and Crimean-Congo Hemorrhagic Fever. Premiums are paid by the development partners.
Session E:
Group Work - National Pandemic Preparedness Planning

Chair: Dr Aalisha Sahukhan,
National Advisor Communicable Disease, Ministry of Health Fiji

- Essential capacities in pandemic preparedness planning:
an overview of the WHO checklist

  Dr Weigong Zhou, Team Lead, Pandemic Preparedness,
  Influenza preparedness and Response, WHO HQ

- Introduction to the breakout session (objectives, expected outcomes, grouping,)

  Mr Hitesh Chugh, Consultant, PIP, WPRO

To support countries in developing capacities and a pandemic preparedness plan, a checklist has
been developed. Dr Weigong Zhou introduced the checklist and how to use it to the audience.

Mr Hitesh Chugh then explained how the organization and expectations from the breakout sessions.
This session's objective was to review essential capacities in pandemic preparedness planning and
identify priorities for the next 1-2 years. There were three broad topics for which participants were
divided into groups. All were to identify priority activities for the next 1-2 years.

Roles of National Influenza Centres (NICs) (Group 1)
The role of this group was to review lessons learned and progress made in laboratory preparedness
for pandemic response, and propose good practices. They reviewed NICS in various countries in
terms of surge capacity, sample transport, new virus biosecurity, connections with WHO CCs, and
communications with other sectors. Surge capacity and available funding varied widely among
countries, and time delay in funding was mentioned. There was a need to overload NICs with
‘routine’ work. Some countries mentioned equipment maintenance difficulties. Many cited
challenges with sample transport logistics, especially externally. New virus biosecurity is an issue
because many countries do not have P3 facilities. However, nearly all laboratories know t whom or
where to refer among WHO Collaborating Centres (CCs). Some countries had structures in place for
communication with other sectors. However most did not.

Surveillance, risk assessment and rapid response (Group 2)
The role of this group was to review lessons, progress, and challenges in pandemic preparedness in
surveillance and response; propose good practices. This group emphasized the importance of
sentinel surveillance. There has also been progress on dissemination of information and
multi-sectoral collaboration based on the "One Health" approach.
Among the good practices identified were integrated capacity building for surveillance and response; high level collaborative mechanisms within animal health; multiple approaches to surveillance, including media/rumor surveillance and data mining; data quality training; use of WHO guidelines and finally, well-trained rapid response teams. However, there are many challenges including estimating disease burden; staff turnover; specimen shipment; data linkage and sharing of lab and epi data and sustainability of surveillance systems. Priority activities include risk communication, pandemic preparedness plans, and incorporating PISA into existing influenza surveillance systems.

**Seasonal influenza vaccine programme and pandemic vaccine readiness (Group 3)**

The group’s task was to review progress and challenges in implementing seasonal influenza vaccine programmes and their link to pandemic vaccine preparedness, propose good practices for pandemic vaccine preparedness, and analyse the optimal use of burden estimates and severity assessments to guide flu vaccine policy. Among the lessons learnt were the importance of linkages and communication to various key groups including decision makers, health care workers, general public; and the need for a “champion”. Good practices identified include generating local data for evidence-based decisions, and monitoring after vaccine introduction, and targeting different high-risk groups with high acceptance. Among the challenges were affordability of the vaccine, vaccine effectiveness, regulatory processes in some countries, and influenza vaccine’s not being included in the routine vaccination programmes. One key priority activity therefore is to build an evidence-based case for influenza vaccination, including burden data and cost-benefit estimates.
Session F: Laboratory

Chair: Dr Takato Odagiri, Director, National Institute of Infectious Diseases (NIID), Tokyo

The risk-based approach to biosafety and biosecurity and the new WHO Laboratory Biosafety Manual – Dr Karen Nahapetyan, Technical Officer (Laboratory), WPRO

- **New terms of reference and performance review for NICs**
  *Dr Wenqing Zhang, Manager, Global Influenza Programme, WHO HQ*

  Dr Wenqing Zhang provided an overview of the GISRS system as fostering global confidence and trust for over 66 years through effective collaboration and the sharing of viruses, data and benefits based on member states commitment to a global public health model. She tracked the evolution of NIC terms of Reference (TORs) from 2002 to 2011 to 2017. The latest TORs categorize into three groups: (1) TOR for NIC working with seasonal influenza; (2) TOR for NICs working with influenza virus with pandemic potential (IVPP); and (3) TORs for NIC working with non-seasonal influenza or non-IVPP. NIC performance review was introduced in 2018 to acknowledge active NICs, identify gaps of performance with aim to bridge, and identify inactive NICs leading to potential discontinuation. Review includes three indicators: (1) virus detection capacity judged by EQA results; (2) virus sharing (at least once a year); and (3) surveillance information reporting. Overall, NIC performance review is an opportunity to strengthen NIC capacity and an official channel of communication including advocacy.

- **Update on the RT-PCR Global EQAP**
  *Dr Janice Lo, Head, Public Health Laboratory Services, Department of Health, Hong Kong*

  Dr Janice Lo presented in detail the history of WHO External Quality Assessment Program (EQAP) for influenza A virus subtypes and B viruses by RT-PCR to monitor quality and standards of performance of influenza labs. Most of labs in Asia Pacific region demonstrate steady performance close to but not necessarily all reaching 100%. She also shared plans for further expansion and improvement of EQAP and its components and panels.

- **How genetic sequence data informs us on influenza**
  *Ms Naomi Komadina, Victoria Infectious Diseases Reference Laboratory (VIDRL)*

  Ms Naomi Komadina updated participants on the details of influenza genome sequencing platforms (Sanger and Next Generation Sequencing), their strengths and weaknesses and purposes for which they can be effectively used, such as vaccine candidate selection, silica structuring analysis and phylogenetic analysis, vaccine effectiveness studies, etc. She introduced participants to the Global Initiative on Sharing All Influenza Data (GISAID).
Real-time RT-PCR support strategies and updates

*Dr Stephen Lindstrom, Team Lead, Diagnostic Development, Influenza Division, US Centers for Disease Control (CDC)*

Dr Stephen Lindstrom provided the latest updates on CDC work in real time RT-PCR, including testing algorithms, reagent kits, International Reagent Resource (IRR) and other support available to NIC from CDC. He also discussed testing for other animal viruses with pandemic potential.

The risk-based approach to biosafety and biosecurity and the new WHO Laboratory Biosafety Manual

*Dr Karen Nahapetyan, Technical Officer (Laboratory), WHO WPRO*

Dr Karen Nahapetyan discussed the importance of biosafety and biosecurity management programs for preventing laboratory and health facility acquired infections and their spill-over into the community. He reviewed weaknesses of the current biosafety paradigm based on generic agent risk groups and biosafety levels, with predetermined sets of administrative and engineering solutions and introduced a new approach based on rigorous risk assessment and establishment of bio-risk management systems customized for specific risks of the laboratories. He reviewed the evolution of WHO Laboratory Biosafety Manual and provided some highlights of the revised manual (currently being developed) in terms of its structure and content.
Parallel Session G1:
Reporting and using Data

**Chair: Dr Agustiningsih, National Influenza Center, Ministry of Health, Indonesia**

This session focused on epidemiological surveillance for influenza and the importance of data, highlighting country experience. The chair, Dr Agustiningsih, spoke about how all the topics in this session linked to provide the larger picture of influenza surveillance, that provides the information based on which global decisions can be taken.

- **Optimizing Event Based Surveillance**
  
  *Dr Serge Nzietchueng, Consultant, Country Preparedness and International Health Regulations, WHO WPRO*

  Dr Serge Nzietchueng began the session emphasizing the benefits of the Joint Risk Assessment, such as bringing together national information and expertise from human, animal and other relevant sectors, and revealing critical missing information and gaps.

- **One Health collaborations in influenza, Myanmar**
  
  *Dr Ni Ni Aung, Assistant Director, Livestock Breeding and Veterinary Department, Ministry of Agriculture, Myanmar*

  Dr Ni Ni Aung spoke about how outbreaks of influenza A/H5N1 in poultry, including a 2016 outbreak in Sagaing Region, has brought the human and veterinary health sectors to work together in Myanmar so that there is now smooth coordination between the sectors. A draft Plan on One Health Strategy (2017-2021) has been developed.

- **Event based reporting: Vietnam’s experience**
  
  *Dr Nguyen Vu Thuong, Director, National Influenza Centre, Vietnam*

  Dr Nguyen Duc Khoa elucidated on disease surveillance, including influenza surveillance, in Viet Nam. The influenza surveillance system involves both event based surveillance (EBS) and indicator based surveillance. A pilot Hospital Event Based Surveillance (HEBS) was established in 2017-2018 to strengthen reporting and increase coordination between curative and preventive medicine. The experiences have been incorporated into a national EBS guideline, approved in March 2018.

- **FluMart and other online WHO Tools**
  
  *Mr Bikram Maharjan, Data Manager (Consultant), WHO HQ*

  Globally surveillance data from all countries informs policy decisions from WHO. Having an updated Influenza Data Surveillance Reporting System is therefore very important. Mr Bikram Maharjan described how FluMart, the influenza Data Surveillance Reporting system, works. It integrates both FluNet, which has laboratory surveillance information, and FluID, with has epidemiological data. Consistency and timeliness of reporting was highlighted as a challenge. He provided links to videos on how to load data into these systems from Excel.
Preparing a flu report: Sri Lanka’s experience

Dr Jude Jayamaha, Consultant Virologist, Medical Research Institute, Sri Lanka

Dr Jude Jayamaha spoke about influenza data dissemination and animal surveillance in Sri Lanka. He described the newsletter/e-Newsletter brought out by the NIC Sri Lanka, which began in 2014 and is distributed by email and print to 100 hospitals. The information it contains is a monthly summary, with the number of samples, number of positives, and influenza types and subtypes. Other initiatives include journal publications, compilation of frequently asked questions, and meeting/events. Texting by mobile phones and social media/facebook is also used. Information is distributed to a wide range of stakeholders. He also described animal surveillance, with the main objective of detection of highly pathogenic avian influenza (HPAI). Sri Lanka is on the route of many migratory birds. The Sri Lanka Exotic Disease Emergency Preparedness (SEDEP) involves surveillance, laboratory diagnosis and identification of risk factors. He described the various steps for surveillance in emergencies.

Preparing a flu report: Hong Kong’s experience

Dr Janice Lo, Head, Public Health Laboratory Services, Department of Health, Hong Kong

In Hong Kong, though, everything is uploaded, according to Janice Lo, who spoke about the use of influenza data in the city. Their weekly report, called “Flu Express”, monitors and summarizes local and global influenza activities. Describing flu outbreaks as a “catching up game” and “every season is like a war”, she informed that they receive 4000-8000 specimens every week, and test for the entire panel of respiratory viruses. She provided a snapshot of ILI surveillance among sentinel general outpatient clinics and sentinel private doctors form 2014-2018. She showed the various surveillance parameters that were considered, including vaccinations, chronic illness.

Large seasonal outbreak of influenza in the Maldives, 2017

Dr Ramsha Abdul Sattar, Project Coordinator, Health Protection Agency, Maldives

Dr Ramsha Abdul Sattar began by explaining that influenza surveillance was established in 2014 with CDC support, with five ILI/SARI sentinel sites, but 2017 was the first outbreak identified since surveillance began, and the country was not prepared. By week 8 of the outbreak, the number of confirmed SARI cases was more significantly greater than the average. Respiratory physicians alerted Maldives’ Health Protection Agency about an increase of patients with acute respiratory complications. She then described the outbreak response measures – relevant committees activated, surveillance actions doubled, enhanced measures for sample collection, WHO assistance sought for procurement and increased health promotion activities including press releases and press conference. Among key lessons learnt was the need for an updated outbreak/pandemic preparedness plan, influenza vaccination policy and need for risk communication.

Discussions involved ways to maximize animal and human health coordination, including joint committees and regular meetings.
This session revolved around a key issue facing countries – shipping of specimens especially in outbreaks in remote areas. To aid the discussion, participants were given a scenario:

“There is an outbreak of influenza-like illness with several death cases in one of the remote provinces of your country. You need to urgently organize transportation of samples to the National Influenza Center for diagnostic testing, with possible shipment to a WHO reference laboratory abroad for further characterization of the pathogen.”

They were asked to elucidate on a range of relevant issues such as:

- Sample collection materials available at the site of the outbreak?
- Facilities for sample storage in the provincial laboratory
- Rapid shipping to the NIC
- Availability of proper sample packing materials in the NIC and are there certified shippers
- Access to dry ice
- Are the arrangements in place with couriers
- Export permits and import permits as necessary for NICs
- NIC standing arrangements with a WHO collaborating Centre or a WHO reference laboratory for sample referral

Countries varied in their shipping capacities. Most countries did not have a problem with international shipping or with domestic shipping from outbreak location to the NIC. Cambodia faced challenges with accessing remote areas. Bhutan, Nepal and Timor-leste did not have dry ice, although Nepal could import from India or Thailand. Cool box and Liquid Nitrogen dry shippers were available. Bhutan did not have access to World Courier or arrangements in place for shipping specimen internationally [they have since identified FedEx as an alternative to World Courier].
The discussion highlighted some challenges faced by the countries and clarified some issues:

- Clinical samples that haven’t been tested are Category B NOT Category A by IATA shipping requirements, even if the potential agent is not known.

- Liquid nitrogen (LN) shippers can be used instead of dry ice, airlines usually OK with them.

- Some small countries have difficulty getting hold of swabs with viral transport media (VTM) at short notice. There is a need to have mechanisms in place to cope with outbreak in any place in country. NICs and hospitals should have stockpiles.

- Once a WHO provided (country office or regional office) IATA shipping course has been done successfully, people can do WHO refresher courses online at no cos. These IATA trainings are only available to public labs (not private) and must renew every two years.

- There are sensitivities around sharing human clinical samples to labs outside of the WHO CC’s e.g. to universities; some countries can’t share at all e.g. India.

- There is a need to have some process in place if clinical samples from severe respiratory cases are influenza negative; if shipping to a CC (such as US CDC, NIID, VIDRL and others) they can arrange further testing by another “sister” lab.

- Most NICs/labs have used WHO shipping fund; but some have not shipped samples to WHO CC.

- NICs/labs can send to any WHO CC, normally to the CC with the best transport link. They can send to multiple CCs but should then send different samples.

- There are questions about the impact that the Nagoya Protocol will have on the shipping of samples/isolates.
Session H: Practical Issues Around Virus Sharing (Roundtable and Floor Discussion)

Chair: Prof Ian Barr, Deputy Director, WHO CC for Reference and Research on Influenza, Victorian Infectious Diseases Reference Laboratory (VIDRL), Australia

Virus sharing is critical for pandemic preparedness, and a fundamental part of the PIP Framework. In spite of this, virus sharing by countries has not always been optimal. This session explored some practical issues, with a presentation followed by panel discussions.

- Virus Sharing

*Dr Wenqing Zhang, Manager, Global Influenza Programme, WHO HQ*

Wenqing Zhang presented on why virus sharing is important, how it can be done, and the current situation. She emphasized that virus sharing enables GISRS to detect and monitor emerging and circulating virus strains, make recommendations on candidate vaccine viruses, guide the use of anti-retrovirals, and allow WHO and WHO CCS to conduct risk assessments. She also reiterated that viruses must be shipped to a WHO CC as soon as possible if it is an un-typeable influenza A, or from human cases when there are changes in epidemiology. For seasonal influenza, there should be at least 1 shipment per year from countries, although there is funding available for up to 4 shipments per year.

For Influenza viruses with pandemic potential (IVPP), the sharing status is public and at high levels, and is recorded in IVTM. Genetic sequence data (GSD) cannot replace virus sharing.

**Panel Discussion**

<table>
<thead>
<tr>
<th>Dr Wenqing Zhang</th>
<th>Manager, Global Influenza Programme, WHO HQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr Bishnu Upadhyay</td>
<td>Deputy Chief Medical Lab Technologist, National Public Health Laboratory, Nepal</td>
</tr>
<tr>
<td>Dr Dorji Wangchuk</td>
<td>Laboratory Officer, Royal Centre for Disease Control, Department of Public Health, Bhutan</td>
</tr>
<tr>
<td>Dr Chen Tao</td>
<td>Assistant Professor, WHO Collaborating Centre for Reference and Research on Influenza, Chinese National Influenza Center, China</td>
</tr>
<tr>
<td>Dr Le Thi Quynh Mai</td>
<td>Director, National Influenza Centre, National Institute of Hygiene and Epidemiology, Viet Nam</td>
</tr>
</tbody>
</table>
In the discussion that followed, Chen Tao of China informed that in the past 10 years, it has shared more than 4000 influenza strains. Zoonotic virus sharing needs good multisectoral collaboration. Le Thi Quynh Mai said that Vietnam shares viruses with WHO CCs but it was delayed this year. Dorji Wangchuk highlighted the practical difficulties of smaller countries, that Bhutan has not shared viruses yet, and does not have a suitable courier for specimen shipping. In Nepal, too, capacity is an issue, although it started isolating viruses in 2011, as mentioned by Bishnu Upadhyay.

Discussions among the panelists ranged from what viruses to ship, on cycle threshold (ct) values, and on External Quality Assessment Project (EQAP), and on the need to have virus samples a month ahead of the vaccine composition meeting, so that the data can be analyzed and shared in time for accurate decisions. Timely shipping is very important because, after receiving virus from NIC, the WHO CCs need to propagate and characterise the virus.

Finally, the issue of the Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization (ABS) to the Convention on Biological Diversity, referred to as the Nagoya Protocol and its implications were discussed. Wenqing Zhang gave a synopsis of the Nagoya protocol, which is a supplementary agreement to the Convention on Biological Diversity (CBD), and was adopted in 2010 and came into force in 2014. Its objective is the fair and equitable utilization of benefits arising out of genetic resources. She explained that its implication are far wider than for public health, and the focal points are usually environment ministries. But it has a significant impact on public health. Nagoya protocol has its own access and benefits sharing system (ABS). However, it does not prevent countries from implementing other relevant international agreements, or specialised international instruments (SIIs) provided that they are supportive of and do not run counter to the objectives of the Convention and this Protocol. The PIP framework is an SII. Could GISRS be an SII? It cannot be as it has no legal binding agreement signed. WHO organised a consultation on whether seasonal virus should be under the PIP framework, and therefore can follow PIP.
Session I: Modular Training Tools for Pandemic Preparedness

Chair: Prof Ian Barr, Deputy Director, WHO CC for Reference and Research on Influenza, Victorian Infectious Diseases Reference Laboratory (VIDRL), Australia

Virus sharing is critical for pandemic preparedness, and a fundamental part of the PIP Framework. In spite of this, virus sharing by countries has not always been optimal. This session explored some practical issues, with a presentation followed by panel discussions.

- Modular training tools for pandemic preparedness –

  Dr Joshua Mott, Director, Influenza Program, US CDC South-East Asia Regional Office, Thailand

  Joshua Mott presented on US CDC’s Best Practices Training tools on the Detection and Response to Novel Influenza Viruses. The training material was developed through a meeting hosted by the Ministry of Public Health, Thailand, and

  involving 150 participants from 11 Member States.

It brought human and animal sectors together in developing material for

- Human epidemiologic response to novel viruses
- Animal response following international guidance
- Medical management of novel influenza
- Laboratory specimen collection, transport and diagnostics

Each technical group reviewed and provided comment on applicability of material for the local context, and 29 modules and exercises were developed, along with the user’s guide.
Conclusions and Recommendations

Conclusions

- A century after the great influenza pandemic of 1918, the world has progressed significantly in influenza preparedness. With support from WHO collaborating centres and other partners, national and regional influenza surveillance systems have been strengthened, particularly over the last 10 years. This includes strengthening of the NICs, an integral part of the GISRS.

- Influenza surveillance and response remains a priority for the WHO Health Emergencies Programme and is embedded within all focus areas of APSED III, an action framework for implementation of IHR (2005).

- Preparedness for influenza pandemics takes place within the broader framework of health security, and requires investment of resources by Member States, donors and partners.

- For enhanced preparedness for an influenza pandemic, all Member States require systems that are strong enough to detect, prevent and effectively respond. The Pandemic Influenza Preparedness Framework (PIP), the Pandemic Influenza Risk Management (PIRM) guidance document, as well as pandemic preparedness tools for risk and severity assessment e.g. Pandemic Influenza Severity Assessment (PISA), help Member States strengthen and coordinate influenza surveillance, risk assessment and preparedness.

- Influenza’s substantial impact in terms of mortality and morbidity is well recorded and needs to be accorded higher priority in public health policy making. The draft Global Influenza Strategy 2018-2030 provides guidance for Member States and WHO to strengthen influenza surveillance and response, in synergy with overall health systems.

- A strong “One Health” approach, with close collaboration and coordination between the human, animal, and environmental health sectors, is essential to support rapid detection and response to unusual events of zoonotic influenza viruses and influenza viruses with human pandemic potential.

- EQA programmes are a critical component of a broader laboratory quality management systems for monitoring and improving laboratory proficiency of molecular diagnosis and isolation of influenza viruses. It is therefore imperative that all NICs participate in such programmes.

- Indicator-based surveillance data, including from high-quality hospital surveillance sites in the Asia Pacific Acute Respiratory Infection Surveillance (APARIS) consortium, can provide critical evidence for burden of disease as well as for risk and severity assessments. These can support formulation of policy decisions.

- Implementation of seasonal influenza vaccine strategies to high-risk populations, as identified by the SAGE in 2012, is an important part of influenza prevention, control, and pandemic preparedness strategies.

- It is critically important to engage the whole of society to advance pandemic preparedness and response, by developing or updating a national plan and validating it through simulation exercises.
Recommendations for Member States

Member States are encouraged to:

- Review and provide feedback on the new draft Global Influenza Strategy.

- Develop/update and implement national action plans for health security, as guided by APSED III to advance IHR (2005), including strengthening of laboratory capacity, surveillance, joint risk assessment, pandemic preparedness and response readiness.

- Review and update national pandemic preparedness plans, using the PIRM framework, A checklist for pandemic influenza risk and impact management, Essential steps for developing or updating a national pandemic influenza preparedness plan, and other WHO tools as guidance.

- Strengthen collaboration and coordination between the human and animal health sectors to generate data that support joint risk assessments for informed decision making.

- Improve timely sharing of (a) seasonal influenza viruses with WHO collaborating centres (b) genetic sequence data with sequence databases, and (c) national virologic and epidemiologic surveillance data with FluNet and FluID.

- Sustain and use multiple sources of information from event-based and indicator-based surveillance, to provide critical evidence for burden of disease, as well as risk and severity assessments, to support policy decisions.

- Participate in the APARIS Consortium to support PISA by promoting consistent and comparable SARI surveillance.

- Continue to participate in EQA programmes for influenza diagnostics and use their findings to optimize laboratory performance.

- Encourage collaborations between laboratory and epidemiologic surveillance, policy-makers and immunization programmes to ensure evidence-based vaccination strategies are developed and implemented.

- Ensure a whole-of-society approach to advance pandemic preparedness and response.
Recommendations for WHO

WHO is requested to:

- Facilitate Member States to review and provide comments to the draft new Global Influenza Strategy.

- Assist Member States in strengthening mechanisms to foster collaboration and coordination at the human–animal-environment interface, for timely public health action and pandemic influenza preparedness.

- Provide tools and strategies to support Member States, to build capacity and strengthen systems for influenza pandemic preparedness, within the larger efforts in health security capacity development.

- Support Member States to improve and update pandemic preparedness and response plans through multi-sectoral planning and exercises.

- Provide technical support to strengthen laboratory quality, including through facilitating NICs’ participation in EQA programmes.

- Encourage the sharing of viruses and genetic sequence data globally and the regular reporting of influenza surveillance data to improve the detection of unusual events.

- Promote consistent and comparable surveillance for hospitalized acute respiratory infections including facilitation of Member State participation in the APARIS Consortium and regular completion of severity assessments through PISA.

- Encourage Member States to introduce influenza vaccination for high-risk groups such as pregnant women and health care workers and put in place the logistics and mechanisms for facilitating pandemic vaccination.
Objectives

- To provide global and regional updates on seasonal and zoonotic influenza viruses;
- To review progress and challenges in implementing surveillance priorities since last year, including laboratory detection and characterization of influenza viruses;
- To prioritize multi-sectoral approaches to improve surveillance, risk assessment, response, and communication;
- To discuss optimal use of surveillance data in influenza tools, and use of disease burden estimates to guide vaccination strategies and pandemic preparedness planning; and
- To recommend priority activities for 2018-19.

Agenda

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1: Wednesday, 11 July 2018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0800 – 0830</td>
<td>Registration</td>
<td></td>
</tr>
<tr>
<td>0830 – 1000</td>
<td>Opening Session –</td>
<td>Opening Chair: Pushpa Chaudhary, Health Secretary, Ministry of Health and Population</td>
</tr>
<tr>
<td></td>
<td>Opening Chair: Pushpa Chaudhary, Health Secretary, Ministry of Health and Population</td>
<td>MC: Philip Gould, IHM, SEARO</td>
</tr>
<tr>
<td></td>
<td>Introduction:</td>
<td>Guna Raj Lohani, Director General, Department of Health Services</td>
</tr>
<tr>
<td></td>
<td>Message: Roderico Ofrin, Regional Emergencies Director</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lighting of lamp:</td>
<td>Upendra Yadav, Honorable Minister, Ministry of Health and Population</td>
</tr>
<tr>
<td></td>
<td>Special remarks:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inauguration remarks:</td>
<td>Pushpa Chaudhary, Health Secretary, Ministry of Health and Population</td>
</tr>
<tr>
<td></td>
<td>• Introduction of countries and partner organizations</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Nominations for co-chairs and rapporteurs</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Objectives and administrative items</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Group Photo</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Topic</td>
<td>Presenter</td>
</tr>
<tr>
<td>--------------</td>
<td>----------------------------------------------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>1000 – 1020</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>1020 – 1220</td>
<td><strong>Session A: Setting the Stage:</strong> Influenza’s history and updates on the current status of seasonal, avian and other novel influenza virus sub-types</td>
<td><strong>Chair:</strong> Dayan Wang, China CDC</td>
</tr>
<tr>
<td>1020 – 1040</td>
<td>100 years since the 1918 pandemic</td>
<td>Dan Jernigan, US CDC</td>
</tr>
<tr>
<td>1040 – 1100</td>
<td>Influenza activity in the Southern Hemisphere</td>
<td>Ian Barr, VIDRL</td>
</tr>
<tr>
<td>1100 – 1120</td>
<td>Influenza activity in the Northern Hemisphere</td>
<td>Takato Odagiri, NIID</td>
</tr>
<tr>
<td>1120 – 1140</td>
<td>Global updates on influenza A occurrences in birds</td>
<td>Pasang Tshering, OIE</td>
</tr>
<tr>
<td>1140 – 1200</td>
<td>Update on H7N9 in China</td>
<td>Wang Dayan, China CDC</td>
</tr>
<tr>
<td>1200 – 1220</td>
<td>Discussion</td>
<td></td>
</tr>
<tr>
<td>1220 – 1320</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>1320 – 1520</td>
<td><strong>Session B: Strategies to make influenza a priority in countries</strong></td>
<td><strong>Chair:</strong> Kedar Baral, Nepal MoH</td>
</tr>
<tr>
<td>1320 – 1340</td>
<td>Global influenza strategy</td>
<td>Wenqing Zhang, WHO HQ</td>
</tr>
<tr>
<td>1340 – 1400</td>
<td>Investing in pandemic preparedness through APSEDIIf</td>
<td>Masaya Kato, WPRO</td>
</tr>
<tr>
<td>1400 – 1420</td>
<td>Pandemic Influenza Preparedness Framework (PIP): Introducing HLIP-II</td>
<td>Gina Samaan, WHO HQ</td>
</tr>
<tr>
<td>1420 – 1435</td>
<td>Progress of influenza surveillance in Timor-Leste</td>
<td>Maria Angela Varela Niha, Timor-Leste MoH</td>
</tr>
<tr>
<td>1435 - 1450</td>
<td>Pandemic influenza preparedness in Mongolia</td>
<td>Darmaa Oyungerel, Mongolia MoH</td>
</tr>
<tr>
<td>1450 – 1510</td>
<td>Discussion</td>
<td></td>
</tr>
<tr>
<td>1530 – 1700</td>
<td><strong>Session C: Supporting the introduction of influenza vaccines</strong></td>
<td><strong>Chair:</strong> Joe Bresee, US CDC</td>
</tr>
<tr>
<td>1530 – 1550</td>
<td>Introducing and expanding a seasonal influenza vaccine programme</td>
<td>Joseph Bresee, US CDC</td>
</tr>
<tr>
<td>1550 – 1600</td>
<td>Augmenting national regulatory capacity to support pandemic preparedness</td>
<td>Jinho Shin, WPRO</td>
</tr>
<tr>
<td>1600 – 1700</td>
<td>Roundtable: Strong seasonal influenza programmes as a foundation for vaccine policy, vaccine use, and effective pandemic response</td>
<td>Joseph Bresee, US CDC  Aung Myat Htay, Myanmar MoH Ramsha Abdul Sattar, Maldives MoH Nyamkhuu Dulmaa, Mongolia MoH Suthanun Suthachana, Thailand MoH</td>
</tr>
<tr>
<td>1900 – 2100</td>
<td>Reception, hosted by the Ministry of Health, Nepal</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Topic</td>
<td>Presenter</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td>0830 – 0845</td>
<td>Recap of Day 1</td>
<td>Supriya Bezbaruah</td>
</tr>
<tr>
<td>0845 – 1050</td>
<td>Session D: Influenza Pandemic Preparedness Planning: building capacity for pandemic response</td>
<td>Erica Dueger, IHM, WPRO</td>
</tr>
<tr>
<td>0845 – 1000</td>
<td>Pandemic planning: public health emergency preparedness</td>
<td>Weigong Zhou, WHO HQ</td>
</tr>
<tr>
<td>0900 – 0945</td>
<td>2017 pandemic influenza preparedness exercise – incorporating whole of government approach</td>
<td>Karnely Helena, Indonesia MoH</td>
</tr>
<tr>
<td>0945 – 1000</td>
<td>Simulation exercises – assuring a whole of society approach</td>
<td>Seng Heng, Cambodia MoH</td>
</tr>
<tr>
<td>1000 – 1020</td>
<td>Pandemic Emergency Financing Facility</td>
<td>Manav Bhattarai, World Bank</td>
</tr>
<tr>
<td>1110 – 1120</td>
<td>Essential capacities in pandemic preparedness planning - an overview of the WHO checklist</td>
<td>Weigong Zhou, WHO HQ</td>
</tr>
<tr>
<td>1120 – 1230</td>
<td>Group discussions:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Pandemic Influenza Risk and Impact Management:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Roles of NICs (Group 1)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surveillance, risk assessment and rapid response (Group 2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seasonal influenza vaccine programme and pandemic vaccine readiness (Group 3)</td>
<td></td>
</tr>
<tr>
<td>1110 – 120</td>
<td>Introduction to the breakout session (objectives, expected outcomes, grouping, etc.)</td>
<td>Hitesh Chugh, WPRO</td>
</tr>
<tr>
<td>1125 – 1230</td>
<td>Group discussions:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Pandemic Influenza Risk and Impact Management:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Surveillance, risk assessment and rapid response (Group 2)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seasonal influenza vaccine programme and pandemic vaccine readiness (Group 3)</td>
<td></td>
</tr>
</tbody>
</table>

---

**National Influenza Centres and Influenza Surveillance in the WHO’s South-East Asia and Western Pacific Regions**
<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1230 – 1245</td>
<td>Plenary feedback (5 min for each group)</td>
<td></td>
</tr>
<tr>
<td>1245 – 1310</td>
<td>Plenary discussion</td>
<td>Session Chair</td>
</tr>
<tr>
<td>1310 – 1410</td>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>1410 – 1530</td>
<td><strong>Session F: Laboratory</strong>&lt;br&gt;Chair: Takato Odagiri, NIID</td>
<td>Wenqing Zhang, WHO HQ</td>
</tr>
<tr>
<td>1410 – 1430</td>
<td>New terms of reference and performance review for NICs</td>
<td>Janice Lo, Hong Kong MoH</td>
</tr>
<tr>
<td>1430 – 1445</td>
<td>Update on the RT-PCR Global EQAP</td>
<td>Naomi Komadina, VIDRL</td>
</tr>
<tr>
<td>1445 – 1500</td>
<td>How genetic sequence data informs us on influenza</td>
<td></td>
</tr>
<tr>
<td>1500 – 1515</td>
<td>Real-time RT-PCR support strategies and updates</td>
<td>Steve Lindstrom, US CDC</td>
</tr>
<tr>
<td>1515 – 1530</td>
<td>The risk based approach to biosafety and biosecurity and the new WHO Laboratory Biosafety Manual</td>
<td>Karen Nahapetyan, WPRO</td>
</tr>
<tr>
<td>1530 – 1550</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td>1530 – 1550</td>
<td><strong>Parallel Session G1: Reporting and using Data</strong>&lt;br&gt;Chair: Dr Agustiningsih, Indonesia MoH</td>
<td></td>
</tr>
<tr>
<td>1550 – 1600</td>
<td>Optimizing Event Based Surveillance</td>
<td>Serge Nzietchueng, WPRO</td>
</tr>
<tr>
<td>1600 – 1610</td>
<td>One Health collaborations in influenza, Myanmar</td>
<td>Ni Ni Aung, LBVD, Myanmar</td>
</tr>
<tr>
<td>1610 – 1620</td>
<td>Event based reporting – Vietnam’s experience</td>
<td>Nguyen Vu Thuong, Vietnam MoH</td>
</tr>
<tr>
<td>1620 – 1630</td>
<td>Discussion</td>
<td></td>
</tr>
<tr>
<td>1630 – 1640</td>
<td>FluMart and other online WHO Tools</td>
<td>Bikram Maharjan, WHO HQ</td>
</tr>
<tr>
<td>1640 – 1650</td>
<td>Preparing a flu report – Sri Lanka’s experience</td>
<td>Jude Jayamaha, Sri Lanka MoH</td>
</tr>
<tr>
<td>1650 – 1700</td>
<td>Preparing a flu report – Hong Kong’s experience</td>
<td>Janice Lo, Hong Kong SAR MoH</td>
</tr>
<tr>
<td>1700 – 1710</td>
<td>Large seasonal outbreak of influenza – Maldives, 2017</td>
<td>Ramsha Abdul Sattar, Maldives MoH</td>
</tr>
<tr>
<td>1710 – 1720</td>
<td>Discussion</td>
<td></td>
</tr>
</tbody>
</table>
### Time
<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>1550 – 1700</td>
<td><strong>Parallel Session G2: Laboratory: Shipping of Specimens</strong>&lt;br&gt;<strong>Chair:</strong> Dr Ravindran Thayan, Malaysia MoH</td>
<td></td>
</tr>
<tr>
<td>1550 – 1600</td>
<td>Introduction of the topic</td>
<td>Karen Nahapetyan, WPRO</td>
</tr>
<tr>
<td>1600 – 1640</td>
<td>Specimen shipping: barriers, challenges, and solutions</td>
<td><strong>Facilitators:</strong> Ian Barr, VIDRL&lt;br&gt;Steve Lindstrom, US CDC</td>
</tr>
<tr>
<td>1640 - 1700</td>
<td>Plenary discussion</td>
<td></td>
</tr>
<tr>
<td>1730 – 1830</td>
<td><strong>Computer Setup for PISA Training</strong>&lt;br&gt;&lt;br&gt;<strong>Tomás Vega Alonso</strong>, Spain MoH; <strong>Hitesh Chugh</strong>, WPRO; <strong>Bikram Maharjan</strong>, WHO HQ&lt;br&gt;For Epidemiologists and WHO Country Office representatives</td>
<td></td>
</tr>
</tbody>
</table>

### Day 3, Friday, 13 July

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter</th>
</tr>
</thead>
<tbody>
<tr>
<td>0800 – 0815</td>
<td>Recap of Day 2</td>
<td>Supriya Bezbaruah</td>
</tr>
<tr>
<td>0815 – 0930</td>
<td><strong>Session H: Practical Issues Around Virus Sharing</strong>&lt;br&gt;<strong>(Roundtable and Floor Discussion)</strong>&lt;br&gt;<strong>Chair:</strong> Ian Barr, VIDRL</td>
<td></td>
</tr>
<tr>
<td>0815 – 0825</td>
<td>Virus Sharing</td>
<td>Wenqing Zhang, WHO HQ</td>
</tr>
<tr>
<td>0825 – 0835</td>
<td>Presentation of the findings from Laboratory parallel session</td>
<td><strong>Rapporteur from Session G2</strong></td>
</tr>
<tr>
<td>0830 – 0850</td>
<td>Short introduction by panel members</td>
<td>Wenqing Zhang, WHO HQ&lt;br&gt;Bishnu Upadhyay, Nepal MoH&lt;br&gt;Dorji Wangchuk, Bhutan MoH&lt;br&gt;Dr Chen Tao, China MoH&lt;br&gt;Le Thi Quynh Mai, Viet Nam MoH</td>
</tr>
<tr>
<td>0850 – 0930</td>
<td>Discussion</td>
<td></td>
</tr>
<tr>
<td>0930 – 1000</td>
<td><strong>Session I: Modular Training Tools for Pandemic Preparedness</strong>&lt;br&gt;<strong>Chair:</strong> TBD</td>
<td></td>
</tr>
<tr>
<td>0930 – 0950</td>
<td>Modular training tools for pandemic preparedness</td>
<td>Josh Mott, US CDC / Thailand</td>
</tr>
<tr>
<td>0950 – 1000</td>
<td>Discussion</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Topic</td>
<td>Presenter</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>1000 – 1100</td>
<td>Closing Session&lt;br&gt;Conclusions / Recommendations Closing remark&lt;br&gt;by Dr. Dr Runa Jha, Ag Director National Public Health&lt;br&gt;Laboratory Statement of thanks by SEAR and WPR leads</td>
<td>Tomàs Vega Alonso, Spain MoH&lt;br&gt;Kaat Vandemaele, WHO HQ</td>
</tr>
<tr>
<td>1100 – 1120</td>
<td>Coffee Break</td>
<td></td>
</tr>
<tr>
<td><strong>POST NIC SESSIONS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1200 – 1700</td>
<td><strong>Group 1 – EPIDEMIOLOGY – PISA Training</strong></td>
<td></td>
</tr>
<tr>
<td>1200 – 1300</td>
<td>Brown bag lunch – PISA overview&lt;br&gt;Open to all NIC participants who are not going to the Group 3 tour</td>
<td></td>
</tr>
<tr>
<td>1300 – 1700</td>
<td>PISA Training</td>
<td>Tomàs Vega Alonso, Spain MoH&lt;br&gt;Kaat Vandemaele, WHO HQ</td>
</tr>
<tr>
<td>1200 – 1430</td>
<td><strong>Group 2 – LABORATORY - GISAID Training</strong></td>
<td></td>
</tr>
<tr>
<td>1200 – 1300</td>
<td>Lunch</td>
<td>Naomi Komadina, VIDRL</td>
</tr>
<tr>
<td>1300 – 1430</td>
<td>GISAID Training</td>
<td></td>
</tr>
<tr>
<td>1200 – 1600</td>
<td><strong>Group 3 – TOURS OF NIC / Patan Academy</strong> (Limited to 30 participants)</td>
<td>Presentation of Vet Disease Laboratory at NIC / Patan&lt;br&gt;Lunch provided on the bus (Lunchbox)</td>
</tr>
</tbody>
</table>
Annex 2
List of Participants

SEARO Member States

- Bangladesh
  1. Dr A K M Muraduzzaman
     Medical Officer
     IEDCR
     Mohakhali
     Dhaka – 1212
     Email: muradbogra_dr@yahoo.com

  2. Dr Monalisa
     Medical officer,
     Institute of Epidemiology, Disease control and Research (IEDCR)
     Mohakhali, Dhaka - 1212
     Phone no: +88 02 9840376, 9898796, 9898691, 01712136124
     Fax: +88 02 9880440
     Email: muradbogra_dr@yahoo.com

- Bhutan
  3. Dr Chador Tenzin
     Senior Medical Officer
     Bumthang Hospital
     Jakar, Bhutan
     Tel : +17760477
     Email: chador8tenzin@gmail.com

  4. Dr Dorji Wangchuk
     Laboratory Officer
     Royal Centre for Disease Control
     Department of Public Health
     Ministry of Health
     Royal Government of Bhutan
     Bhutan
     Tel : 77254485
     Email: dorjiwangchuk@health.gov.bt

- DPR Korea
  5. Dr Song Chol Nam
     Officer
     State Hygiene Control Board
     Ministry of Public Health
     Democratic People’s Republic of Korea
     Pyongyang, DPR Korea

  6. Dr Kim Chol Su
     Director
     Central Hygiene and Anti-Epidemic Institute (CHAEI)
     Ministry of Public Health
     Democratic People’s Republic of Korea
     Pyongyang, DPR Korea

  7. Dr Kim Ju Ok
     Lab Doctor
     Central Hygiene and Anti-Epidemic Institute (CHAEI)
     Ministry of Public Health
     Democratic People’s Republic of Korea
     Pyongyang, DPR Korea

- Indonesia
  8. Dr Karnely Herlena
     Head of Sub-division Upper Respiratory Tract Infection
     Director of Prevention and Communicable Disease Control
     Ministry of Health
     Indonesia
     Email: karnely@gmail.com
     Tel: 081584042742

  9. Dr Agustiningsih
     National Influenza Center (NIC)
     Technical Virology Laboratory
     Center for R&D of Biomedical and Basic Health Technology NIHRD
     Ministry of Health
     Indonesia
     Email: nanin.agustiningsih@yahoo.com
     Phone: 081310004675

10. Dr Roselinda
    Epidemiologist
    Center for R&D of Biomedical and Basic Health Technology NIHRD
    Ministry of Health
    Indonesia
    Email: roselinda1758@yahoo.com
    Phone: 08122773913
- **Maldives**

11. Dr Faisham Mohamed  
   Consultant in Medicine  
   Indira Gandhi Memorial Hospital  
   Republic of Maldives  
   Phone No.: 7930050  
   Email: m_faisham@hotmail.com

12. Ms Ramsha Abdul Sattar  
   Project Coordinator  
   Health Protection Agency  
   Tel: +9607734223  
   Email: ramsha@health.gov.mv

- **Myanmar**

13. Dr Ommar Swe Tin (Mrs)  
   Microbiologist  
   National Health Laboratory  
   No. 35, Hmaw Kun Daik Street  
   Dagon Township  
   PO: 11191, Yangon  
   Myanmar  
   Mobile: 95-95121886  
   Email: ommar.swetin@gmail.com

14. Dr Aung Myat Htay (Mr)  
   Assistant Director (CEU)  
   Department of Public Health  
   Naypyitaw  
   Myanmar

15. Dr Ni Ni Aung (Ms)  
   Assistant Director  
   Livestock Breeding and Veterinary Department  
   Ministry of Agriculture  
   Livestock and Irrigation  
   Myanmar  
   Email: niniaungvet12@gmail.com

- **Nepal**

16. Mr Bishnu Prasad Upadhyay  
   Dy Chief Medical Lab Technologist  
   National Public Health Laboratory  
   Ministry of Health and Population  
   Ramshah Path  
   Kathmandu, Nepal

17. Dr Hemant Chandra Ojha  
   Section Chief, Epidemiology Section  
   Epidemiology & Disease Control Division  
   Department of Health Service  
   Ministry of Health and Population  
   Ramshah Path  
   Kathmandu, Nepal

18. Dr. Samjhana Kafle  
   Programme Director  
   Directorate of Animal Health  
   Ministry of Agriculture, Land Management and Cooperative (Livestock Development)  
   Phone: 9841738952  
   Email: samjhanapandey2015@gmail.com

19. Dr Diker Dev Bhatta  
   Chief  
   Central Veterinary Laboratory  
   Directorate of Animal Health  
   Ministry of Agriculture, Land Management and Cooperative (Livestock Development)  
   Email: diker1962@gmail.com  
   Phone: 9851207143

20. Dr Barun Kumar Sharma  
   Senior Veterinary Officer  
   Ministry of Agriculture, Land Management and Cooperative (Livestock Development)  
   Phone: 9841538789  
   Email: barunvet@hotmail.com

21. Dr Pragya Koirala  
   Senior Veterinary Officer  
   Central Veterinary Laboratory  
   Directorate of Animal Health  
   Ministry of Agriculture, Land Management and Cooperative (Livestock Development)  
   Email: paggya2000@gmail.com  
   Phone: 98510099153

22. Dr Runa Jha  
   Ag. Director  
   National Public Health Laboratory  
   Ministry of Health and Population  
   Email: runa75jha@yahoo.com  
   Phone: 9841368608
23. Dr Sanjaya K. Shrestha, MD  
Director  
Walter Reed / AFRIMS Research Unit Nepal (WARUN) P.O.Box 295,  
Kathmandu, Nepal  
Office: +977-1-2111302; +977-1-5147158 Ext 301  
Mobile: +977-9851077359  
E-mail: shresthask@afrims.org

24. Dr Kedar Prasad Century  
Director  
Epidemiology and Disease Control Division  
Ministry of Health and Population  
Email: centurykp@yahoo.com  
Phone: 9851151955

25. Dr Bibek Kumar Lal  
Senior Health Administrator  
Epidemiology and Disease Control Division  
Ministry of Health and Population  
Email: bibeklal@outlook.com  
Phone: 9851172572

26. Mr Badri Jnawali  
Director (Under Secretary - Statistics)  
Epidemiology and Disease Control Division  
Ministry of Health and Population  
Email: bngyawali@hotmail.com  
Phone: 9841465055

27. Dr Kedar Baral  
Prof. of Public Health  
Dept. of Community Health Sciences  
Patan Academy of Health Sciences  
Email: kedarbaral@pahs.edu.np  
Phone: 9851145081

29. Dr Tharanga Navodini  
Consultant Epidemiologist  
Epidemiology Unit  
Ministry of Health, Nutrition & Indigenous Medicine Suwasiripaya  
385, Rev Baddegama Wimalawansa  
Thero Mawatha,  
Colombo 10

30. Ms Suthanun Suthachana  
Public Health Technical Officer  
Bureau of Epidemiology  
Department of Disease Control  
Ministry of Public Health  
Tivanon Road  
Nonthaburi 11000, Thailand  
Tel: 669-1621 3654  
Email: sut_chana@yahoo.com

31. Dr Duangdao Raksakul  
Veterinarian  
Bureau of Disease Control and Veterinary Service  
Ministry of Agriculture and Cooperatives  
Thailand  
Tel: 669-8836 9284  
Email: duangdao12@gmail.com

32. Ms Maria Angela Varela Niha  
Head of Department for Surveillance and Epidemiology  
Ministry of Health  
Timor Leste  
Tel: 77825-8707  
Email: merry.niha@yahoo.com

33. Ms Eugenia Antonio da Costa  
Laboratory Technician  
Ministry of Health  
Timor Leste  
Tel: 7788-8588  
Email: eugeniadacosta0312@gmail.com
## WPRO Member States

### Australia

34. **Professor Dominic Dwyer**  
   Director, Institute of Clinical Pathology and Medical Research (ICPMR)  
   Level 2 Executive, Westmead Hospital  
   Hawkesbury Road, Westmead NSW 2145  
   Tel: (612) 9845 6635  
   Email: dominic.dwyer@sydney.edu.au

### Brunei

35. **Dr Osmali Osman**  
   Director  
   Department of Health Services  
   Ministry of Health  
   Commonwealth Drive, Jalan Menteri Besar Bandar Seri Begawan, Brunei  
   Tel.: (67) 328 97 1080  
   Email: Osmali.osman@moh.gov.bn

36. **Dr Justin Wong**  
   Medical Specialist (Public Health)  
   Department of Health Services  
   Ministry of Health  
   Commonwealth Drive, Jalan Menteri Besar Bandar Seri Begawan, Brunei  
   Tel.: (67) 326 83016  
   Email: justin.wong@moh.gov.bn

### Cambodia

37. **Dr Erik Karlsson**  
   Head of Virology Unit, Institut Pasteur du Cambodge  
   5 Monivong Boulevard – P.O. Box 983 Phnom Penh, Cambodia  
   Tel No.: (85523) 426 009 ext 232  
   Email: ekarlsson@pasteur-kh.org

38. **Dr Seng Heng**  
   Director, Surveillance Bureau  
   Department of CDC, Ministry of Health  
   No. 80 Samdach Penn Nouth Blvd (289) Sangkat Boeungkak 2, Toul Kork District Phnom Penh, Cambodia  
   Tel No.: (855-12) 852 782  
   E-mail: senghengmoh@gmail.com

39. **Mr Kong Heang Kry**  
   National Immunization Officer  
   National Immunization Program  
   National Maternal and Child Health Center  
   Ministry of Health  
   Phnom Penh, Cambodia  
   Tel No: (855) 12 964 889  
   Email: kongheangkry@gmail.com

### China

40. **Dr Chen Tao**  
   Assistant Professor  
   WHO Collaborating Centre for Reference and Research on Influenza  
   Chinese National Influenza Center  
   Institute for Viral Disease Control and Prevention Chinese Center for Disease Control and Prevention  
   155 Changbai Road, Changping District 102206 Beijing, China  
   Tel No: (86 10) 5890 0854  
   Email: chentao@cnic.org.cn

41. **Dr Cao Lei**  
   Program officer  
   Chinese Center for Disease Control and Prevention  
   Beijing, China  
   Email: caolei@chinacdc.cn, caoleiself@126.com

### Fiji

42. **Dr Aalisha Khan**  
   National Advisor Communicable Disease  
   Ministry of Health  
   Suva, Fiji  
   Tel. No : (679) 332 0066  
   Email: 

43. **Dr Torika Tamani**  
   National Advisor Family Health  
   Ministry of Health  
   Suva, Fiji  
   Tel No : (679) 3306 6177  
   Email: t.tamani@health.gov.fj
44. Dr Jima Kailawadoko  
Influenza Surveillance Officer  
Suva, Fiji  
Tel No : (679) 734 2172  
Email : jtkfaith@gmail.com

**Hong-Kong (China)**

45. Dr Chi Hing WONG  
Senior Medical and Health Officer (Epidemiology Section),  
Centre for Health Protection,  
Department of Health  
213 Queen's Rd East, Wanchai, Hong  
Tel No : (852) 2125 2340  
Email : smo_es4@dh.gov.hk

**Lao People’s Democratic Republic**

46. Dr Kongmany Southalack  
Deputy Director  
Director, National Center for Laboratory and Epidemiology  
Ministry of Health  
Vientiane, Lao PDR  
Tel No: (856) 20 55444457  
Email : ksouthalack@gmail.com

47. Dr Chankham Tengbriacheu  
Head, Statistic Unit,  
Maternal and Child health Center  
Ministry of Health  
Vientiane, Lao PDR  
Tel No : (856) 21 452520  
Email : chankham.tbc1979@gmail.com

48. Dr Bouaphane Khamphaphongphane  
Chief, Epidemiology Division,  
National Center for Laboratory and Epidemiology,  
Ministry of Health  
Vientiane, Lao PDR  
Tel No :  
Email :

**Malaysia**

49. Dr Ravindran Thayan  
Head  
Virology Unit  
Institute of Medical Research (IMR)  
Ministry of Health  
Jalan Pahang 50588  
Kuala Lumpur, Malaysia  
Tel No.: (603) 2616 2671  
Email : rthayan@gmail.com

50. Dr Sukhvinder Singh Sandhu  
(Disease Control Division)  
Tel. :  
Email :

**Mongolia**

51. Dr Nyamkhuu Dulmaa  
Director, National Influenza Centre  
National Centre for Communicable Diseases  
NCCD campus, Administrators Building,  
Nam Yan Ju Street  
Ulaanbaatar, Mongolia  
Tel No : (976) 9911 3030

52. Dr Oyungerel Darmaa  
Epidemiologist for Influenza  
National Center for Communicable Diseases  
NCCD Campus, 1-A Building,  
Nam Yan Ju Street  
Ulaanbaatar, Mongolia  
Tel No : (976) 9907 5707  
Email : darmaaoyungerel@gmail.com

53. Ms Otgonjargal Nyamdorj  
Officer, Division of Public Relations, Surveillance and Emergency Operations  
Department of Public Health  
Ministry of Health  
Ulaanbaatar, Mongolia  
Tel. : (976) 51 261629  
Email : m_otgonjargal88@yahoo.com
New Zealand

54. Dr Michael Addidle
Clinical Microbiologist
Institute of Environmental Science and Research Ltd
Tel.: 
Email:

Philippines

55. Ms Vina Lea Arguelles
Supervising Science Research Specialist
Research Institute for Tropical Medicine
9002 Research Dr, Alabang,
Muntinlupa, Philippines
Tel.: (632) 809 7120
Email: vinalea.arguelles@yahoo.com

56. Ms June Corpuz
Nurse III
Epidemiology Bureau
Department of Health
San Lazaro Compound, Rizal Ave, Sta Cruz
Manila, Philippines
Tel.: (63) 0915 9708849
Email: jcbcorpuz@gmail.com

Republic of Korea

57. Dr Chun KANG
Director
Viral Diseases Division
Korea CDC
Director
National Influenza Center
Osong Health Technology Administration Complex,
187, Osongsaengmyeong 2-ro, Osong-eup,
Heungdeok-gu, Cheongju-si,
Chungcheongbuk-do, Korea
Tel.: (82) 43 719 8190
Email: kangchun@korea.kr

58. Dr Hyerim Lee
Medical Officer
Korea CDC,
National Influenza Center
Osong Health Technology Administration Complex,
187, Osongsaengmyeong 2-ro,
Osong-eup, Heungdeok-gu,
Cheongju-si, Chungcheongbuk-do, Korea
Tel.: (82) 43 719 7127
Email: upsups1234@naver.com

Singapore

59. Assistant Prof Raymond Lin
NPHL
Tel.: 
Email: raymond_lin@moh.gov.sg

60. Dr Wong Jia Ying
Public Health Officer (Surveillance & Response)
Surveillance and Response Branch
Communicable Diseases Division
Ministry of Health
Singapore
Tel.: (65) 63258452
Email: wong_jia_ying@moh.gov.sg

Viet Nam, Hanoi

61. Dr Nguyen Duc Khoa
Deputy Head
Communicable Disease Control Division
General Department of Preventive Medicine
Ministry of Health
Ha Noi, Viet Nam
Tel.: (84) 24 3 8456 255
Email: khoa8668@gmail.com

62. Dr Le Thi Quynh Mai
Director of National Influenza Centre
National Institute of Hygiene and Epidemiology
No. 1 Yersin Street,
Ha Noi, Viet Nam
Tel.: (84 4) 821 1783
Email: lom9@hotmail.com

Viet Nam, Ho Chi Minh City

63. Dr Nguyen Thanh Long
Director
National Influenza Centre
Ministry of Health
No. 167 Pasteur Street, District 3
Ho Chi Minh City
Tel.: (84) 88 202 878
Email: longpasteurhcm@yahoo.com

64. Dr Nguyen Vu Thuong
Deputy Director
Pasteur Institute
No. 167 Pasteur Street, District 3
Ho Chi Minh City
Tel.: (09) 0312 1112
Email: nguyenthuong@yahoo.com
Observers - SEARO

65. Dr Tomas Vega  
Dirección General de Salud Publica  
Valladolid, Spain

Temporary Advisers - Wpro

66. Dr Ian Barr  
Deputy Director  
WHO CC for Reference and Research on Influenza  
Victorian Infectious Diseases Reference Laboratory  
Melbourne, Australia  
Email: Ian.Barr@influenzacentre.org

67. Dr Janice Lo  
Head, Public Health Laboratory Services  
Centre for Health Protection  
Kowloon, Hong Kong  
Email: janicelo@dh.gov.hk

68. Dr Wang Dayan  
Director, WHO Collaborating Centre for Reference and Research on Influenza  
Deputy Director, Chinese National Influenza Center Professor, Institute for Viral Disease Control and Prevention  
Chinese Center for Disease Control and Prevention  
155 Changbai Road, Changping District  
102206 Beijing, China  
Tel: (86 10) 5890 0858  
Email: dayanwang@cnic.org.cn

69. Dr Takato Odagiri  
Director  
WHO CC for Reference and Research on Influenza  
National Institute of Infectious Diseases  
Tokyo, Japan  
Email: todagiri@nih.go.jp

Observers

71. Dr Michael S. Friedman  
Director, US CDC  
Bangladesh  
Email: mff7@cdc.gov

72. Ms Ester  
Medical Research Technologist  
Centers for Disease Control and Prevention  
Jalan Medan Merdeka Selatan No.3-5  
Gambir, Central Jakarta 10110, Indonesia  
Email: xel8@cdc.gov  
Mobile No.: +628121168357

73. Dr Shilu Adhikari  
Senior MNCH Advisor  
U.S. Agency for International Development; U.S. Embassy, Maharajgunj  
Kathmandu, Nepal  
Tel: +977 9801074279  
Email: sadhikari@usaid.gov

Other agencies / NGOs (SEARO)

74. Dr Daniel Jernigan  
Director, Influenza Division  
National Center for Immunization and Respiratory Diseases  
Centers for Disease Control and Prevention (CDC)  
1600 Clifton Road MS A-20  
Atlanta, GA 30329-4027  
Tel: +1-404-375-7508 Cell  
Email: djernigan@cdc.gov

75. Dr Karen Siener,  
Program Manager  
Influenza Division  
CDC Atlanta  
khs3@cdc.gov

76. Dr Stephen Lindstrom  
CDC Atlanta  
Email: sql5@cdc.gov

77. Dr Michael S. Friedman  
Director, US CDC Bangladesh  
Email: mff7@cdc.gov
78. Dr Alex Millman  
Influenza Program Director,  
US CDC China  
Email: irm6@cdc.gov

79. Ms Ester  
Medical Research Technologist  
Centers for Disease Control and Prevention  
Jalan Medan Merdeka Selatan No.3-5  
Gambir, Central Jakarta 10110, Indonesia  
Email: xel8@cdc.gov  
Mobile No. +628121168357

80. Viengphone Khanthamaly, MD  
Influenza Program Leader  
USCDC/US Embassy Vientiane, Lao PDR  
Tel: +856 21 487000; ext7224  
Fax: +856 21 480546  
Email: xiw5@CDC.gov ; viengphonek@state.gov ; vkhanthamaly@gmail.com

81. Joshua A. Mott, PhD  
Director, Influenza Program  
US CDC SE Asia Regional Office  
CAPT United States Public Health Service  
DDC 7 Building, 4th Floor  
Ministry of Public Health, Soi 4  
Tivanon Rd, Nonthaburi 11000, Thailand  
Mobile: +66 (0) 84 874-2167  
Fax: (+66-2) 580-0712  
Tel: (+66-2)580-0669,  
US Direct Office Line: +1 (404) 553-8618  
Skype: +1 (614) 388-9194; Joshua.mott  
Email: zud9@cdc.gov ; jmott@cdc.gov

82. Dr Prabda Praphasiri  
Epidemiologist, Influenza Program  
Thailand MOPH - U.S. CDC Collaboration  
Department of Disease Control,  
Building 7, 4th Floor  
Ministry of Public Health, Soi 4, Tivanon Rd  
Nonthaburi 11000, Thailand  
Mobile: +66 (0) 81 875-1480  
Fax: (+66-2) 580-0712  
Tel: (+66-2) 580-0669  
Email: hpu3@cdc.gov

83. Dr Aslesh O. Prabhakaran  
Public Health Specialist  
Influenza Division (India)  
U.S. Department of Health and Human Services  
Centers for Disease Control and Prevention  
US Embassy, New Delhi, India  
Email: nyi8@cdc.gov

84. Dr Sudarat Damrongwatanapokin  
Regional Animal Health Advisor  
USAID Regional Development Mission Asia  
Bangkok, 10330  
Tel: +662-257-3243  
Email: sdamrongwatanapokin@usaid.gov

85. Dr Pasang Tshering  
Consultant, OIE Regional Representation for Asia and the Pacific  
World Organisation for Animal Health (OIE)  
Email: p.tshering@oie.int ; pasatsheri02@yahoo.co.uk

86. Dr Manav Bhattrarai  
Senior Health Specialist  
World Bank  
Email: mbhattrarai@worldbank.org

87. Dr Patrick Reading  
Victorian Infectious Diseases Reference Laboratory  
792 Elizabeth Street,  
Melbourne, 3000  
Victoria, Australia  
Email: Patrick.Reading@influenzacentre.org

88. Ms Naomi Komadina  
Victorian Infectious Diseases Reference Laboratory  
792 Elizabeth Street,  
Melbourne, 3000  
Victoria, Australia  
Email: Naomi.Komadina@influenzacentre.org

89. Dr Yi Mo Deng  
Victorian Infectious Diseases Reference Laboratory  
792 Elizabeth Street,  
Melbourne, 3000  
Victoria, Australia  
Email: Yi-Mo.Deng@influenzacentre.org

90. Dr Sheena Sullivan  
Victorian Infectious Diseases Reference Laboratory  
792 Elizabeth Street,  
Melbourne, 3000  
Victoria, Australia  
Email: Sheena.Sullivan@influenzacentre.org

91. Dr Alex Millman  
Chinese Center for Disease Control and Prevention  
Email: irm6@cdc.gov
92. Dr Peng Zhibin  
Associate Professor  
Chinese Center for Disease Control and Prevention  
Beijing, China  
Email: pengzb@chinacdc.cn

93. Dr Shinji Watanabe  
National Institute of Infectious Diseases  
Toyama 1-23-1, Shinjuku-ku  
Tokyo 162-8640, Japan  
Email: sw@nih.go.jp

94. Dr Seiichiro Fujisaki  
National Institute of Infectious Diseases  
Toyama 1-23-1, Shinjuku-ku  
Tokyo 162-8640, Japan  
Email: seifuji@nih.go.jp

95. Dr Wenqing Zhang  
Email: zhangw@who.int

96. Dr Weigong Zhou  
Email: zhouw@who.int

97. Dr Katelijn Vandemaele  
Email: vandemaelek@who.int

98. Isabel Bergeri

99. Ms Poonam Huria  
Technical Officer (Finance)  
Pandemic Influenza Preparedness (PIP) Framework Secretariat  
World Health Organization  
Geneva, Switzerland  
Office: +41 (0) 22 791 2187  
Mobile: +41 (0) 79 547 3065

100. Dr Gina Samaan  
Team Leader (Partnership Contributions)  
Pandemic Influenza Preparedness (PIP) Framework Secretariat  
World Health Organization  
Geneva, Switzerland  
Office: +41 (0) 22 791 2217  
Mobile: +41 (0) 79 596 5691  
Email: samaang@who.int

101. Dr Bikram Maharjan  
Data Manager (Consultant)  
HQ/WHE/IHM/IPR/GIP  
Email: maharjanb@who.int

Other agencies / NGOs (SEAR)

102. Dr Mohamed Hammam El Sakka  
Team Leader (Health Security and Emergency Response)  
Bangladesh  
Mob: +01787675781  
Email: elsakkam@who.int

DPR Korea

103. Dr Sin Un Suk  
National Programme Officer  
DPR Korea  
Email: sinu@who.int

India

104. Dr Pavana Murthy,  
Mob: +91 8800797655  
Email: murthyp@who.int

Indonesia

105. Dr Endang Widuri Wulandari  
NPO WCO INO  
Email: endang@who.int

Nepal

106. Dr Rajan Bikram Rayamajhi  
National Professional Officer  
WHO Health Emergencies Programme  
WHO Country Office for Nepal  
Mob: +977 980 101 0039  
GPN: 24405  
Email: rayamajhir@who.int
Thailand
107. Dr Richard Brown
Programme Manager
Health Emergencies and AMR
WHO Thailand
Email: brownr@who.int

Timor-Leste
108. Dr Dongbao
Medical Officer Epidemiologist
Email: yud@who.int

Mongolia
112. Dr Ariuntuya Ochirpurev
Technical Officer, Office of the
WHO Representative in Mongolia
Post Box - 663
Ulaanbaatar-13, Mongolia
Tel: (976) 11-327870
E-mail: ochirpureva@who.int

Viet Nam
113. Dr Nguyen Thi Phuc
Technical Officer
(Avian and Pandemic Influenza)
Office of the WHO Representative in the
Socialist Republic of Viet Nam
World Health Organization
P.O. Box 52
304 Kim Ma Street
Ba Dinh District, Hanoi
Socialist Republic of Viet Nam
Tel: (844) 3850 0304
E-mail: phucn@who.int

WHO WPRO
114. Dr Masaya Kato
Programme Area Manager,
Country Preparedness and
International Health Regulations
WHO Health Emergencies Programme
World Health Organization
Regional Office for the Western Pacific
P.O. Box 2932, 1000 Manila
Philippines
Tel No.: (632) 582 8001
E-mail: katom@who.int

115. Dr Erica Dueger
Medical Officer (Influenza)
WHO Health Emergencies Programme
World Health Organization
Regional Office for the Western Pacific
P.O. Box 2932, 1000 Manila
Philippines
Tel No.: (632) 582 8001
E-mail: duegere@who.int

Cambodia
109. Dr Kab Vannda
Technical Officer
Office of the WHO Representative
in Cambodia
World Health Organization
P.O. Box 1217
Phnom Penh, Cambodia
Tel: (855) 23-216610
E-mail: kabv@who.int

Lao People’s Democratic Republic
110. Dr Manilay Phengxay
Technical Officer
(Communicable Diseases)
Office of the WHO Representative
in the Lao People’s Democratic Republic
P.O. Box 343
Vientiane, Lao P.D.R.
Tel: (856) 21 353-902
E-mail: phengxaym@who.int

China
111. Dr Chin-Kei Lee
Medical Office
Office of the WHO Representative in China
401, Dongwai Diplomatic Office Building
23, Dongzhimenwai Dajie
Chaoyang District
100600 Beijing
China
Tel: (8610) 6532-7189
E-mail: LeeC@who.int

IHM Focal Point from WCOs
WPR
116. Dr Karen Nahapetyan
   Technical Officer (Laboratory)
   WHO Health Emergencies Programme
   World Health Organization
   Regional Office for the Western Pacific
   P.O. Box 2932, 1000 Manila
   Philippines
   Tel No. : (632) 582 8001
   E-mail : nahapetyank@who.int

117. Dr Jinho Shin
   Medical Officer
   Division of Health Systems
   Essential Medicines and Health Technologies
   World Health Organization
   Regional Office for the Western Pacific
   P.O. Box 2932, 1000 Manila
   Philippines
   Tel No. : (632) 582 8001
   E-mail : nahapetyank@who.int

118. Mr Hitesh Chugh
   Consultant
   Infectious Hazard Management
   World Health Organization
   Regional Office for the Western Pacific
   P.O. Box 2932, 1000 Manila
   Philippines
   Tel No. : (632) 582 8001
   E-mail : chughh@who.int

119. Dr Alba Vilajeliu
   Consultant, Infectious Hazard Management
   World Health Organization
   Regional Office for the Western Pacific
   P.O. Box 2932, 1000 Manila
   Philippines
   Tel No. : (632) 582 8001
   E-mail : albavilajeliu@gmail.com

120. Dr Serge Nzietchueng
   Consultant, Country Preparedness and International Health Regulations
   World Health Organization
   Regional Office for the Western Pacific
   P.O. Box 2932, 1000 Manila
   Philippines
   Tel No. : (632) 582 8001
   E-mail : nzietchueng@who.int

WHO SEARO

121. Dr Roderico H. Ofrin
   Regional Emergency Director
   SE/RGO/WHE
   Email: ofrinr@who.int

122. Dr Philip Gould
   Programme Area Manager
   SE/RGO/WHE/IHM
   Email: gouldp@who.int

123. Dr Supriya Bezbaruah,
   Consultant
   WHE SEARO

124. Mr Sunil Kumar Bhambri
   National Professional officer
   WHO Health Emergency Department
   Email: bhambris@who.int