28th MEETING OF THE TECHNICAL ADVISORY GROUP ON IMMUNIZATION AND VACCINE-PREVENTABLE DISEASES IN THE WESTERN PACIFIC REGION

18-21 June 2019
Manila, Philippines
CONTENTS

SUMMARY ............................................................................................................................................... 6

ABBREVIATIONS ...................................................................................................................................... 7

1 INTRODUCTION ............................................................................................................................... 9

1.1 Meeting Organization ............................................................................................................. 9

1.2 Meeting Objectives ................................................................................................................. 9

2 PROCEEDINGS ................................................................................................................................. 9

2.1 Opening Session ...................................................................................................................... 9

2.2 Context and Perspectives ...................................................................................................... 10

2.2.1 Global Overview - Implementation of GVAP and SAGE developing post-2020 global immunization vision .............................................................................................................. 10

2.2.2 Regional overview (1) - TAG reports to SAGE on implementation of GVAP in the Western Pacific Region ................................................................................................................. 11

2.2.3 Regional overview (2) - Background and objectives of the 28th TAG ....................... 12

2.3 Measles and Rubella Elimination .......................................................................................... 12

2.3.1 Global update on measles resurgence in multiple regions and progress towards establishment of global commitment to measles eradication ..................................................... 12

2.3.2 Progress, achievements and challenges in (i) implementing the 2017 Regional Committee resolutions and (ii) operational targets by 2020 (including the 2017-2019 resurgence in the PHL) ..................................................................................................................................... 13

2.3.3 Cambodia: Measles outbreaks and responses in 2018-2019 ....................................... 14

2.3.4 Hong Kong SAR, China: Measles outbreaks and responses in 2018-2019 .................... 14

2.3.5 New Zealand: Measles outbreaks and responses in 2018-2019 ................................... 15

2.3.6 Rubella outbreak and immunization strategy in Japan ................................................ 15

2.3.7 Risk analysis of outbreaks/ resurgence of measles and rubella in the Western Pacific Region: How to achieve operational targets by 2020 ................................................................. 16

2.3.8 Measles and rubella elimination: regional goal 2030 and strategic direction .............. 16

2.4 Polio Eradication ................................................................................................................... 17

2.4.1 Global overview from the perspective of current and anticipated developments and challenges ..................................................................................................................................... 17

2.4.2 Regional overview from the perspective of current and anticipated developments and challenges ..................................................................................................................................... 17

2.4.3 Regional overview of the implementation of poliovirus laboratory containment (GAPIII) in the Western Pacific .......................................................................................................................... 18
2.4.4 Update on outbreak of circulating vaccine-derived poliovirus (cVDPV) in Papua New Guinea ........................................................................................................................................................................ 18
2.4.5 cVDPV in the Western Pacific Region: Lessons learned in the last 20 years .......... 19
2.4.6 Implication of long-term use of oral polio vaccine in polio-free countries .......... 19
2.4.7 Polio eradication: Regional goal 2030 and strategic direction .......................... 20

2.5 Vaccine-preventable Disease Surveillance, Laboratory Support and Data Management .... 20
2.5.1 WHO Immunization Information System (WIISE) for better access and use of data ... 20
2.5.2 VPD seroprevalence surveillance system for developing and evaluating immunization strategies ........................................................................................................................................ 21
2.5.3 Moving towards comprehensive VPD surveillance: documenting VPD surveillance status and best practices in the Western Pacific Region ........................................................................................................ 21
2.5.4 VPD surveillance systems: regional goal 2030 and strategic direction .......... 21
2.5.5 VPD laboratories and networks: regional goal 2030 and strategic direction .......... 22

2.6 Regional Technical Guidelines .............................................................................................. 23
2.6.1 Regional guide for accelerated control on Japanese encephalitis in the Western Pacific Region ....................................................................................................................................... 23
2.6.2 Field guide for preparedness and response to diphtheria outbreaks in the Western Pacific ...................................................................................................................................... 23

2.7 Vaccine Immunization Safety ................................................................................................ 24
2.7.1 Regional overview on routine immunization programme - progress, achievements and challenges ..................................................................................................................................... 24
2.7.2 Regional progress on vaccine regulatory and safety in the Western Pacific .......... 24

2.8 Vaccine Acceptance and Demand ......................................................................................... 25
2.8.1 Vaccine acceptance and demand: global overview ...................................................... 25
2.8.2 Country experience: promotion of vaccine acceptance and demand ...................... 25
2.8.3 Western Pacific Region guidance on generating acceptance and demand for vaccination ........................................................................................................................................ 26

2.9 New Vaccines ........................................................................................................................ 26
2.9.1 Underutilized vaccines and new vaccines in 2021-2030: Global perspective .......... 26
2.9.2 Underutilized vaccines and new vaccines 2021-2030 in the Western Pacific Region ... 27

2.10 Immunization Service Delivery ............................................................................................. 27
2.10.1 Overview and future of immunization services throughout the life-course .......... 27
2.10.2 Regional overview on routine immunization programme: progress, achievements and challenges ..................................................................................................................................... 29
2.10.3 Country experience: Improve delivery of immunization through a combination of different strategies (e.g., routine immunization, SIA, school-based immunization, etc.) - China 29
2.11 Draft Regional Strategic Framework for Vaccine-preventable Diseases and Immunization in the Western Pacific, 2021-2030

2.12 Working with Immunization Partners

3 Conclusions and Recommendations

3.1 Conclusions

Measles and rubella elimination

Sustaining polio-free status and implementation of polio endgame strategies

Surveillance and data management for vaccine-preventable disease control and elimination

Laboratories and laboratory networks for vaccine-preventable disease control and elimination

Accelerated Japanese encephalitis control

Preparedness for and response to diphtheria outbreaks

Vaccine and immunization safety

Vaccine acceptance and demand

New vaccines introduction

Immunization service delivery

Regional strategic framework for vaccine-preventable diseases and immunization in the Western Pacific, 2021-2030

3.2 Recommendations

3.2.1 Recommendations for Member States

Measles and Rubella Elimination

Sustaining Polio-free Status & Implementation of Polio Endgame Strategies

Surveillance and data management for vaccine-preventable disease control and elimination

Laboratories and laboratory networks for vaccine-preventable disease control and elimination

Accelerated Japanese encephalitis control

Preparedness for and response to diphtheria outbreaks

Vaccine Acceptance & Demand

New Vaccines

Immunization Service Delivery

Regional Strategic Framework for Vaccine-Preventable Diseases and Immunization in the Western Pacific, 2021-2030

3.2.2 Recommendations for WHO Secretariat

Measles and Rubella Elimination

Sustaining Polio-free Status & Implementation of Polio Endgame Strategies
Surveillance and data management for vaccine-preventable disease control and elimination... 56
Laboratories and laboratory networks for vaccine-preventable disease control and elimination ...................................................................................................................................................... 58
Accelerated Japanese encephalitis control ................................................................................................................... 58
Preparedness for and response to diphtheria outbreaks .................................................................................................. 59
Vaccine and Immunization Safety .............................................................................................................................. 59
Vaccine acceptance and demand ................................................................................................................................ 60
New Vaccines .............................................................................................................................................................. 60
Immunization Service Delivery .................................................................................................................................. 61
Regional Strategic Framework for Vaccine-Preventable Diseases and Immunization in the
Western Pacific, 2021-2030 ........................................................................................................................................ 63
Annex 1 ........................................................................................................................................................................ 64
1. TECHNICAL ADVISORY GROUP MEMBERS .................................................................................................. 64
2. TEMPORARY ADVISERS ................................................................................................................................... 65
3. PARTICIPANTS .................................................................................................................................................. 65
4. OBSERVERS/ REPRESENTATIVES ................................................................................................................ 69
5. SECRETARIAT ................................................................................................................................................ 76
Annex 2 ........................................................................................................................................................................ 80
Time ........................................................................................................................................................................... 80
Time ........................................................................................................................................................................... 80
Time ........................................................................................................................................................................... 80
SUMMARY

The 28th Meeting of the Technical Advisory Group (TAG) on Immunization and Vaccine-Preventable Diseases in the Western Pacific Region was held on 18-21 June 2019 in Manila, Philippines. The meeting was attended by six TAG members, four temporary advisors, 30 participants from 14 countries and areas, 53 representatives from partner organizations, and WHO staff from headquarters, the Regional Office for the Western Pacific and representative country offices.

The meeting participants discussed lessons learnt and the status of the measles and rubella elimination strategies and poliovirus (polio) eradication, the Regional Guide for accelerated Control of Japanese Encephalitis in the Western Pacific and the Field Guide for Preparedness and Response to Diphtheria Outbreaks in the Western Pacific. Discussions covered regional plans for surveillance, data management and laboratories and laboratory networks for vaccine-preventable disease control and elimination. Discussions also covered the goals for immunization and vaccine-preventable diseases during 2021-2030 for the 37 countries and areas that make up the Western Pacific Region. The TAG acknowledged that initiatives for vaccine-preventable disease control and elimination, and the introduction of new vaccines have led to strengthened immunization systems and programmes in the Region over the last four decades. The TAG offered full support to the WHO Secretariat to continue developing a post-2020 regional framework of action for immunization and vaccine-preventable diseases in the Western Pacific, working in collaboration with Member States and partners.

The TAG urged all Member States to continue to implement the Regional Committee resolution (WPR/RC68.R1) including, developing national strategies and plans, establishing a target year for rubella elimination, and ensuring adequate technical and financial resources for implementation. The TAG also urged all Member States to continue to introduce new vaccines that are recommended by WHO for inclusion in national immunization programmes. The TAG recommended all Member States to strengthen surveillance for diseases targeted by new vaccines and build capacity for laboratory diagnosis.

The TAG recommended the WHO Secretariat to continue providing technical support to Member States for investigation, causality assessment and response to vaccine and immunization safety events. The TAG also recommended the WHO Secretariat to continue technical support and capacity building to strengthen immunization services to reach underserved persons and achieve high immunization coverage across all population groups. The TAG requested the WHO Secretariat to advocate for an increased global commitment to achieving and sustaining measles and rubella elimination, continuous reduction and sustained prevention of measles deaths and congenital rubella syndrome in all WHO Regions. The TAG also requested the WHO Secretariat to support Member States to gather country-specific information on vaccine hesitancy and diagnosis of root causes and to develop strategies to overcome hesitancy and to build demand for vaccination. The TAG encouraged the WHO Secretariat to continue to work with all Member States to maintain polio-free status in the Region by addressing gaps in population immunity and AFP surveillance, and to expand environmental surveillance using WHO guidance. The TAG also encouraged WHO Secretariat to continue to support priority Member States in strengthening vaccine-preventable disease surveillance and improving data quality.

The TAG endorsed the Regional Guide for Accelerated Control of Japanese Encephalitis in the Western Pacific and the Field Guide for Preparedness and Response to Diphtheria Outbreaks in the Western Pacific. Finally, the TAG requested the WHO Secretariat to further develop the Regional Strategic Framework for Vaccine-Preventable Diseases and Immunization in the Western Pacific, 2021-2030, obtaining input from ministries of health, WHO country offices and headquarters, and other partners and stakeholders.
ABBREVIATIONS

ADB    Asian Development Bank
AEFI   adverse event following immunization
AFP    acute flaccid paralysis
APSED III Asia Pacific Strategy for Emerging Diseases and Public Health Emergencies
bOPV   bivalent oral poliovirus vaccine
CCS    containment certification scheme
CDC    Centers for Disease Control and Prevention
cVPV2  circulating vaccine-derived poliovirus type 2
DAT    diphtheria antitoxin
DoV    Decade of Vaccines
DTap or Tdap diphtheria, tetanus, pertussis vaccine
DTP3   three doses of diphtheria-tetanus-pertussis vaccine
EC     Emergency Committee
eJRF   electronic Joint Reporting Form
EMT    emergency medical teams
EOC    Emergency Operations Centre
EPI    Expanded Programme on Immunization
FETP   Field Epidemiology Training Program
GAPIII Global Action Plan, third edition
GBT    Global Benchmarking Tool
GID    Global Immunization Division
GPEI   Global Polio Eradication Initiative
GPS    global positioning system
GPW13  Thirteenth General Programme of Work
GRISP  Global Routine Immunization Strategies and Practices
GVAP   Global Vaccine Action Plan
HBsAg  hepatitis B surface antigen
HBV    hepatitis B virus
Hib    *Haemophilus influenzae* type b
HKIA   Hong Kong International Airport
HPV    human papillomavirus
HQ     headquarters
HSE    Health Security and Emergency
ICT    information and communication technology
IDSC   Infectious Diseases Surveillance Center
IHR    International Health Regulations (2005)
IPV    inactivated poliovirus vaccine
IVI    International Vaccine Alliance
JE     Japanese encephalitis
MCV    measles-containing vaccine
MI4A   market information for access to vaccines
ML     maturity level
MMR    measles, mumps and rubella vaccine
MR     measles-rubella vaccine
MRCV   measles- and rubella-containing vaccine
MR-OPV measles, rubella and oral polio vaccine
NAC    National Authority for Containment
NESVPD National Epidemiological Surveillance of Vaccine-Preventable Diseases
NCD    non-communicable diseases
NGGM   National Center for Global Health and Medicine
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>NCIRS</td>
<td>National Centre for Immunisation Research and Surveillance</td>
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<td>NIID</td>
<td>National Institute of Infectious Diseases</td>
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<td>NIP</td>
<td>national immunization programme</td>
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<td>NITAG</td>
<td>national immunization technical advisory group</td>
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<td>OPV</td>
<td>oral poliovirus vaccine</td>
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<tr>
<td>PCV</td>
<td>pneumococcal conjugate vaccine</td>
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<tr>
<td>PEF</td>
<td>poliovirus-essential facility</td>
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<tr>
<td>PHEIC</td>
<td>Public Health Emergency of International Concern</td>
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<td>PHC</td>
<td>primary health care</td>
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<tr>
<td>PICs</td>
<td>Pacific Island countries</td>
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<td>PNG</td>
<td>Papua New Guinea</td>
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<tr>
<td>PV2</td>
<td>poliovirus type 2</td>
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<tr>
<td>QMS</td>
<td>quality management system</td>
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<td>R0</td>
<td>reproduction number</td>
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<td>RF</td>
<td>Regional Framework</td>
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<td>RI</td>
<td>routine immunization</td>
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<td>RVC</td>
<td>Regional Verification Commission for Measles and Rubella Elimination</td>
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<td>SAGE</td>
<td>Strategic Advisory Group of Experts</td>
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<td>SDG</td>
<td>Sustainable Development Goal</td>
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<td>SI</td>
<td>sub-indicators</td>
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<td>SIA</td>
<td>supplementary immunization activity</td>
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<td>TAG</td>
<td>Technical Advisory Group</td>
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<tr>
<td>TCV</td>
<td>typhoid conjugate vaccine</td>
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<tr>
<td>tOPV</td>
<td>trivalent oral poliovirus vaccine</td>
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<tr>
<td>UHC</td>
<td>universal health coverage</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children's Fund</td>
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<td>VDPV</td>
<td>vaccine-derived poliovirus</td>
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<tr>
<td>VPD</td>
<td>vaccine-preventable disease</td>
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<tr>
<td>WHA</td>
<td>World Health Assembly</td>
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<tr>
<td>WHO</td>
<td>World Health Organization</td>
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<td>WPR</td>
<td>Western Pacific Region</td>
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<td>WPRO</td>
<td>WHO Regional Office for the Western Pacific</td>
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<tr>
<td>WPV</td>
<td>wild poliovirus</td>
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<tr>
<td>WUENIC</td>
<td>WHO/UNICEF Estimates of National Immunization Coverage</td>
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1 INTRODUCTION

1.1 Meeting Organization
The 28th Meeting of the Technical Advisory Group (TAG) on Immunization and Vaccine-Preventable Diseases in the Western Pacific Region was held on 18-21 June 2019 in Manila, Philippines. The meeting was attended by six TAG members, four temporary advisors, 30 participants from 14 countries and areas, 53 representatives from partner organizations, and WHO staff from headquarters, the Regional Office for the Western Pacific and representative country offices. Annex 1 contains the list of participants, and Annex 2 contains the meeting programme.

1.2 Meeting Objectives
The objectives of the meeting were:

(1) to review progress, identify critical issues and determine key actions to achieve the regional immunization goals and strategic objectives specified by the GVAP;

(2) to identify opportunities to enhance coordination and collaboration among immunization-related initiatives, programmes and partners to support countries in achieving the regional immunization goals and GVAP strategic objectives; and

(3) to finalize the draft post-2020 regional framework for action on immunization and vaccine-preventable diseases in the Western Pacific to be widely shared with partners for extended consultation.

2 PROCEEDINGS

2.1 Opening Session
In his videotaped opening remarks, Dr Takeshi Kasai (Regional Director, WPRO) acknowledged that immunization programmes (IP) and the control and elimination of vaccine preventable diseases (VPD) are the most successful public health interventions in the last 50 years, particularly in the Western Pacific Region. Most notably, the Region has sustained its polio-free status since 2000 and achieved and sustained at least 95% coverage of the third dose of diphtheria-tetanus-pertussis vaccine (DTP3) since 2009. In 2018, the Expert Resource Panel verified 21 countries and areas in the Region as having achieved the goal of less than 1% hepatitis B surface antigen (HBsAg) prevalence among 5-year-old children. In the same year, the Regional Verification Commission (RVC) for Measles and Rubella Elimination confirmed nine
countries and areas as having achieved and sustained measles elimination. Presently, all countries and areas in the Region except one have achieved maternal and neonatal tetanus elimination.

Nevertheless, low vaccination coverage and sub-national pockets of unvaccinated children in some countries highlight the vulnerability of successes in public health intervention, which may reverse the progress in other countries in the future. Examples are the large-scale, nationwide resurgence of measles in the Philippines since last year and the largest outbreak of circulating vaccine-derived poliovirus (cVDPV) in Papua New Guinea in 2018. Other factors that pose a risk to IP in the Region include the continuing population growth, mass urbanization and migration, geopolitical uncertainty, natural disasters, and environmental disruptions.

Dr Kasai concluded that sustaining immunization gains will be challenging but, without constant vigilance, there is a risk for complacency, which can undermine national immunization programmes. Dr Kasai suggests establishing a long-term vision of a “desired future state” and work backwards to identify actions needed today towards achieving that state. Experiences and realities on the ground should guide actions; thereby, solutions always emerge from the “grounds up.” Finally, Dr Kasai expects this 28th TAG meeting to continue providing practical recommendations for implementing the Global Vaccine Action Plan (GVAP) towards 2020 and also preparing new visions and strategic directions for immunization and VPD control and elimination in the Western Pacific in the coming decade.

2.2 Context and Perspectives

2.2.1 Global Overview - Implementation of GVAP and SAGE developing post-2020 global immunization vision

As the GVAP is coming to an end in 2020, a new vision and strategy for vaccines and immunization is needed to set a new direction for the next decade that engages and aligns stakeholders at all levels; addresses emerging issues; harnesses solutions for impact, and reiterates the importance of vaccinations in contributing to the broader health and development agenda. Although GVAP sparked attention and commitment, not all of its five goals and six strategic objectives will be met by 2020.

Immunization Agenda 2030 provides a dynamic way forward for the decade 2021–2030. This global strategy sets the priorities and worldwide goals for the next decade, complemented by an online resource that includes implementation plans and a Monitoring and Evaluation framework, which will evolve throughout the period. Because the benefits of immunization are
currently spread unevenly between and within countries, Immunization Agenda 2030 is intended to inspire and align the plans and activities of the country, region, and global audiences and stakeholders. Therefore, achieving the Immunization Agenda 2030 vision will ensure that everyone everywhere has access to immunization.

The Draft Zero document was being co-created in a wide stakeholder consultation concurrent with the 28th WPRO TAG Meeting. Draft One will be sent out on 3 July 2019 for input by WHO Member states until 5 August 2019 after which, the Immunization Agenda 2030 will be presented to the Strategic Advisory Group of Experts (SAGE) in October 2019, the WHO Executive Board in the first quarter of 2020 and finally, for endorsement at the World Health Assembly in May 2020.

2.2.2 Regional overview (1) - TAG reports to SAGE on implementation of GVAP in the Western Pacific Region

Since 2016, all WHO regions report to SAGE their regional progress on implementation of GVAP through the regional immunization TAGs. The report outlines the progress and achievements toward global and regional immunization goals on GVAP and the Regional Framework (RF) for the period of 2014 to mid-2019, in line with the five goals of Decade of Vaccines (DoV). The report also highlights the challenges, perspectives and country highlights. Professor Helen Oh May Lin, TAG vice-chair, presented the summary of the report.

Nearing the end of the DoV, the Western Pacific Region (WPR) is steadily making considerable progress towards achieving global and regional immunization goals, including implementing many Priority Actions proposed by the RF. Achieved and on-track are six out of eight regional immunization goals, while the other two goals of measles elimination and meeting regional vaccination coverage targets are in progress.

The potential risk for the resurgence of VPDs such as measles, polio, diphtheria and pertussis due to the population immunity gaps is a huge concern in the region. The reports particularly highlighted the emergence and outbreaks of cVDPVs and ongoing measles transmission in some countries. Sustainable domestic immunization financing and maintaining demand and acceptance of vaccines and immunization are important areas that the TAG stressed attention by countries. In short, the key factors to making continued progress and sustaining gains achieved in immunization and VPD eliminations are intensifying all available strategies to closing existing population immunization gaps, continued commitment by the governments, and partners support.
2.2.3 Regional overview (2) - Background and objectives of the 28th TAG

The regional overview summarized the context, challenges, and opportunities for VPDs in the WPR, which informed the objectives of the 28th TAG meeting. An evolutionary chart illustrated the progress of VPDs in the WPR during the last 50 years and highlighted the dramatic improvement of immunization programmes (IP), including in developing countries. Specific to the WPR is its polio-free status since 1997.

Following this was an update on progress towards the *Regional Framework for Implementation of the Global Vaccine Action Plan (GVAP) in the Western Pacific 2014-2020*, which had 8 immunization goals, 20 strategies, and 36 priority actions. Progress towards the goals included 1) sustaining polio-free status; 2) measles elimination in all high-income countries in the Region and Cambodia; 3) rubella elimination in Australia, Brunei Darussalam, Macao SAR, New Zealand, and the Republic of Korea; 4) maternal and neonatal tetanus elimination in Cambodia, China, the Lao PDR, the Philippines, and Viet Nam; 5) chronic hepatitis B (HBV) case reduction, and 6) introduction of new vaccines in a percentage of 27 countries and areas in the Region, such as *Haemophilus influenzae* type b (Hib) (96%), Human papillomavirus (HPV) (48%), and pneumococcal conjugate vaccine (PCV) (63%).

Challenges to progress include the resurgence and import-related measles outbreaks, circulating vaccine-derived poliovirus (cVDPV), and diphtheria outbreaks. Preparing for the next decade of implementation, the WHO Regional Office for the Western Pacific Expanded Programme on Immunization (WPRO/EPI) drafted the *Post-2020 Regional Framework for Action on Immunization and Vaccine-Preventable Diseases in the Western Pacific*, which takes into consideration the opportunities for innovation in addressing present and future challenges posed by the more diverse IP needs of each country and area in the Region.

2.3 Measles and Rubella Elimination

2.3.1 Global update on measles resurgence in multiple regions and progress towards establishment of global commitment to measles eradication

Is the global measles resurgence a Public Health Emergency of International Concern (PHEIC)? Under the International Health Regulations (IHR) 2005, PHEICs may be declared during public health events that have the potential to cross borders and threaten people worldwide and that require the coordinated mobilization of extraordinary resources for prevention and response by the international community. The IHR Emergency Committee (EC) has, so far, declared four
PHEICs: 1) Influenza A(H1N1) pandemic in 2009; 2) polio resurgence in 2014; 3) Ebola outbreak in West Africa in 2014, and 4) Zika virus outbreak in 2016. Of these, the polio declaration is the only one that continues.

WHO requires Member States to report a potential PHEIC when a public health event meets two of the following four criteria: 1) the impact of the public health event is serious; 2) the public health event is unusual or unexpected; 3) there is a risk for international spread, and 4) there is potential for restrictions on trade and travel. The current measles resurgence meets all four criteria. It is a serious event that resulted in a 22% increase in deaths in 2017; it is unexpected in that a global expert consultation in 2010 concluded that measles eradication is technically and programmatically achievable; its basic reproduction number (R₀) is 16, which is high-risk for international spread, and it has caused travel restrictions.

Should the EC declare the measles resurgence a PHEIC it could: 1) re-energize the global community to urgently strengthen health systems to ensure that every child born receives two potent doses of measles-containing vaccine; 2) stimulate innovations in communicating with migrants and travellers on the risks of measles and the benefits and safety of immunization; 3) refocus weary donors on the return on investment in measles immunization and accelerated elimination, and 4) release emergency funding from the Pandemic Emergency Financing Facility of the World Bank Group. Nevertheless, whether measles is declared a PHEIC or not, the global community should not give up its goal towards eradication because it makes sense epidemiologically, economically, and ethically.

2.3.2 Progress, achievements and challenges in (i) implementing the 2017 Regional Committee resolutions and (ii) operational targets by 2020 (including the 2017-2019 resurgence in the PHL)

The Western Pacific Region (WPR) faces many challenges in achieving measles and rubella elimination including, a large nationwide outbreak of measles in the Philippines due to chronically poor routine immunization coverage; multiple importation-related outbreaks in eliminated or low-incidence countries; insufficient capacity for rapid and effective outbreak response and prevention of healthcare-associated spread of measles and rubella in several countries and areas; insufficient case-based surveillance at the sub-national level; and insufficient surveillance capacity to detect congenital rubella syndrome (CRS) cases following rubella outbreaks in many countries.

However, although WPR is experiencing an increase in measles transmission during 2018-2019, including increased importation of the virus from endemic countries to many WPR Member States, WPR continues to make encouraging progress towards measles and rubella
elimination. All Member States except Vanuatu has introduced a second dose of measles-containing vaccine (MCV); the overall two-dose MCV coverage is 94% region-wide, but there is still wide variation in coverage among Member States. Thirteen countries conducted nationwide supplementary immunization activities (SIAs) during 2010 - 2019, including a measles rubella-oral polio vaccine (MR-OPV) campaign in Papua New Guinea in June to July 2019. WPRO developed the new Regional Strategy and Plan of Action for Measles and Rubella Elimination (2018) to guide the Region’s response to newly identified challenges and incorporate lessons learned during the measles resurgence of 2013 - 2016; four countries have used this document to develop new final or draft national action plans for measles and rubella elimination. Finally, as of September 2018, the Regional Verification Commission (RVC) for Measles and Rubella Elimination verified nine countries and areas as having eliminated measles; and five have eliminated rubella.

2.3.3 Cambodia: Measles outbreaks and responses in 2018-2019

Since the RVC declared Cambodia free of endemic measles in 2015, the country has had multiple measles outbreak due to importation of the virus from endemic countries including, 66 cases in 2017, three cases in 2018, and 54 cases as of June 2019. Most of the cases in 2019 are from community transmission in Siem Reap Operational District (OD); however, nosocomial transmission in major hospitals in the OD also occurred. Outbreak investigation found that 75% of cases were unvaccinated and cases are occurring mostly among children aged at least five years. Also documented were multiple chains of transmission due to repeated importation.

Response to the outbreak has included 1) outbreak investigation and immunization response in affected villages; 2) measles and rubella (MR) immunization campaign in Siem Reap OD, which achieved 89% coverage; and 3) formal meetings with all major hospitals on infection prevention and control (IPC). Despite the response, challenges continue including 1) ongoing measles transmission; 2) immunization coverage remains low, with only 60% of ODs achieving ≥95% of MR1 and only 20% achieving ≥95% of MR2, and 3) global resurgence of measles and repeated importation due to endemic measles in neighbouring countries. To increase immunity against imported measles virus and sustain elimination, needed is a broader immunization response in Cambodia and, to reduce the burden of imported measles virus in Cambodia, also needed is a strengthened Regional commitment to measles elimination.

2.3.4 Hong Kong SAR, China: Measles outbreaks and responses in 2018-2019

The presentation described the upsurge of measles cases in Hong Kong in 2019, including a large outbreak at Hong Kong International Airport (HKIA). The characteristics of the outbreak include 1) multiple introductions with limited spread; 2) three generations of transmission; 3)
infection in adults aged at least 20 years, most of whom received at least two doses of the measles, mumps, and rubella (MMR) vaccine, and 4) modified measles presentation of milder symptoms without a fever. Enhanced outbreak response included serology testing to identify non-measles immune airport staff for subsequent vaccination and collaboration with the Airport Authority Hong Kong to implement environmental control measures that improve ventilation and air exchange. The outbreak epidemiology raised concerns that waning measles immunity in adults may have resulted in secondary vaccine failure with mild disease presentation.

2.3.5 New Zealand: Measles outbreaks and responses in 2018-2019

An increase in measles cases has occurred in New Zealand in 2019, including three major outbreaks in three regions. Outbreak investigations found that 1) all were imported cases; 2) most of the cases were unvaccinated individuals aged \( \leq 15 \text{ months and } \geq 10 \text{ years} \), and 3) individuals born after 1985 had lower immunity than other cases. The presentation also described the national approach to outbreak management, using the Auckland outbreak as a case study. Each of four phases has different objectives, namely: 1) maintain high immunisation coverage with local elimination and prevention of transmission (Phase 0); 2) local elimination and prevention of transmission (Phase 1); 3) local elimination and preparation for outbreak management (Phase 2), and 4) reduce measles impact by improving MMR coverage (Phase 3). The challenges currently encountered include maintaining immunization coverage while managing vaccine shortages due to high demand and supporting regions that are overwhelmed by the surge in cases. Plans to move forward are to change the immunisation schedule to increase protection in infants; improve immunity in 10-29 year-olds who made up half of the cases and had the lowest immunity, and support regions to manage outbreaks.

2.3.6 Rubella outbreak and immunization strategy in Japan

An outbreak of rubella has occurred in Japan in 2019. The presentation summarized how the previous rubella control policy in Japan influenced the 2018-2019 outbreak and motivated changes in policy. The goal of the policy for rubella control in Japan was to achieve rubella and congenital rubella syndrome elimination before 2020. The policy recommended four strategies to accomplish the goal specifically, 1) routine vaccination at ages 1 and 6 years; 2) voluntary antibody testing and vaccination; 3) technical support for municipalities, and 4) evaluation of the policy by the national council meeting for measles and rubella control. Policy implementation brought about a decline in immunity in middle-aged men, due to a gap in rubella vaccination in men aged at least 40 years. The 2018 to 2019 rubella outbreak in Japan considerably affected more men aged 40 to 50 years than anyone else. In response to the
outbreak, and ahead of the Tokyo 2020 Olympics, Japan set new goals to raise seroconversion rates in men born between 1962 and 1979 to 85% by 2020 and 90% by 2022. The strategies are free rubella antibody testing for subsequent vaccination, routine immunization in men aged 40-57 years, and accessibility to free clinics to encourage uptake in middle-aged men.

2.3.7 Risk analysis of outbreaks/ resurgence of measles and rubella in the Western Pacific Region: How to achieve operational targets by 2020

The Regional Strategy and Plan of Action for Measles and Rubella Elimination in the Western Pacific describes several operational targets for 2020 including, 1) prevent the resurgence of endemic measles virus; 2) sustain interruption of measles virus in countries that have achieved elimination, and 3) prevent large-scale outbreaks after importation. Many issues and challenges in the WPR must be addressed in order to achieve the operational targets by 2020 including, 1) residual immunity gaps among children due to chronically poor routine measles- and rubella-containing vaccine (MRCV) coverage, such as in the Philippines; 2) outbreak risk due to “hidden” immunity gaps among subpopulations not adequately reached by current national strategies, such as among specific ethnic minorities in Lao PDR; 3) growing immunity gaps among young adults and adolescents in countries and areas achieving measles elimination; 4) risk of CRS cases due to rubella outbreaks affecting adults of childbearing age, such as in Japan and China; 5) cross-border, stateless, and migrant populations not adequately targeted by immunization or surveillance strategies, such as border communities in the Greater Mekong Delta Basin sub-region and in Sabah State, Malaysia; 6) health-care associated transmission, and 7) lack of a coordinated global or regional initiative, which places sustainability pressures on countries that have achieved elimination.

2.3.8 Measles and rubella elimination: regional goal 2030 and strategic direction

WPRO developed the Regional Strategy and Plan of Action for Measles and Rubella Elimination in the Western Pacific as a result of the new challenges and issues identified and analysed during the region-wide measles resurgence in 2013 to 2016. The document serves as guidance for individual Member States to develop national action plans for measles and rubella elimination. In addition to implementing the Regional Strategy through developing national action plans, WPRO proposes a new strategic direction for achieving measles and rubella elimination by 2030 while advancing WHO’s broader agenda of health systems strengthening and equity. The new direction includes 1) strengthening and enhancing overall immunization systems through measles and rubella elimination strategies, such as school-based immunization initiatives, injection and immunization safety, and cold chain capacity building; 2) improving broader public health infrastructure and interventions through measles and rubella elimination strategies including, implementing the second year of life platform, strengthening overall
outbreak preparedness, establishing CRS surveillance, enhancing capacity to use epidemiological data for action, identifying individuals who are not reached by existing health services delivery strategies, and preventing nosocomial disease transmission, and 3) developing and implementing coordinated and synchronized cross-border initiatives to improve immunity among migrant and stateless populations and reduce cross-border importation.

### 2.4 Polio Eradication

#### 2.4.1 Global overview from the perspective of current and anticipated developments and challenges

The presentation highlighted the status of the global polio eradication initiative. From 2017 to the present, two countries reported wild type poliovirus type 1 - Afghanistan and Pakistan. The risk for transmission in these countries is high, and the incidence of wild poliovirus-associated cases is already four times that of last year. In Afghanistan, access is the principal challenge. Particularly in the Southern Region, anti-government elements have restricted house-to-house vaccinations since May 2018, with hundreds of thousands of children unreached. In Pakistan, campaign quality and "silent refusals" are the primary obstacles.

Of most concern is the emergence of circulating vaccine-derived polioviruses type 2 (cVDPV2), following the withdrawal of Sabin type 2 poliovirus in April 2016. While outbreaks outside of Africa were brought under control, incidences in Sub-Saharan countries are of grave concern. In particular are the emergence and subsequent geographic spread of cVDPV2, and the "new" emergence of VDPV2 and cVDPV2 following supplemental immunization activities (SIAs). The eradication initiative developed a new strategic plan for 2019-2023, which addresses these challenges; fosters further integration with the routine immunization program, and attempts to eradicate poliovirus during this period.

#### 2.4.2 Regional overview from the perspective of current and anticipated developments and challenges

The Western Pacific Region successfully maintains its polio-free status since 2000. Majority of Member States maintain over 90% coverage with three doses of polio vaccines. To cover immunity gaps China, Kiribati, Philippines, PNG and Viet Nam implemented multiple rounds of supplementary immunization activities (SIA) with polio vaccines. All countries and areas in the Region have successfully introduced one dose of IPV in their national schedules, following introduction in Viet Nam on September 2018 and in Mongolia on April 2019.
Majority of Member States in the Region maintain high quality, sensitive acute flaccid paralysis (AFP) surveillance. However, gaps in performance still exist in Lao PDR, Mongolia, Philippines, PICs and PNG. On March 2019, the WPRO/EPI conducted the first Regional polio outbreak simulation exercise to strengthen the outbreak preparedness and response capacity of Cambodia, China, Lao PDR and Viet Nam. Global Polio Eradication Initiative (GPEI) funding is being scaled down for non-endemic countries and regions, and support to the Member States in the Region is already affected, with a confirmed 25% decrease in 2020.

2.4.3 Regional overview of the implementation of poliovirus laboratory containment (GAPIII) in the Western Pacific

WHO developed the *Guidance to Minimize Risks for Facilities Collecting, Handling or Storing Materials Potentially Infectious for Polioviruses* to assist facilities to assess the risk of poliovirus potentially infectious materials in their possession, and to implement appropriate risk-reduction strategies consistent with GAPIII. Globally, there are 79 Poliovirus-essential Facilities (PEFs) in 27 countries. Five of these countries are in the Western Pacific Region - Australia, China, Japan, the Republic of Korea and Viet Nam - where PEFs handle and store WPV, VDPV, OPV, and Sabin PV2.

Member States endorsed the resolution on poliovirus laboratory containment at the World Health Assembly on May 2018, which urged Member States to complete inventories for type 2 polioviruses and report to WHO by 30 April 2019; destroy unneeded type 2 materials, and begin inventories and destruction of unneeded type 1 and 3 materials, in accordance with the latest available published WHO guidance. The resolution also urged all countries to request PEF to formally engage in the Containment Certification Scheme (CCS) as soon as possible and no later than 31 December 2019, by first submitting their applications for participation to their National Authority for Containment (NAC).

2.4.4 Update on outbreak of circulating vaccine-derived poliovirus (cVDPV) in Papua New Guinea

Papua New Guinea (PNG) authorities declared an outbreak of circulating vaccine-derived poliovirus type 1 (cVDPV1) on June 2018. Supported by partners and donors, the PNG government immediately initiated a comprehensive outbreak response, tasking the National Emergency Operations Center (EOC) with overall outbreak management and coordination. In addition, all 22 provinces established Provincial EOCs for more effective communication and coordination.

The outbreak response, which included implementing evidence-based and technically sound strategies, involved enormous financial and human resources but led to notable improvements.
in AFP surveillance. Since the outbreak, more than 10 million children aged 15 years and below received polio, measles or rubella, and other vaccines. An external outbreak assessment in May 2019 concluded that cVDPV1 transmission has likely been interrupted in PNG. However, to declare the outbreak closed, it is important to further strengthen the current level of surveillance and routine immunization for the next six months, due to the remaining surveillance and population immunity gaps.

2.4.5 cVDPV in the Western Pacific Region: Lessons learned in the last 20 years

As the world approaches eradication of wild poliovirus transmission circulating vaccine-derived polioviruses (cVDPVs) continue to take on added significance. In 2018, the number of paralytic cases was three times higher due to cVDPVs than wild poliovirus. Although there are efforts to tackle risk factors, the surest way to prevent cVDPVs in the future is to stop oral polio vaccine (OPV) use rapidly. And, although the Western Pacific Region reported the last indigenous wild poliovirus case in 1997 and certified polio-free in 2000, outbreaks due to cVDPVs present a continuous risk for the region since certification.

Afghanistan and Pakistan are the only two countries in the world with ongoing transmission of the wild poliovirus, and the risk of exportation of the wild poliovirus to polio-free countries is now very low. The current biggest risk related to poliovirus in polio-free countries or regions that still use OPV in their routine immunization schedules is the emergence and circulation of vaccine-derived polioviruses. The Expanded Programme on Immunization of the WHO Regional Office for the Western Pacific (WPRO/EPI) is starting preparations for OPV use cessation in the Region and switch to IPV-only schedules to advance global eradication of polio.

2.4.6 Implication of long-term use of oral polio vaccine in polio-free countries

The presentation covered the rationale for the withdrawal of Sabin oral poliovirus vaccine (OPV); the experience with the shift from trivalent (tOPV) to bivalent oral poliovirus vaccine (bOPV), and the consideration of countries in polio-free regions for the switch to an all-inactivated poliovirus vaccine (IPV) schedule. Switching reduces the risks associated with OPV use, including vaccine-associated paralytic poliomyelitis (VAPP) and the emergence of circulating vaccine-derived poliovirus type 2 (cVDPV2). However, OPV induces intestinal mucosal immune responses that would be particularly important for countries in the Region that border the wild poliovirus type 1-endemic countries of Afghanistan and Pakistan. Therefore, the benefits of IPV need to be balanced with that of OPV, especially since the IPV supply does not support the large-scale expansion of IPV use. An intermediate approach could be the addition of a second IPV dose in routine immunization schedules. WHO/HQ/POL intends to bring this issue for discussion and eventual decision-making to the WHO Strategic Advisory
Group of Experts (SAGE), the principal technical advisory committee for immunization because the issue of all-IPV schedules has global implications.

2.4.7 Polio eradication: Regional goal 2030 and strategic direction

WPRO/EPI started development of the *Regional Strategic Framework for VPDs and Immunization in the Western Pacific 2021-2030*. One of its proposed goals is "no paralysis due to any type of poliovirus in the Western Pacific Region." However, despite past achievements, maintaining polio-free status in the Region faces several challenges including, 1) gaps remain in population immunity against poliovirus and surveillance for acute flaccid paralysis (AFP) at the national and sub-national levels; 2) continued use of OPV and limited global supply of IPV; 3) insufficient national capacity for outbreak preparedness and response and complacency in polio laboratories to accurately detect poliovirus, and 4) the need to timely implement polio laboratory containment activities. To address these challenges and achieve and maintain the goal, proposed implementation strategies include 1) sustain high level population immunity against poliovirus with routine and supplemental vaccination; 2) withdraw OPV use and immunize populations with IPV against possible re-emergence of any poliovirus; 3) sustain highly sensitive polio surveillance systems and regional polio laboratory network with skilled staff for accurate and timely detection of poliovirus; and 4) control or remove potential sources of poliovirus properly, in line with the GAPIII.

2.5 Vaccine-preventable Disease Surveillance, Laboratory Support and Data Management

2.5.1 WHO Immunization Information System (WIISE) for better access and use of data

WHO has a mandate to monitor and assess health trends, including those related to vaccine-preventable diseases, and has collected data from Member States since the inception of EPI. Over time, data have increased in quantity and complexity. These have created challenges such as fragmentation, duplication and inconsistencies in data collection, as well as inadequate governance over the data and sub-optimal access to and visualization of data. Therefore WHO (HQ and all Regional Offices) is developing the WHO Immunization Information System (WIISE), which is a collection of applications to collect, manage, analyze and disseminate immunization and VPD surveillance data reported to WHO worldwide. WIISE aims to improve the WHO data submission process for Member States through an electronic Joint Reporting Form (eJRF) and a module to submit measles and rubella surveillance data (XMart). In addition, the joint WHO/
UNICEF Estimates of National Immunization Coverage (WUENIC) will enable better access and visualization of data available in WHO while ensuring much-needed data protection and adherence to data sharing policies.

2.5.2 VPD seroprevalence surveillance system for developing and evaluating immunization strategies

In 1962, Japan established the National Epidemiological Surveillance of Vaccine-Preventable Diseases (NESVPD) as part of national surveillance systems for infectious diseases, to understand the actual situation of herd immunity against VPDs; search for causative factors of disease; promote the effective management of immunization programs, and predict the trends of diseases. Every year, prefectures voluntarily send remaining clinical sera to local laboratories, with consent from the selected individuals. Laboratory testing is conducted at the local level and results are analysed at the Infectious Disease Surveillance Center (IDSC) of the National Institute of Infectious Diseases (NIID), Japan. Results are disseminated through annual reports and in the NIID website.

In 2019, the diseases included in the serosurvey were polio, influenza, Japanese encephalitis, rubella, measles, HPV, varicella and hepatitis B. NESVPD has contributed and continues to identify immunity gaps and ascertain the impact of immunization intervention. For example, NESVPD data were used for measles elimination activity to guide the introduction of MCV2, to conduct catch-up MR vaccination in target age groups showing lower immunity levels.

2.5.3 Moving towards comprehensive VPD surveillance: documenting VPD surveillance status and best practices in the Western Pacific Region

Many surveillance systems in countries are fragmented or not functionally optimal across vaccine preventable diseases (VPDs) or both. WHO is developing a Global Comprehensive VPD Surveillance Strategy, which will be finalized by the end of 2019, to support the Immunization Agenda 2021-2030. Comprehensive VPD surveillance is defined as the country, regional and global systems required to meet the minimal recommended standards for surveillance of a comprehensive set of priority VPDs, with the integration of surveillance functions across other diseases where possible.

The U.S. Centers for Disease Control and Prevention (CDC) is collaborating with WHO/WPRO and WHO/HQ on a project to review the status of VPD surveillance in the Region and to document the challenges, enabling factors and innovations for integrating common functional components (e.g. personnel, logistics, and laboratory) for VPD surveillance systems in countries in the Western Pacific Region. As part of the process, surveillance focal points in countries will
be contacted about an online survey, and several countries will be asked to help to prepare case studies on specific aspects of their surveillance program. This work will help inform the next Regional Immunization and VPD Strategy.

2.5.4 VPD surveillance systems: regional goal 2030 and strategic direction

Based on findings from VPD surveillance reviews, observations during outbreak response, analysis of data reported to WHO, and a survey conducted in 2017 survey, all countries in the WPR have a surveillance system for measles, rubella and polio, but not all have systems for other VPDs. These systems are often non-compliant with the minimum requirements for quality surveillance, as defined by WHO guidelines. Therefore, while some countries are integrating surveillance for different diseases, VPD surveillance is often fragmented and vertically organized, which leads to excessive expenses and workload, as well as data discrepancies.

Overall, across countries in the WPR, there is a large variability of VPD surveillance maturity and performance; capacity for surveillance is often limited, and resources are inadequate. The strategic directions to address these challenges in 2021-2030 include to 1) expand quality surveillance to other VPDs (polio/AFP, measles, rubella, CRS, diphtheria; neonatal tetanus and Japanese encephalitis in all countries, and VPDs based on country context); 2) achieve for one or more surveillance functions the integration or optimization of the use of resources for VPD surveillance (i.e. specimen transportation, data management, surveillance review, etc.); 3) ensure adequate legal or regulatory frameworks and resources; 4) build capacity through effective pre-service and on-the-job training, including mentoring programs, distance learning, and Field Epidemiology Training Programs (FETP); 5) strengthen laboratory support capacity, particularly for bacterial diseases; 6) support the development of information and communication technology (ICT) solutions appropriate to the country context, and 7) ensure the availability, dissemination, and use of surveillance data for action at all levels.

2.5.5 VPD laboratories and networks: regional goal 2030 an strategic direction

WPRO/EPI coordinates five regional VPD laboratory networks consisting of 500 public health laboratories for polio (43) since 1992, measles and rubella (385) since 2001, Japanese encephalitis (20) since 2009, rotavirus (32) and invasive bacterial-vaccine preventable diseases (20) since 2010. These VPD laboratory networks are facing challenges including, still depending on WHO support; reduced funding that may affect elimination and eradication programmes; funds allocated for specific surveillance programmes; lack of integrated VPD surveillance systems; high workload during outbreaks (e.g., measles), and risk of complacency in polio laboratories due to the absence of poliovirus.
A regional strategy aims to maintain functional and sustainable laboratory surveillance for VPDs through (i) providing technical and financial support to VPD laboratories of priority countries; (ii) implementing Quality Management System (QMS) continuously; iii) promoting the shift of funding from specific diseases to integrated VPD surveillance to allow testing for differential diagnosis; and (iv) improving epidemiological and laboratory surveillance collaboration for VPDs in routine and outbreak situations; applying correct case definition criteria; collecting adequate specimens, and using appropriate laboratory resources.

2.6 Regional Technical Guidelines

2.6.1 Regional guide for accelerated control on Japanese encephalitis in the Western Pacific Region

The presentation outlined the rationale for accelerated Japanese encephalitis (JE) control in the Region and described the aims and targets of accelerated JE control and the contents of the draft technical guide for achieving accelerated control of JE in the Western Pacific Region. The draft includes three sections: 1) background, which discusses JE disease, surveillance, prevention and existing global guidance on JE control; 2) JE situation in the Western Pacific Region, which discusses strategies, progress and achievements in implementing strategies, and the rationale for accelerated control of JE, and 3) proposed regional guidance for accelerated control of JE, which describes the regional target, strategic areas, and strategic area activities for achieving accelerated JE control.

2.6.2 Field guide for preparedness and response to diphtheria outbreaks in the Western Pacific

The presentation provided an overview of diphtheria cases and vaccination schedules in routine immunization programmes in countries and areas in the Region. WHO recommends a three-dose primary vaccination series administered in the first year of life and three booster doses in early childhood through adolescence, preferably at age 12–23 months, 4–7 years, and 9-15 years. Also presented were 1) epidemiology of diphtheria outbreaks in the Lao People's Democratic Republic, Malaysia, the Philippines and Viet Nam; 2) methods and key milestones in developing the contents of the "Field guide for preparedness and response to diphtheria outbreaks in the Western Pacific Region"; 3) disease management and treatment with equine diphtheria antitoxin (DAT), and 4) DAT stockpiles and potential needs in the Region.
2.7 Vaccine Immunization Safety

2.7.1 Regional overview on routine immunization programme - progress, achievements and challenges

Presented were two immunization events in 2017-2018 that received regional attention. One was adverse events following immunization (AEFI) linked with the “Dengvaxia” programme in the Philippines, which described the response activities and the consequent negative impact on overall country immunization programmes. Who facilitated the causality assessment by an independent international team of experts to support the Department of Health; implement follow-up activities to improve dengue clinical management in 2018, and seek expert consultation in 2019 on re-building public confidence and encourage uptake of immunization in the Philippines.

The other was temporarily suspended immunizations by the government of Samoa, following two deaths linked to MMR vaccination on July 2018. WHO and other partners provided support for an investigation, which cited the cause as immunization errors related reactions. All vaccinations resumed on September 2018 except for MMR, which resumed on April 2019. MMR vaccinations followed intensified training and preparedness assessments conducted by the Ministry of Health, with the support of WHO and UNICEF. Nevertheless, overall immunization coverage in Samoa remained low during the period, and social media and other anti-vaccine groups actively carried out campaigns to attract public and political attention.

Reporting adverse events following immunization (AEFI) improved in the Region, but only 12 Member States have met the WHO reporting rate of 10 AEFI cases per 100,000 surviving infants. WHO continues to provide technical support for in-country capacity building, and conducted its first regional workshop for WHO staff on vaccine and immunization safety on April 2019.

2.7.2 Regional progress on vaccine regulatory and safety in the Western Pacific

WHO has conducted an assessment of vaccine regulatory systems in one vaccine producing country since the last TAG meeting - Viet Nam. Using the Global Benchmarking Tool (GBT, Revision V), WHO assessed Viet Nam’s National Regulatory Authority on 283 sub-indicators (SI), and found that they had not met 21 out of 210 SI on maturity levels (ML) 1 to 3. Provided were 26 recommendations for corrective actions to meet ML 3. The WHO Regional Office for the Western Pacific recognizes the important contributions of Japan International Cooperation Agency (JICA), PATH, and other partners in the successful technology transfer of measles-rubella and seasonal influenza vaccines in Viet Nam, which paves the way towards expanding the global supply of quality-assured, affordable vaccines.
The WHO Regional Office for the Western Pacific (WPRO) convened the Seventh Workshop for National Regulatory Authorities for Vaccines and Medicines in the Western Pacific in Manila on August 2018, to update the strategic objectives and renew the composition of the steering committee. WPRO also convened a meeting of the Regional Alliance Steering Committee to discuss strategic plans for the next four years and agree on priority areas for technical working group activities.

As a way forward, WHO EPI teams, in collaboration with WHO emergency medical teams (EMT), will continue to support Member States in effectively responding to issues of public health concern including, immunization serious adverse events, and substandard and falsified vaccines.

2.8 Vaccine Acceptance and Demand

2.8.1 Vaccine acceptance and demand: global overview

The presentation offered an overall update on global acceptance and demand for immunization, considering the many drivers of vaccine uptake. It referenced specific examples that place a strong focus on currently available data, to illustrate the factors related to both access and acceptance that serve as enablers or barriers to vaccination, and it addressed possible misconceptions about the prevalence of vaccine hesitancy. The presentation also outlined a range of interventions that programmes could consider, to build and sustain vaccine demand and to manage the various risks associated with social media and misinformation. For example, programmes are encouraged to work at multiple levels (individual, community, and public), and to implement evidence-informed, multi-component strategies that target specific enablers and barriers to vaccination. Finally, the presentation emphasized the importance of investing in generating vaccine demand to avoid the spread of misinformation and committing to prevent vaccine-preventable diseases from re-emerging.

2.8.2 Country experience: promotion of vaccine acceptance and demand

The Republic of Korea National Immunization Programme (NIP) began in 1954. National and local (province, city) governments are responsible for its implementation, which they fund through the “health promotion fund subsidy program.” Meanwhile, the private sector leads the NIP service delivery, which covers 90% of the target population. At present, there are 20 vaccine types included in the NIP. To increase acceptance and demand for vaccines and immunization, the NIP has taken the following strategies: 1)
increase access to vaccination through free immunizations at public health centres and private clinics; 2) individualize immunization services through “Immunization Assistant,” the website and mobile application that sends reminders, issues certificates of vaccination, and checks vaccination history online and via mobile phones; 3) mandatory vaccinations for children attending elementary and middle schools. Specifically, DTap, IPV, MMR and JE for those aged 4 to 6 years, and Tdap and HPV for those aged 12 years, and 4) implement vaccine safety management programmes, including transparent information sharing and public awareness. Nevertheless, the country faces challenges in maintaining high acceptance and demand for vaccine including, vaccine hesitancy, vaccinating migrant workers and multi-cultural families, and delay in vaccine supply, 70% of which the country imports.

2.8.3 Western Pacific Region guidance on generating acceptance and demand for vaccination

The 25th Meeting of the Technical Advisory Group (TAG) on Immunization and Vaccine Preventable Diseases in the Western Pacific recommended developing a guidance document to support countries in the Region to overcome vaccine hesitancy and generate and sustain acceptance and demand. The specific objectives of the regional guideline are to support Member States to 1) develop awareness of the main concepts related to vaccine demand, acceptance, and hesitancy; 2) understand the main interventions and steps to build and sustain acceptance and demand; 3) recognize vaccination barriers and enablers among specific populations, and 4) design and evaluate targeted strategies to address hesitancy and generate demand. The draft guideline, which is for the use of EPI staff and partners, has the following structure and content: 1) general background to vaccine issues and situations in the Western Pacific Region; 2) methods and survey tools for diagnosing under-vaccination and hesitancy, and 3) strategies to generate and sustain acceptance and demand. WPRO will continue working with relevant stakeholders to finalize the draft for Member State endorsement at the 29th TAG Meeting in 2020.

2.9 New Vaccines

2.9.1 Underutilized vaccines and new vaccines in 2021-2030: Global perspective

The presentation was an overview of available new vaccines, with a focus on 1) patterns of uptake and coverage including, cases studies on Hib, HPV, pneumococcal conjugate and
rotavirus vaccines; 2) factors influencing uptake and coverage, and 3) a look into the future for new vaccines.

Included were a discussion on the large increase in vaccine innovation since 2000; numbers of vaccines introduced in national immunization schedules in 2017 compared to 2000; proportion of countries globally that have introduced Hib (98%), HPV (50%), pneumococcal conjugate (74%) and rotavirus (52%) vaccines, and global coverage estimates during 1980-2017. Factors affecting new vaccine introduction include actual and perceived disease burden and impact; cost-effectiveness versus affordability; national decision-making capacity (e.g., NITAGs) and competing priorities; combination vaccines or "switches" (e.g., Hib/Penta), and global supply constraints (e.g., IPV, HPV and rotavirus vaccines). Finally discussed were market information for access to vaccines (MI4A) studies, which provide global analyses on vaccine supply and demand dynamics, and the future of new vaccines, focusing on HIV, malaria, TB, RSV and dengue vaccines.

2.9.2 Underutilized vaccines ad new vaccines 2021-2030 in the Western Pacific Region

The presentation gave an overview of available new vaccines and introduced new vaccines globally and in the Western Pacific Region. Also discussed was the progress towards achieving the GVAP new vaccine target that all low- and middle-income Member States introduce at least one new vaccine during 2010–2020. The vaccines considered as new are *Haemophilus influenzae* type b (Hib), human papillomavirus (HPV), Japanese encephalitis (JE), pneumococcal conjugate (PCV), and rotavirus (RV). Sixteen low- and middle-income countries had not introduced any of the new vaccines before 2010, 11 (69%) of which successfully introduced at least one vaccine between January 2010 and April 2019 - all nine lower-income countries, and two out of seven (29%) upper-middle-income countries. Countries in the Western Pacific Region continue to make progress in introducing new vaccines, though new vaccine introduction by upper-middle-income countries lags substantially behind that in lower-middle-income countries. Selected new vaccines are expected to be introduced in the Region during 2021-2030, including typhoid conjugate vaccine, respiratory syncytial virus, dengue, and malaria vaccines.

2.10 Immunization Service Delivery

2.10.1 Overview and future of immunization services throughout the life-course

Global initiatives on primary health care (PHC) and universal health coverage (UHC) highlight the need for a life-course approach to achieve SDG3: “Ensure healthy lives and promote well-
being for all at all ages.” A life-course approach recognizes that the health outcomes of individuals and the community depend on the interaction of multiple protective and risk factors throughout people’s lives. This comprehensive vision of health and its determinants calls for the development of health services that are more centred on the needs of people at each stage of their lives. Driving the impetus for a life-course approach to immunization are these external shifts, the epidemiological shifts (immunity gaps and waning in older age groups, outbreaks, etc.), and the programmatic introduction of new vaccines that follow schedules outside of the “traditional EPI” infant target group.

The concept of immunization service “delivery platforms” (including pregnant women, birth, 2nd year of life, child, adolescent, adult, and older persons) is a useful way to group vaccines according to life-stage. The presentation focused on routine immunization (RI) evolution in the Western Pacific Region and the achievements, challenges, limitations, and needs for expanding RI service delivery through life-course immunization. The substantial contributions of country RI platforms to improving and strengthening overall immunization systems include 1) innovative policy and financing; 2) robust logistic and cold chain systems, and 3) skilled human resources, particularly in the areas of management, surveillance, and regulation. Closer to the end of the “Decade of Vaccines,” the Region has made considerable progress towards achieving many of the Regional Framework (RF) goals. Examples include focused government leadership in Cambodia; stable service delivery system in China; sustainable domestic financing in the Republic of Korea, and sustainable vaccine supply in Malaysia. However, Regional diphtheria-tetanus-pertussis (DTP3) coverage for three doses is 93.4%, which is the first time since 2009 that the coverage is below 95%. Finally, the changing epidemiology of some VPDs, such as rising cases of diphtheria and measles among adolescents and adults, and the increasing need to immunize migrant populations and occupational groups (e.g., staff at points of entry and healthcare, day care, elderly, and food facilities) highlight the need for expanding RI platforms beyond childhood and across the life-course.

The priority in the Region beyond 2020 is to, therefore, strengthen and expand immunization services to close immunity gaps among the underserved and beyond childhood. The Global Routine Immunization Strategies and Practices (GRISP) document contains a comprehensive framework of strategies to transform immunization services and support life-course platforms. Strategies include maximizing reach, managing programmes, mobilizing people, and monitoring progress.

For many countries, adopting life-course vaccination requires policy changes, demand generation, and greater investment in booster doses to sustain long-term immunological
protection. These offer opportunities for integration, inter-sectoral collaboration, and increased coverage (i.e., catching up missing doses).

2.10.2 Regional overview on routine immunization programme: progress, achievements and challenges

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2.10.3 Country experience: Improve delivery of immunization through a combination of different strategies (e.g., routine immunization, SIA, school-based immunization, etc.) - China

China’s vaccination program has made notable progress towards targeting goals for vaccine-preventable diseases and improving vaccine coverage including, 1) maintaining polio-free status; 2) eliminating maternal and neonatal tetanus in 2012; 3) decreasing incidences of HBV infections to 0.32% in children aged under 5 years in 2014; 4) reducing VPD incidences to a
historically low level in 2018 (e.g., 3 per million population for measles), and 5) achieving over 95% national coverage for all vaccines used for infants in 2018.

China adopted a system-strengthening approach to vaccinate each child through enhancing registration and vaccination routinely, school entry vaccination checks, and supplementary immunization. Their strategies include 1) high-level political commitment to the Immunization Programme; 2) immunization knowledge popularization through social media; 3) investment from Central Government for vaccine procurement, subsidies, surveillance, and cold chain; 4) upgrading legislations and requirements on vaccine distribution and vaccination management, communicable diseases prevention, and school entry vaccination checks, and 5) vaccination service system with 176,000 deployed sites cross-country, and with efficient vaccine delivery, cold chains, information management, and disease surveillance.

China intends to continue efforts on the introduction of new vaccines (e.g., Hib, varicella vaccine, PCV, rotavirus, EV71), maintaining polio-free status and measles and rubella elimination, and improving the children's immunization information management system and the vaccine tracking and tracing system.

2.11 Draft Regional Strategic Framework for Vaccine-preventable Diseases and Immunization in the Western Pacific, 2021-2030

This meeting session comprised of 12 presentations on the zero draft of the Regional Strategic Framework for Vaccine-preventable Diseases and Immunization in the Western Pacific, 2021-2030. The EPI at WPRO developed the draft document for the next decade of implementation of GVAP. It takes into consideration the many opportunities for innovation including, combination vaccines; new vaccine delivery mechanisms, such as controlled temperature chain and micro-needle patches, and tracking using smartphones and global positioning system (GPS) mapping. It also considers the challenges that the next decade of implementation may bring, influenced globally by a growing population, rapid urbanization, expanding population movement, and increased migration and non-citizen states. Challenges anticipated include changes in financial and ideological commitment to global disease eradication initiatives; recurring outbreaks; increasing infections throughout the life course, and interruptions on vaccine services and supplies.

The vision of the framework document is a Western Pacific Region that is free from mortality, morbidity and disability due to vaccine-preventable diseases. In order to attain this vision, the
strategic goal is to achieve, accelerate, and sustain the control and elimination of more vaccine-preventable diseases. Using back-casting to work towards the vision and goal, the strategic objectives of the Regional framework are to 1) strengthen and expand immunization systems and programmes; 2) manage health intelligence on vaccine-preventable diseases and immunization, and 3) prepare for and respond to public health emergencies.

Strategic objective one (SO1) outlines how to strengthen each of the eight core components that include 1) governance and management; 2) financing; 3) health workforce; 4) vaccine regulation and safety; 5) vaccine and logistics; 6) advocacy and communication; 7) service delivery, and 8) programme review. Strategic objective two (SO2) has four core components, namely 1) VPD surveillance; 2) laboratory capacity and networks; 3) monitoring and evaluation, and 4) data for action. Finally, strategic objective three (SO3) has the following five core components 1) outbreaks and resurgence of VPDs; 2) vaccine and immunization safety events; 3) outbreaks requiring immunization responses (e.g., cholera and typhoid); 4) emergencies affecting immunization systems and programmes (e.g., smallpox virus release), and 5) other public health emergencies (e.g., pandemic influenza).

In line with the WHO White Paper, the draft framework also strongly encourages the implementation in the next decade of three areas that are synergistic with the White Paper thematic priorities including, 1) health system strengthening and universal health coverage; 2) preventing non-communicable diseases (NCD) and promoting the life-course approach, and 3) health security and emergency and environment and climate change.

**2.12 Working with Immunization Partners**

The Asian Development Bank (ADB) representative presented their goal to increase health investments in the Region from 2% to between 4% and 5% by 2030. The ADB committed USD 515 million to health investments in 2018, of which USD 29.6 million targets PCV, HPV and rotavirus vaccines in the Pacific Island countries (PICs) of Samoa, Tonga, Vanuatu and Tuvalu. The ADB focuses on the four PICs because 1) they are all middle-income countries that, therefore, cannot access initiatives for introducing newer vaccines, such as Gavi, the Vaccine Alliance; 2) they are small-island economies that have weak purchasing power, and that can benefit from economy of scale through pooled procurement measures, and 3) the ADB goal aligns with the Pacifica Health Island Monitoring framework to reduce VPDs.
The International Vaccine Institute (IVI, Republic of Korea) presenter gave a brief introduction of the IVI as an international organization with 160 partners, all of which are committed to global health. Also introduced were IVI capacities, which included laboratory science, field programs, and data and policy. Summarized was a list of several candidate vaccines that are under different stages of development. Finally, outlined were ongoing projects in the WPR including, 1) clinical phase trials of typhoid conjugate vaccine in the Philippines; 2) real-time tracking of neglected bacterial diseases and antimicrobial susceptibility patterns in Asia, and 3) data capture consortium on antimicrobial susceptibility patterns and trends in Asia.

The presenter from the National Center for Global Health and Medicine (NCGM, Japan) described their activities in providing international expert services, training and research. Examples of NCGM activities in the Region in 2019 include a nationwide serological survey in the Lao PDR, and the anti-MMR IgG and HBsAg survey in Viet Nam. The objectives of the Lao PDR survey are to 1) estimate the population immunity to measles and rubella, and compare the results to data from 2014; 2) estimate hepatitis B and hepatitis C prevalence, and 3) determine the socio-demographic factors affecting immunization in the country. Similarly, the Viet Nam survey collects data on immunity to measles, mumps, rubella and hepatitis B, in people aged one to 39 years. Included in the survey are four provinces with a total of 12 districts, 24 communes, and 48 villages.

The presenter from the National Centre for Immunisation Research and surveillance (NCIRS, Australia) reminded the TAG of their 21 years as independent technical specialists on immunization and vaccines for Australia. The key role of NCIRS is to support the Australian government on all key national data sets and peak national advisory committees. However, they also provide Regional assistance on NITAG support; all aspects of AEFI; vaccine acceptance, hesitancy and demand, and program monitoring and evaluation. Their recent regional projects include 1) a workshop for vaccine experts and policy and program managers on improving vaccine confidence, demand and uptake, and 2) the establishment of the Australian Regional Immunisation Alliance (ARIA), whose goal is to work collaboratively with governments, global immunisation partners, non-government organizations and other stakeholders to strengthen and expand immunization, and reduce the impact of VPDs in the WPR.

The presenter from the National Institute of Infectious Diseases (NIID, Japan) spoke of the roles of the NIID in immunization and VPD control in the WPR. The institute has six functions, namely 1) surveillance of infectious diseases and pathogens; 2) basic and applied research on infectious diseases; 3) reference laboratory activities; 4) quality assurance programs on vaccines; 5) international cooperation activities, and 6) technical staff training. The institute has three
Virology laboratories - Virology I is the WPR JE specialized lab; Virology II is a WHO Polio laboratory, and Virology III is a laboratory specializing in measles, mumps, rubella and respiratory viruses (not including influenza). NIID Regional work includes an annual laboratory training course for the control of VPDs. In the next three years, their national and Regional goals are to 1) maintain their status in poliomyelitis eradication and measles elimination; 2) eliminate rubella by 2020, and 3) strengthen the monitoring and response to VPDs during mass gatherings including, the 2019 Rugby World Cup and the 2020 Tokyo Olympic and Paralympic Games.

The presenter from PATH outlined their Center for Vaccine Innovation and Access (CVIA); vaccine-related activities in the WPR for 2014-2019; upcoming vaccine-related activities; typhoid conjugate vaccine (TyVAC); and Japanese encephalitis vaccine activities close-out. The primary objectives of the CVIA are to 1) develop vaccines to prevent infectious diseases; 2) focus on vaccines that protect women and children; 3) technical assistance to developing country vaccine manufacturers, and 4) introduce public health vaccines to lower-income and lower-middle-income countries. Currently, the CVIA is developing two vaccines for 17 diseases, and has more than 30 projects to ensure effective vaccine uptake in Asia and Africa. PATH activities in the WPR include vaccines for Japanese encephalitis, typhoid, hepatitis B, influenza (seasonal, pandemic and avian), human papillomavirus and rotavirus. TyVac is the first licensed typhoid conjugate vaccine (TCV) that WHO included in its pre-qualified list in 2017, and one of its multi-disciplinary strategies to combat typhoid is to support countries in decision-making and preparing for sustainable typhoid conjugate vaccine introduction. Finally, after the many JE vaccine-related contributions in the Region, PATH has scheduled a close-out of its JE activities in December 2019, following the convening of global JE experts in August 2019 and the “Lessons Learnt Summit” in October 2019.

The presenter from UNICEF outlined the support they provide for children in 22 WPR countries and five South-East Asian Region countries. UNICEF support includes coverage and equity; demand generation; accelerate VPD control, and health system strengthening. For example, UNICEF supported Papua New Guinea through measles campaigns during earthquake emergencies; cVDPV outbreak response; MR-OPV campaign for measles elimination, and routine immunization and health system strengthening. Nevertheless, the continuing focus in the Region is on children disadvantaged by urbanization (e.g., children living in the slums). UNICEF support involves multi-sectoral engagement through social policy, child protection, education, and private engagement so that no child is overlooked.
The presenter from the U.S. Centers for Disease Control and Prevention (CDC) outlined their programmatic priorities and the work of the Global Immunization Division (GID) with Tier 2 countries in the Region. The CDC programmatic priorities are polio eradication; measles- and rubella-free world; ending VPDs in children aged less than five years; reducing chronic disease and cancer deaths from VPDs; improved VPD outbreak detection and response, and channeling or transitioning polio experiences and assets. Tier 2 countries are those with low immunization capacity and high numbers of unvaccinated children. For the WPR, these countries include Cambodia, China, Laos, Philippines and Viet Nam. GID work in some of these countries include 1) CRS surveillance development; 2) support for hepatitis B control; 3) support for the introduction of new vaccines for typhoid, HPV and influenza, and 4) support for VPD surveillance and data management. In addition, GID provided support to Papua New Guinea through polio outbreak response and polio SIAs.

3 Conclusions and Recommendations

3.1 Conclusions

Measles and rubella elimination

1. The TAG commends Member States of the Western Pacific Region for steady and encouraging progress toward the strategic objectives and operational targets established by the WHO Regional Committee for the Western Pacific in October 2017 through endorsement of the Regional Strategy and Plan of Action for Measles and Rubella Elimination in the Western Pacific (WPR/RC68.R1).

2. The TAG notes the encouraging overall epidemiological trend of measles in the Region and the sustained progress of the majority of countries in the Region towards measles and rubella elimination. The largest country, China, has made substantial progress and provides a noteworthy example of how to strengthen routine immunization delivery and target high-risk groups, including migrants, to minimize the risk of measles in the country.

3. The TAG congratulates the Western Pacific Region in preventing a broad resurgence of measles in the Region despite the global measles resurgence during 2018—2019. Endemic countries with large populations such as China and Malaysia have prevented large-scale measles transmission, and low-incidence countries and those that have eliminated measles have controlled spread of measles despite
experiencing multiple importation-related outbreaks.

4. The TAG notes that the epidemiology of both measles and rubella is changing, including increased transmission among adults and epidemiologically significant immunity gaps among specific groups who are not well targeted by existing strategies (e.g., specific ethnic groups, adults, and cross-border populations), which indicates that immunization strategies may need to be adjusted in response to signals in the epidemiology.

5. The TAG congratulates Singapore for achieving measles elimination; and congratulates Australia, Brunei Darussalam, and Macau SAR (China) for achieving rubella elimination during 2018.

6. The TAG congratulates Cambodia and Lao PDR for having finalized national plans of action for achieving and sustaining elimination of measles and rubella, and notes the progress of other Member States in preparing to achieve measles and rubella elimination and seek verification by the Regional Verification Commission.

7. The TAG commends Cambodia and Lao PDR for rapid and effective outbreak response immunization to prevent large-scale spread of import-related measles outbreaks.

8. The TAG notes that although WPR has sustained positive momentum towards Regional elimination of measles and rubella, numerous challenges and issues must be overcome in order to achieve these important goals:

   a. a global measles resurgence is ongoing, characterized by large-scale outbreaks, loss of long-held measles elimination status, cross-border spread with importation-related outbreaks, and vaccine hesitancy in some areas;
   b. a large, prolonged nationwide outbreak of measles is ongoing in Philippines during 2018—2019, highlighting both the risk of massive accumulation of susceptible individuals through unaddressed chronic weakness in routine immunization, as well as the challenges of achieving effective outbreak response in the face of emerging vaccination hesitancy and refusal;
   c. import-related outbreaks of measles and rubella in some countries and areas due to residual measles and/or rubella immunity gaps among adolescents and
adults, who are not targeted by routine childhood immunization and traditional mass vaccination campaigns; and
d. lack of coordinated global and regional actions to advance measles and rubella elimination.

Sustaining polio-free status and implementation of polio endgame strategies

9. The TAG appreciates the WHO Secretariat and Member States’ successful efforts to maintain the Region polio-free for over 20 years. The TAG acknowledges that overall population immunity against poliovirus in the Region remains high, polio surveillance performance has exceeded regional targets for the main indicators, and the polio laboratory regional network has maintained high quality since its establishment.

10. The TAG congratulates Papua New Guinea on successful implementation of polio outbreak response activities that may have resulted in interruption of type 1 circulating vaccine-derived poliovirus (cVDPV1) circulation and efforts to establish environmental surveillance to monitor circulation of polioviruses. The TAG commends the Victorian Infectious Diseases Reference Laboratory (VIDRL), Australia; Research Institute for Tropical Medicine (RITM), Philippines; and National Institute of Infectious Diseases (NIID), Japan, for their support of the response to the cVDPV1 outbreak in Papua New Guinea with laboratory testing of acute flaccid paralysis (AFP) and environmental samples in 2018 and 2019.

11. The TAG notes that Mongolia and Viet Nam introduced inactivated polio vaccine (IPV) into routine immunization in April 2019 and September 2018, respectively.

12. Despite the achievements and progress made in sustaining polio-free status and implementing the polio endgame strategy in the Region, the TAG notes the following issues and challenges:

a. risk of international spread of poliovirus remains a Public Health Emergency of International Concern, and the Western Pacific Region borders a region that has endemic transmission of wild-type poliovirus;

b. vaccine-derived polioviruses (VDPV) intermittently circulate in the Region and there is a high risk of emergence and circulation of VDPV in oral polio vaccine
(OPV)-using countries with suboptimal population immunity against poliovirus and underperforming AFP surveillance;
c. need to maintain achievements from the response to polio outbreak in Papua New Guinea, and to monitor the outcomes of the response until the outbreak is declared closed;
d. immunity and/or surveillance gaps persist at subnational levels in China, Cambodia, Lao People's Democratic Republic, Malaysia, Mongolia, Pacific island countries, Papua New Guinea, Philippines and Viet Nam;
e. critical importance of continuing and expanding environmental surveillance to monitor the presence and circulation of polioviruses as the polio endgame reaches its final stages;
f. national inventories of all biomedical facilities that may contain poliovirus potentially infectious materials have not been completed in all countries in the Region;
g. final designation of polio essential facilities (PEFs) and establishment of fully functional National Authorities for Containment (NAC) in China and Viet Nam;
h. projected reduction of Global Polio Eradication Initiative (GPEI) financial support to maintain polio-essential functions in 2020 and beyond; and
i. continued tenuous global supply and high cost of IPV, challenges to use of fractional-dose IPV in the Region, very high cost of hexavalent vaccine and lack of a hexavalent combination product containing whole-cell pertussis vaccine (along with IPV, diphtheria and tetanus toxoids, hepatitis B vaccine and Haemophilus influenzae type b vaccine).

**Surveillance and data management for vaccine-preventable disease control and elimination**

13. The TAG acknowledges the Western Pacific Region for maintaining well-performing AFP, measles and rubella surveillance and establishing several sentinel sites to monitor the burden and changing epidemiology of diseases targeted by new or underutilized vaccines. The TAG also acknowledges the continued efforts made by Member States, WHO and partners to improve the quality of VPD surveillance data management by expanding the use of new tools (e.g. web-based reporting tools for AFP and acute fever and rash surveillance), conducting VPD surveillance reviews in priority countries (Cambodia, Lao People’s Democratic Republic, Papua New Guinea and Viet Nam) and implementing new approaches (e.g. Immunization and Surveillance Data Specialist project in Lao People’s Democratic Republic and Global Pediatric Diarrhea Surveillance
14. Despite the achievements sustained and progress made in improving and strengthening VPD surveillance and data management in the Region, the TAG notes the following challenges to further progress toward well-performing VPD surveillance:

a. inadequate surveillance system scope, in terms of geographical representativeness, use of recommended case definitions, reporting of cases on aggregate or case basis, as well as inclusion of all VPDs that should be under surveillance;

b. insufficient training of human resources for detection and investigation of cases, surveillance data management and analysis;

c. the need to maintain VPD surveillance key functions in integrated national surveillance systems (i.e., reporting of suspected cases and case classification following adequate investigation and laboratory testing);

d. lack of surveillance and outbreak response guidance for various diseases in some countries;

e. inadequate financial support and/or no plan for financial sustainability for VPD surveillance in some countries; and

f. insufficient laboratory capacity for confirmation of diphtheria and pertussis in some countries, and for confirmation of measles and rubella in several Pacific island countries.

15. In addition, the TAG notes the following challenges to further progress toward well-performing immunization programme monitoring:

a. inadequate quality and availability of expanded programme on immunization (EPI) data and indicators for monitoring and evaluation of the programme in some countries; and

b. suboptimal use of data to guide decision-making, development of enhanced strategies, and preparedness and response to VPD outbreaks.
16. The TAG acknowledges the substantial efforts made by the WHO Secretariat and Member States to maintain regional VPD laboratory networks with high-level performance in the Western Pacific, in order to provide accurate and timely data for elimination and eradication of VPDs and for introduction of new vaccines. The TAG notes the importance of maintaining high-quality VPD laboratories by providing technical and financial support to network laboratories of priority countries, particularly for polio laboratories facing low workload and complacency due to the long absence of poliovirus detection.

17. The TAG reaffirms the continuing challenge faced by many Member States in facilitating collaboration between epidemiological and laboratory surveillance for VPDs to ensure that case definition criteria are correctly applied, adequate specimens are collected, epidemiological and laboratory data are properly linked, and laboratory resources are adequately used, particularly during outbreaks.

18. The TAG acknowledges the ongoing work to develop a regional strategy to maintain functional and sustainable laboratory surveillance for VPDs (polio, measles, rubella, JE, invasive bacterial VPD and rotavirus) with skilled staff and high quality laboratory testing. Considering the reduction in donor financial support for laboratory surveillance, the TAG reaffirms the urgent need to promote national ownership of laboratory surveillance.

**Accelerated Japanese encephalitis control**

19. The TAG endorses the draft of *Regional Guide for Accelerated Control on Japanese Encephalitis in the Western Pacific*, taking into account the inputs provided during the TAG meeting.

**Preparedness for and response to diphtheria outbreaks**

20. The TAG endorses the draft of *Field Guide for Preparedness and Response to Diphtheria Outbreaks in the Western Pacific*, taking into account the inputs provided during the TAG meeting. The TAG further notes the challenges in ensuring availability of and access to diphtheria antitoxin (DAT) and the efforts of a WHO
headquarters ad hoc working group on DAT to ensure that any population experiencing cases of diphtheria has rapid and easy access to DAT.

Vaccine and immunization safety

21. The TAG commends Member States’ continuous efforts to strengthen vaccine and immunization safety, particularly to improve reporting, investigation and rapid response to vaccine and immunization safety events. The TAG acknowledges the efforts of WHO to support the Philippines in responding to deaths among children who received dengue vaccine and to support Samoa for responding to infant deaths following measles, mumps and rubella (MMR) vaccination.

22. The TAG acknowledges the efforts of Member States and WHO to strengthen vaccine regulatory capacity to assure the quality, safety and effectiveness of vaccines. Specifically, Viet Nam undertook a WHO re-assessment of its vaccine regulatory system to extend WHO certification of functionality. China also initiated the re-assessment process with a revised benchmarking tool following decentralization of regulatory functions to provincial FDAs in 2018; decentralized functions include licensing of pharmaceutical manufacturers, suppliers and retailers; regulatory inspections including good manufacturing practices; clinical trial approval and oversight; and vaccine lot release and laboratory testing.

23. Despite progress towards vaccine and immunization safety, the TAG notes with concern that the following issues and challenges remain:

   a. continued under-reporting of vaccine and immunization safety events in some countries;
   b. gaps in timely and effective response and causality assessment following vaccine and immunization safety events in the Philippines and Samoa, resulting in decreases in overall immunization coverage;
   c. proper monitoring of national policy and standards implementation, and assurance of adherence, following decentralization of regulatory functions in China;
   d. critical regulatory gaps identified through re-benchmarking of Viet Nam’s regulatory processes, in particular, in the pharmacovigilance and laboratory testing systems: adverse events following immunizations (AEFI) data sharing,
investigation of severe adverse events, causality assessment, and animal health monitoring in the animal laboratory; and

e. self-benchmarking workshops and reports of EVM assessment found that middle-income vaccine importing countries need to strengthen the vaccine distribution chain quality management system.

**Vaccine acceptance and demand**

24. The TAG reaffirms the importance of public acceptance and demand for vaccination as critical components for increasing and sustaining the achievements of national immunization programmes. The TAG appreciates WHO efforts to develop the regional guide, *Generating acceptance and demand for vaccination: Strategies for building and sustaining vaccination uptake and addressing hesitancy*.

25. The TAG notes the challenges of vaccine hesitancy as described in the SAGE 2018 Assessment Report of the Global Vaccine Action Plan and the negative impact of hesitancy on immunization gains in the Western Pacific Region.

**New vaccines introduction**

26. The TAG notes the progress in introduction of new and underutilized vaccines in the Western Pacific Region. Of the 27 Member States in the Region, 18 introduced at least one of four new vaccines (Hib, HPV, pneumococcal conjugate, and rotavirus vaccines) since 2010 and an additional four Member States had introduced all of these vaccines before 2010. The TAG commends the progress in the introduction of new vaccines in low- and lower middle-income countries in the Region. Of the ten lower middle-income countries (LMICs) in the Region, one had introduced all four of these new vaccines before 2010, and all of the remaining nine LMICs have introduced at least one of these vaccines since 2010.

27. The TAG commends progress in the Region for developing and using evidence for making decisions on introduction of new vaccines and the continued support that WHO gives to governments on vaccination policy. Achievement of the Decade of Vaccines goals for introduction of new and underutilized vaccines requires that countries evaluate evidence on disease burden including surveillance, cost, the role of other disease prevention and control measures, vaccine characteristics, vaccine supply, and
strength of immunization programmes and health systems.

28. The TAG acknowledges challenges with new vaccine introduction, particularly the limited progress in upper middle-income countries, and the need to promote and facilitate new vaccine introduction in these countries. The TAG also notes the importance of laboratory-based surveillance for diseases prevented by new vaccines and the critical need to maintain surveillance and laboratory capacity in an era of declining resources.

29. Despite progress, the TAG notes the following issues and challenges:

   a. increasing introduction and sustaining vaccination programmes in middle-income countries, including those that will be graduating from eligibility for Gavi, the Vaccine Alliance (Gavi) support in the coming years;
   b. maintaining surveillance for diseases prevented by new vaccines and laboratory capacity in an era of declining resources; and
   c. determining the impact of new vaccine introductions and ensuring that they strengthen immunization delivery systems.

**Immunization service delivery**

30. The TAG congratulates Member States for the sustained high immunization coverage at the regional level and commends Member States’ efforts to develop and implement strategies to improve coverage and strengthen routine immunization services to achieve regional and global immunization goals. The TAG congratulates China for impressive achievements in routine immunization coverage and historically low incidence of VPDs. The TAG appreciates WHO and partner efforts to support countries to strengthen routine immunization systems and to increase and sustain immunization coverage.

31. Despite progress in immunization coverage and routine immunization delivery, the TAG notes with concern the following challenges to further progress in coverage and to extending immunization delivery across the life course:

   a. decrease in regional diphtheria-tetanus-pertussis (DTP3) coverage to less than 95% for the first time since 2009 (in 2018 reported regional coverage for DTP3 is 93.4%);
b. uneven immunization coverage that results in pockets of susceptible person, favouring disease transmission and vaccine preventable disease (VPD) outbreaks;

c. changing epidemiology of VPDs including increases among older children, adolescents and adults, due to missed vaccination, lack of booster doses, waning immunity and other reasons;

d. limited platforms for immunization delivery beyond childhood to maximize the benefits of newer vaccines and schedules for adolescents, adults and the elderly; and to protect special at-risk groups including migrant workers, specific occupational groups and international travellers; and

e. insecure vaccine supply as the number of children receiving both traditional and newer vaccines increases.

**Regional strategic framework for vaccine-preventable diseases and immunization in the Western Pacific, 2021-2030**

32. The TAG appreciates the efforts of the WHO Secretariat in developing the draft *Regional Strategic Framework for Vaccine-Preventable Diseases and Immunization in the Western Pacific, 2021-2030* (hereafter, *Regional Strategic Framework*).

33. The TAG endorses the *Regional Strategic Framework’s* conceptual approach in which a strategic goal for the elimination and control of VPDs is achieved through three strategic objectives:

a. strengthening and expanding immunization system and programme;

b. managing health intelligence on vaccine-preventable diseases and immunization; and

c. preparing for and responding to public health emergencies related to VPDs, vaccines and immunization programmes.

34. These strategic objectives highlight the importance of data use to inform programme decisions and the linkages between immunization and health emergencies, while addressing the anticipated increased complexity of immunization programmes resulting from extending the benefits of vaccination through the life course, reaching additional population groups, and targeting newer vaccines that are indicated for specific at-risk groups or contexts.
3.2 Recommendations

3.2.1 Recommendations for Member States

Measles and rubella elimination

1. The TAG reiterates the recommendations of the 27th TAG meeting, including that Member States should implement theRegional Committee resolution, WPR/RC68.R1, which requests Member States to:

   a. develop or update national strategies and plans of action relating to measles and rubella elimination, including the establishment of a target year for rubella elimination; and
   b. ensure adequate technical and financial resources are available for the implementation of national strategies and plans of action for measles and rubella elimination.

2. The TAG urges all Member States to continue to implement the Regional Committee resolution, WPR/RC68.R1, including to:

   a. develop or update national strategies and plans of action relating to measles and rubella elimination, including the establishment of a target year for rubella elimination; and
   b. ensure adequate technical and financial resources are available for the implementation of national strategies and plans of action for measles and rubella elimination;

3. The TAG urges all Member States to use IHR mechanisms to notify outbreaks related to international travel or with risk of international spread.

4. The TAG urges all Member States to recognize the role that measles vaccination can play in improving routine immunization delivery, reducing equity gaps and strengthening primary health care, raise the need for a measles eradication goal at the World Health Assembly in 2020, to ensure maintenance of global commitment and achievement of elimination in all regions.
5. The TAG recommends each Member State to develop or update plans and procedures for preparedness and response to measles and rubella outbreaks, including establishing mechanisms to rapidly mobilize contingency resources and personnel for outbreak investigation, response, and post-outbreak root cause analysis to ensure immunization programmes are appropriately adjusted to address the underlying programme weaknesses; plans and procedures should be tailored to local context including programme and population size.

6. The TAG recommends each Member State to strengthen capacity for analysis of immunization coverage and surveillance data to identify subpopulations and geographic areas that are underserved by existing immunization strategies, and to guide programmatic changes and initiatives to prevent outbreaks.

7. The TAG recommends each Member State to address residual measles and/or rubella immunity gaps among adolescents and adults by planning and conducting targeted immunization initiatives, which may include school-based, university-based, occupationally-based, or travel-related immunization.

8. The TAG recommends each Member State to develop and implement national policies and procedures for hospital infection control for measles and rubella, to prevent healthcare-associated transmission and amplification of outbreaks, referring to WHO guidance (Infection prevention and control of epidemic- and pandemic-prone acute respiratory infections in health care, 2015).

9. The TAG recommends each Member State to continue to use investment in measles and rubella elimination activities as a means to strengthen immunization programmes and overall public health systems, including development of an immunization visit during the second year of life to achieve high coverage of the second dose of measles-containing vaccine.

10. The TAG recommends Member States that have achieved or are approaching elimination of measles or rubella to consider developing national policies to ensure that international students, workers, and others who are entering the country or area for an extended period, are appropriately vaccinated against measles and rubella.
11. The TAG recommends the Philippines to take all necessary actions to achieve measles outbreak control urgently, and to seek external assistance as needed to facilitate rapid control.

Sustaining polio-free status and implementation of polio endgame strategies

12. The TAG urges all Member States to achieve and maintain more than 90% coverage with three doses of polio vaccines at the national level and to address population immunity gaps, particularly in high-risk areas, by conducting supplementary immunization activities (SIAs) if needed.

13. The TAG urges all Member States to achieve and maintain regional targets for core AFP surveillance indicators and to conduct active surveillance in underperforming areas.

14. The TAG urges all Member States to consider initiation of poliovirus surveillance among patients with PIDs to detect immunodeficiency-related VDPV (iVDPV), following the GPEI Guidelines for Implementing Poliovirus Surveillance among Patients with Primary Immunodeficiency Disorders, and to consider establishment of a registry for patients with these disorders.

15. The TAG urges all Member States to ensure that national polio outbreak response plans are updated in accordance with the global guidance for timely and comprehensive response to any polio event or outbreak and tested by conducting polio outbreak simulation exercises.

16. The TAG urges all Member States to initiate the identification, followed by destruction, transfer or containment, of WPV1 and WPV3 infectious and potentially infectious materials and ensure completion of this task by the end of Phase II of GAPIII (at the time of global certification of poliomyelitis eradication).

17. The TAG urges all Member States to complete national inventories of all biomedical facilities that may contain poliovirus potentially infectious materials and submit reports (WHO PIM Form 2) to WHO by September 1 2019.
18. The TAG urges all Member States to intensify efforts to initiate environmental surveillance for polioviruses in line with the GPEI global expansion plan and as outlined in the WHO guidance on environmental surveillance, and to seek resources to sustain this surveillance as an integral part of routine surveillance systems; this step is indispensable for completion of global polio eradication.

19. The TAG urges Papua New Guinea to further strengthen the performance of surveillance and routine immunization for the next 6 months for the cVDPV1 outbreak to be declared closed.

20. The TAG urges the Philippines to proactively address gaps in population immunity against polio and AFP surveillance performance to reduce the likelihood of a VDPV outbreak.

21. The TAG urges Member States that are supported by international partners to maintain polio-essential functions to establish capacity and resources for sustaining polio-essential functions, as outlined in the Polio Post-Certification Strategy (e.g., polio immunization, surveillance and containment).

22. TAG urges Member States with Polio Essential Facilities (PEFs) 1 to establish and operationalize a NAC responsible for certifying PEFs (China and Viet Nam) at the earliest possible time, in line with GCC recommendations.

23. TAG urges Member States with Polio Essential Facilities (PEFs) to start the certification process as soon as possible and submit associated reports to the GCC for validation not later than December 31, 2019.

Surveillance and data management for vaccine-preventable disease control and elimination

24. The TAG reiterates the recommendations of the 26th TAG meeting, including:

a. Member States that have not yet established a congenital rubella syndrome (CRS) monitoring system should do so as soon as possible;

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1 Australia, China, Japan, Republic of Korea and Viet Nam
b. countries with VPD surveillance of suboptimal representativeness and/or sensitivity should strengthen their surveillance systems;

c. countries should prioritize strengthening the systems that support surveillance of diseases targeted by elimination goals; and

d. countries are encouraged to continue strengthening rotavirus and invasive bacterial VPD surveillance with laboratory confirmation.

25. The TAG recommends all Member States to strengthen surveillance for diseases targeted by new vaccines (rotavirus and invasive bacterial VPDs) and build capacity for laboratory diagnosis through training workshops, introduction of new technologies and implementation of quality assurance programmes.

26. The TAG recommends all Member States to review their VPD surveillance systems and ensure compliance with minimum requirements as detailed in the new WHO VPD surveillance guidelines, specifically with reference to the VPDs included in the surveillance system, case definitions, scope of the surveillance (i.e. national or sentinel-based) and aggregate or case-based data collection, and ensure that those minimum requirements are also met when VPD surveillance is integrated into broader communicable diseases surveillance.

27. The TAG recommends all Member States to sustain high performing VPD surveillance systems, in the context of possible decreasing external funding from partners and donors.

28. The TAG recommends all Member States to strengthen immunization data quality and use through:

a. improvement of data standards, recording and reporting tools, SOPs and, in countries where applicable, ensuring quality integration of EPI data and indicators in broad health information management platforms;

b. strengthening health workforce capacity for data management and use, including through coordination with broader health workforce development efforts and implementation of ISDS-like approaches[^1];

[^1]: Immunization and Surveillance Data Specialists (ISDS) is a project that envision deployment of STOP team at subnational level to provide training and mentoring of health facility and district/provincial level staff on management and use of EPI and VPD surveillance data
c. considering implementation of an electronic immunization registry upon evaluation of feasibility, sustainability and definition of suitable system requirements; and
d. conducting coverage surveys and serosurveys based on internationally recommended methodologies, as necessary to complement and validate data available through routine monitoring.

Laboratories and laboratory networks for vaccine-preventable disease control and elimination

29. The TAG reiterates the recommendations of the 27th TAG meeting for Member States to:

a. improve collaboration between epidemiological and laboratory surveillance for VPDs through:

i. promoting collaboration of epidemiologists and laboratory experts in routine surveillance as well as in outbreak situations;

ii. engaging both immunization programme and laboratory experts in national expert committees (national certification and verification committees, etc.);

iii. ensuring that interpretation and use of data for reporting and final classification are jointly assessed from clinical and laboratory perspectives; and

iv. collecting adequate specimens from every case for virologic testing in countries achieving or having achieved measles and rubella elimination to ensure all virus transmission is properly monitored.

b. develop plans to achieve sustainable laboratory surveillance for VPDs through:

i. development of long-term plans for disease surveillance with clear objectives and realistic milestones;

ii. conducting self-assessments to map existing capacities and to identify strengths, gaps and challenges; and

iii. assessing financial sustainability of existing surveillance.
30. The TAG recommends the Philippines and Malaysia to consider establishing subnational laboratories for measles and rubella to support laboratory confirmation for these diseases.

31. The TAG encourages Cambodia to establish laboratory capacity for molecular detection and genotyping of measles and rubella viruses.

**Accelerated Japanese encephalitis control**

32. The TAG reiterates the recommendations of the 27th TAG meeting that:

   a. Member States that have not achieved effective control of JE disease should develop and implement national plans for accelerated control of JE, using the *Regional Guide for Accelerated Control on Japanese Encephalitis in the Western Pacific*; and
   b. Member States that use or are planning to use live attenuated JE vaccine should forecast the number of JE vaccine doses they will need to ensure that the vaccine doses are distributed in advance of when they are needed.

33. The TAG notes that the Philippines is JE endemic in all regions and urges the Philippines to continue implementation of JE vaccination and achieve high coverage in all areas of the country.

*Preparedness for and response to diphtheria outbreaks*

34. The TAG reiterates the recommendations of the 27th TAG meeting that:

   a. all Member States should update their national immunization schedules in line with the 2017 WHO position paper on diphtheria vaccines, to include:

      i. a primary series of three doses of diphtheria toxoid-containing vaccines, completed by 6 months of age, if possible; and
      ii. three booster doses in childhood and completed by adolescence with doses specifically recommended to be given at: 12–23 months of age; 4–7 years of age; and 9–15 years of age; and
b. Member States that have been frequently affected by diphtheria outbreaks to develop national guidelines for preparedness and response to diphtheria outbreaks, using the *Field Guide for Preparedness and Response to Diphtheria Outbreaks in the Western Pacific Region*.

**Vaccine and Immunization Safety**

35. The TAG reiterates the recommendations of the 27th TAG meeting, including that:

a. Member States ensure that national regulatory authorities (NRA) function to meet WHO global benchmarks, supporting the availability of quality-assured vaccines; and

b. Member States improve AEFI reporting, investigation and timely response capacity including risk communication.

36. The TAG urges Member States to share information and best practices to learn from each other's experience with response to vaccine and immunization safety events, including experience with addressing rumours and misinformation.

37. The TAG urges Member States to make continuous efforts to:

a. strengthen reporting, investigation and causality assessment of immunization safety events; and

b. provide timely and appropriate evidence-based responses to vaccine and immunization safety events.

38. The TAG urges Member States to strengthen the vaccine distribution chain quality management system.

39. The TAG urges Member States to adopt the new WHO benchmarking policy and tool to identify and address vaccine regulatory gaps.
Vaccine Acceptance & Demand

40. The TAG reiterates the recommendations of the 25th TAG meeting for Member States to work proactively on identifying and addressing country-specific vaccine hesitancy issues.

41. The TAG recommends each Member State to identify reasons for vaccine hesitancy in the local context, establish mechanisms to monitor vaccine acceptance and demand, and implement tailored strategies and activities to address barriers to vaccination.

New Vaccines

42. The TAG reiterates the recommendations of the 27th TAG meeting that Member States should:

a. develop national plans for evidence-based introduction of new vaccines;

b. monitor and improve surveillance implementation for diseases targeted by new vaccines;

c. use recommended immunization schedules and should not add immunization visits solely for the purpose of preventing the administration of multiple injections during the same visit, as recommended by SAGE in April 2015; and

d. continue to introduce new vaccines that are recommended by WHO for inclusion in national immunization programmes and sustain and enhance the vaccination programmes that have been established.

43. The TAG urges all Member States to continue to introduce new vaccines recommended by WHO for inclusion in national immunization programmes, and sustain and enhance established vaccination programmes.

Immunization Service Delivery

44. The TAG reiterates the recommendations of the 27th TAG meeting, including that Member States:

a. secure sustainable domestic financing for immunization;
b. explore and implement immunization system strengthening strategies articulated in the Global Routine Immunization Strategies and Practices (GRISP) document; consider in particular strategies needed to reduce inequities in immunization coverage by reaching children of ethnic minorities and migrant groups and those living in dense urban areas and remote areas;

c. strengthen the functionality and effectiveness of NITAGs or equivalent immunization decision-making bodies to support formulation of evidence-based immunization policy; and

d. strengthen vaccine procurement processes for timely vaccine supply and effective vaccine management practices.

45. The TAG recommends each Member State to intensify the identification of barriers and use of tailored strategies to improve immunization coverage among underserved populations and to close immunity gaps.

46. The TAG recommends each Member State to identify and implement strategies to extend immunization across the life course and maximize the benefits of newer vaccines and schedules for adolescents, adults and the elderly; and to protect special at-risk groups including migrant workers, specific occupational groups and international travellers.

*Regional Strategic Framework for Vaccine-Preventable Diseases and Immunization in the Western Pacific, 2021-2030*

47. The TAG urges all Member States to consider their current immunization achievements and challenges, and appropriate objectives for the next decade, and to contribute to the *Regional Strategic Framework* as requested by the Secretariat.

48. The TAG urges all Member States to consider national financial and human resources and how they can contribute to the objectives of the *Regional Strategic Framework*. 
3.2.2 Recommendations for WHO Secretariat

**Measles and Rubella Elimination**

1. The TAG requests WHO Secretariat to advocate to Member States and partners for an increased global commitment to achieving and sustaining measles and rubella elimination, continuous reduction and sustained prevention of measles deaths and CRS in all WHO Regions.

2. The TAG requests WHO Secretariat to provide technical support to the Philippines and other countries facing measles outbreaks to conduct effective outbreak investigation and response, and to strengthen their immunization and health systems to address the root causes of the outbreak.

3. The TAG requests WHO Secretariat to finalize the draft *Field Guide for the Surveillance of Congenital Rubella Syndrome (CRS) in the Western Pacific Region.*

4. The TAG requests WHO Secretariat to develop draft regional guidelines for preparedness and response to measles and rubella outbreaks through consultation with the TAG, NIPs, and partners.

5. The TAG requests WHO Secretariat to develop other regional technical guides as recommended during the 26th TAG meeting, including:
   
   a. field guidance for planning and implementing MRCV SIAs; and
   b. field guidance for measles and rubella surveillance.

6. The TAG requests WHO Secretariat to ask the Regional Verification Commission (RVC) to consider defining parameters to measure progress toward measles elimination in very large countries.

7. The TAG requests WHO Secretariat to request SAGE to consider the questions arising around the effects and the significance of possible waning immunity in adults fully immunized with two valid doses, as has been described in the recent Hong Kong outbreak.
8. The TAG recommends WHO Secretariat to continue to support Member States to:

   a. develop, update, and implement their national plans for measles and rubella elimination and set a national target date for rubella elimination;
   b. plan, prepare, and conduct high-quality SIAs to fill immunity gaps due to inadequate routine immunization;
   c. develop and implement quality CRS surveillance;
   d. strengthen measles and rubella case-based laboratory-supported surveillance; and
   e. strengthen outbreak preparedness and response capacity.

9. The TAG recommends WHO Secretariat to support Member States to identify opportunities and to develop and implement plans for cross-regional, sub-regional, and multi-country collaboration, coordination, and synchronization of strategies and activities for measles and rubella elimination.

10. The TAG recommends WHO Secretariat to continue to work with the Regional Verification Commission on Measles and Rubella Elimination in the Western Pacific in documenting, evaluating progress towards measles and rubella elimination.

11. The TAG recommends WHO Secretariat to support Member States to use International Health Regulation (IHR) mechanisms to notify outbreaks related to international travel or with risk of international spread.

12. The TAG recommends WHO Secretariat to recognize the role that measles vaccination can play in improving routine immunization delivery, reducing equity gaps and strengthening primary health care, facilitate the Member States to raise the need for a measles eradication goal at the World Health Assembly in 2020, to ensure maintenance of global commitment and achievement of elimination in all regions.

Sustaining Polio-free Status & Implementation of Polio Endgame Strategies

13. The TAG encourages WHO Secretariat to continue to work with all Member States to maintain polio-free status in the Region by addressing gaps in population immunity and AFP surveillance, particularly gaps in population immunity against type 2 poliovirus since the global cessation of OPV2 use in 2016, and to maintain...
environmental surveillance where already established, using WHO guidance on environmental surveillance.

14. The TAG encourages WHO Secretariat to continue to support Papua New Guinea efforts to achieve and confirm closure of the outbreak of cVDPV1.

15. The TAG encourages WHO Secretariat to support the Philippines urgently to address immunity gaps to reduce the likelihood of a VDPV outbreak.

16. The TAG encourages WHO Secretariat to continue to support Member States, especially Cambodia, Lao People’s Democratic Republic, Papua New Guinea, Philippines and Viet Nam, to establish or expand environmental surveillance, as outlined in WHO guidance on environmental surveillance.

17. The TAG encourages WHO Secretariat to continue to support Member States in implementing GAPIII and the certification process for PEFs.

18. The TAG encourages WHO Secretariat to continue to support Cambodia, China, Lao People’s Democratic Republic, Mongolia, Pacific island countries, Papua New Guinea, Philippines and Viet Nam in identifying necessary resources for maintaining polio-essential functions as defined by the Polio Post-Certification Strategy.

19. The TAG encourages WHO Secretariat to support Member States that will initiate poliovirus surveillance among patients with primary immunodeficiency disorders (PIDs) or establish registries for patients with PIDs.

20. The TAG encourages WHO Secretariat to initiate expert consultation to guide preparation of Member States for OPV cessation prior to the global eradication of poliovirus.

Surveillance and data management for vaccine-preventable disease control and elimination

21. The TAG encourages WHO Secretariat to continue to provide support to priority Member States in strengthening VPD surveillance and improving data quality through:
22. The TAG encourages WHO Secretariat to provide technical assistance to Member States in ensuring that national VPD surveillance systems, whether stand-alone or integrated with surveillance for other communicable diseases, are compliant with minimum requirements (i.e. number of VPDs under surveillance, national or sentinel surveillance, aggregate or case-based reporting, and case definitions) in accordance with the new WHO VPD surveillance guidelines.

23. The TAG encourages WHO Secretariat to support priority Member States (i.e. those relying on external funding to support surveillance functions) in conducting cost-benefit analyses of VPD surveillance, particularly AFP and acute fever and rash surveillance, to advocate for adequate domestic funding to sustain high quality surveillance systems.

24. The TAG encourages WHO Secretariat to support efforts of Member States to strengthen immunization data quality and use for action, through:

   a. technical assistance to improve data standards and tools, and coordination and technical support to guide quality integration of EPI data in broad health information management platforms;

   b. development of effective training materials, and identification and promoting effective capacity building strategies for health workforce capacity for data management and use.

   c. supporting feasibility assessment for implementation of electronic immunization registry and development of suitable system requirements; and

   d. supporting design and implementation of coverage surveys and serosurveys based on internationally recommended methodologies.

25. The TAG encourages WHO Secretariat to support development of the WHO Immunization Information System (WIISE) and reach to Member States to ensure
that WIISE fulfils their needs for the components relevant to them (eJRF, data visualization and access).

Laboratories and laboratory networks for vaccine-preventable disease control and elimination

26. The TAG reiterates the recommendations of the 27th TAG meeting to WHO Secretariat to:

a. continue providing technical support to Member States to maintain high quality VPD laboratories;

b. continue working on developing a regional strategy to maintain functional and sustainable laboratory surveillance for VPDs including:

i. providing technical support to laboratories where needed to maintain technical skills and address gaps;

ii. ensuring that all network laboratories receive timely updates and recommendations on new developments in laboratory testing;

iii. addressing country-specific gaps and challenges; and

iv. supporting countries in the polio transition period;

c. work with Member States to promote collaboration between epidemiological and laboratory surveillance for VPDs through:

i. organizing regular country-specific joint epidemiologic and laboratory workshops or meetings for advocacy purposes and exchange of experiences;

ii. ensuring that interpretation and use of data for reporting and final classification are jointly assessed from clinical and laboratory perspectives; and

iii. ensuring participation of both epidemiological and laboratory experts during country VPD surveillance reviews; and

d. support Member States with insufficient capacity to manage increased laboratory workload during VPD outbreaks to consider establishing subnational laboratories.
27. The TAG requests the WHO Secretariat to continue to provide support to Pacific island countries without measles and rubella laboratory capacity, to ensure that they have access to accredited laboratories for measles and rubella confirmation.

**Accelerated Japanese encephalitis control**

28. The TAG requests WHO Secretariat to finalize and publish the *Regional Guide for Accelerated Control on Japanese encephalitis in the Western Pacific* based on inputs from TAG members during the 2019 TAG meeting.

29. The TAG requests WHO Secretariat to support Member States to develop or update their national plans for accelerated control of Japanese encephalitis, with consideration of country-specific context.

30. The TAG requests WHO Secretariat to collaborate with partners to mobilize resources to support Member States in implementing their national strategies and plans of action.

**Preparedness for and response to diphtheria outbreaks**

31. The TAG requests WHO Secretariat to finalize and publish the *Field Guide for Preparedness and Response to Diphtheria Outbreaks in the Western Pacific* based on inputs from TAG members during the 2019 TAG meeting.

32. The TAG requests WHO Secretariat to support Member States to develop or update their national guidelines for preparedness and response to diphtheria outbreaks, with consideration of country-specific context.

33. The TAG requests WHO Secretariat to collaborate with partners to mobilize resources to support Member States to implement their national strategies and plans of action.

34. The TAG requests WHO Secretariat to assess the need and feasibility of establishing a regional DAT stockpile to ensure immediate availability of DAT for diphtheria cases or outbreaks in the Region.
35. The TAG reiterates the recommendations of the 27th TAG meeting, including that:
   
a. WHO continues providing technical support to Member States to conduct NRA assessments and to develop and implement institutional development plans; and
b. WHO continues providing technical support to Member States for in-country AEFI training workshops.

36. The TAG recommends WHO Secretariat to continue providing technical support to Member States in staff capacity building for investigation, causality assessment and response to vaccine and immunization safety events.

37. The TAG recommends WHO Secretariat to support Member States to use the new WHO Global Benchmarking Tool Revision VI to identify vaccine regulatory gaps and address them.

38. The TAG recommends WHO Secretariat to consider compiling information and organizing a session in the next TAG meeting about compensation programmes for injury and disability following vaccination, related legislative frameworks, and innovations in AEFI monitoring.

Vaccine acceptance and demand

39. The TAG reiterates the recommendations of the 25th TAG meeting for WHO to develop a comprehensive regional guideline to support countries to overcome vaccine hesitancy.

40. The TAG requests WHO Secretariat to support Member States to gather country-specific information on vaccine hesitancy and diagnosis of root causes, and to develop strategies to overcome hesitancy and to build and sustain acceptance and demand for vaccination.

41. The TAG requests WHO Secretariat to finalize the draft regional guide, *Generating acceptance and demand for vaccination: strategies for building and sustaining vaccination uptake and addressing hesitancy*, through further consultation with the
TAG, NIPs and partners, and submit to the 29th TAG meeting in 2020 for review and possible endorsement.

New Vaccines

42. The TAG reiterates the recommendations of the 27th TAG meeting that WHO Regional Office for the Western Pacific should:

a. continue to provide technical support and capacity building for the development of national plans for evidence-based introduction of new vaccines;
b. continue to assess and improve the quality of surveillance implementation;
c. provide technical support and capacity building to lower middle-income Member States to prepare for or implement introduction of new vaccines;
d. provide technical support to upper middle-income countries to develop and implement an effective strategy that will promote increased introduction of new vaccines;
e. support ministries of health in Pacific island countries in introduction of new vaccines funded by the Asian Development Bank during 2018-2021;
f. continue to provide technical support for special studies focusing on strategies to increase the evidence base for introduction of new vaccines and new vaccination technologies; and
g. use strategies and activities for introduction of new vaccines that further strengthen and enhance overall immunization systems and programmes.

43. The TAG recommends WHO Secretariat to support Lao People's Democratic Republic along with partners in:

a. HPV vaccine introduction nationally in 2019;
b. typhoid burden assessment in 2019; and
c. rotavirus vaccine introduction nationally in 2020.

44. The TAG recommends WHO Secretariat to support Solomon Islands with Gavi and other partners in introducing:

a. HPV vaccine nationally in 2019; and
b. rotavirus vaccine nationally in 2020.
45. The TAG recommends WHO Secretariat to support Mongolia in:

a. introducing PCV nationally during 2019; and  
b. conducting HPV vaccine cervical cancer costing studies in 2019, and  
c. introducing HPV sub-nationally in 2020.

46. The TAG recommends WHO Secretariat to support Viet Nam with intussusception surveillance in 2019 and 2020.

47. The TAG recommends WHO Secretariat to support Cambodia, Fiji, Mongolia, the Philippines and Viet Nam analyze their Invasive Bacterial Vaccine-Preventable Disease Surveillance Network data and write manuscripts summarizing the findings for submission to a special issue of *Vaccine* journal.

48. The TAG recommends WHO Secretariat to support ministries of health in four Pacific island countries (Samoa, Tonga, Tuvalu and Vanuatu) in Asian Development Bank-funded introduction of HPV vaccine, PCV and rotavirus vaccine during 2019-2021.

*Immunization Service Delivery*

49. The TAG recommends WHO Secretariat to continue technical support and capacity building to strengthen immunization services to reach underserved persons and achieve high immunization coverage across all population groups.

50. The TAG recommends WHO Secretariat to provide technical support to Member States for implementation of strategies to extend immunization across the life course, including for adolescents, adults and the elderly, and to achieve high coverage in these groups.

51. The TAG recommends WHO Secretariat to work with partners and ministries of health to mobilize resources for immunization systems strengthening and extension of immunization through the life course.
52. The TAG recommends WHO Secretariat to raise at the global level the importance of ensuring a secure increased vaccine supply to enable the coverage necessary to achieve the elimination and accelerated control goals.

Regional Strategic Framework for Vaccine-Preventable Diseases and Immunization in the Western Pacific, 2021-2030

53. The TAG requests WHO Secretariat to continue to develop the Regional Strategic Framework, obtaining input from immunization programme staff, ministries of health, WHO regional office staff working on topics that interface with immunization, WHO country offices and headquarters, and other partners and stakeholders.

54. The TAG requests WHO Secretariat to continue consulting and coordinating with Member States in identifying new VPDs for accelerated control or elimination during 2021-2030, and determining targets for these VPDs for 2030; hepatitis B, HPV, diphtheria and others may be good candidates for this purpose.

55. The TAG requests WHO Secretariat to continue to monitor progress in development of the global Immunization Agenda 2030, and ensure appropriate linkages between this global document’s vision and resources and the more operational needs of the Regional Strategic Framework.

56. The TAG requests WHO Secretariat to analyse resource requirements for implementation of the Regional Strategic Framework, providing an evidence base for planning.
LIST OF TAG MEMBERS, EPI NATIONAL MANAGERS/ SURVEILLANCE OFFICERS, MINISTRY/DEPARTMENT OF HEALTH STAFF, TEMPORARY ADVISERS, OBSERVERS/REPRESENTATIVES AND SECRETARIAT

1. TECHNICAL ADVISORY GROUP MEMBERS

**Dr Hiroshi Yoshikura** Emeritus Member National Institute of Infectious Diseases Toyama 1-23-1, Shinjuku-ku Tokyo 162-0052 Japan
E-mail: yoshikura@nih.go.jp OR yoshikura164@nifty.com

**Dr Jong-Koo Lee** Professor School of Medicine Seoul National University 1 Gwanak-ro, Gwanak-gu 08826 Seoul Republic of Korea
Email: kcdc7000@gmail.com OR docmohw@snu.ac.kr

**Dr Kimberley Fox** Deputy Director Division of Bacterial Diseases National Center for Immunization and Respiratory Diseases
Centers for Disease Control and Prevention 1600 Clifton Road Atlanta, Georgia 30329
United States of America
E-mail: kaf6@cdc.gov OR kfox@cdc.gov

**Professor Yu-Lung Lau** Doris Zimmern Professor in Community Child Health Chair Professor of Paediatrics Department of Paediatrics and Adolescent Medicine LKS Faculty of Medicine The University of Hong Kong Hong Kong
Telephone: +852 2255 4481, Facsimile: +852 2855 1523
Email: lauylung@hku.hk

**Associate Professor Helen Oh May Lin** Senior Consultant Division of Infectious Disease Changi General Hospital 2, Simei Street 3 Singapore 529889 Republic of Singapore
Mobile: +6596328849 OR +6569366595
E-mail: helen_oh@cgh.com.sg OR helen.oh.m.l@singhealth.com.sg

**Dr Takaji Wakita** Director-General National Institute of Infectious Diseases 1-23-1, Toyama, Shinjuku Tokyo Japan
Telephone: +81 3 5285 1111 ext. 2006, Facsimile: +81 3 5285 1193
Email: wakita@nih.go.jp
2. TEMPORARY ADVISERS

**Dr Nobuhiko Okabe** Director-General Kawasaki City Institute for Public Health 5-13-10 Oshima Kawasaki-ku Kawasaki City Kanagawa 210-0834 Japan
Telephone: +81 44 276, Facsimile: +81 44 288 2044
Email: okabe-n@city.kawasaki.jp

**Professor David Durrheim** Professor of Public Health Medicine University of Newcastle University Dr, Callaghan New South Wales 2308 Australia
Telephone: 02-49246395, Facsimile: 02-49246247
Email: david.durrheim@newcastle.edu.au

**Associate Professor Nicola Turner** Director Immunisation Advisory Centre Associate Professor Department General Practice and Primary Care University of Auckland Private Bag 92019, Victoria Street West Auckland 1142 New Zealand Telephone: +6421790693
Email: n.turner@auckland.ac.nz

**Dr Ilisapeci Vereti-Tuibeqa** Head Department of Paediatrics Colonial War Memorial Hospital PO Box 115, Suva Republic of Fiji
Telephone: +679 7522778
Email: beth.vereti@gmail.com

3. PARTICIPANTS

**BRUNEI DARUSSALAM**

**Dr Linda Lai** Senior Medical Officer Child Health Immunisation Program Manager Ministry of Health Commonwealth Drive Bandar Seri Begawan
Telephone: +673 8780078, Facsimile: +6732381165
Email: linda.lai@moh.gov.bn

**Dr Martina Kifrawi** Medical Officer Disease Control Division Ministry of Health Commonwealth Drive Bandar Seri Begawan
Telephone: +673 8727533
Email: martina.kifrawi@moh.gov.bn

**CAMBODIA**

**Mr Ork Vichit** Manager National Immunization Program Ministry of Health National Road No. 6, Kien Khlang Prek Leap, Chroy Changya Phnom Penh
Telephone: 855 12 830548
Facsimile: 855 23 426257
Email: orkvichit@yahoo.com

**Dr Yong Vutthikol** Deputy Manager National Immunization Program Ministry of Health National Road No. 6, Kien Khlang Prek Leap, Chroy Changya Phnom Penh
Telephone: 855 12 897043, Facsimile: 855 23 426257
Email: yongvutthikol@gmail.com
Mr Siphan Sovannara  
Surveillance Officer National Immunization Program  
Ministry of Health  
National Road No. 6, Kien Khlang Prek Leap, Chroy Changya  
Phnom Penh  
Telephone: 855 17 545373, Facsimile: 855 23 426257  
Email: siphan_sovannara@yahoo.com

CHINA  
Dr Yu Wenzhou  
Professor National Immunization Programme  
Chinese Center for Disease Control and Prevention  
No. 27 Nan Wei Road Xicheng District Beijing  
Telefax: +86 10 83159800  
Email: yuwenzhou2012@163.com

Dr Yang Shujian  
Principal Staff Member of Immunization  
Department of Disease Prevention and Control National Health Commission  
No. 1 Xizhimenwai, Nanlu Xicheng District Beijing  
Telefax: +86 10 68792837  
Email: 274679535@qq.com

HONG KONG SAR (CHINA)  
Dr Wong Miu-Ling  
Senior Medical Officer (Surveillance Section)  
Department of Health  
21/F Wu Chung House 213 Queen’s Road East Wanchai Hong Kong  
Telephone: 2125 2230  
Email: smo_ss3@dh.gov.hk

JAPAN  
Dr Shuichiro Hayashi  
Director Immunization Office  
Health Service Bureau Ministry of Health, Labour and Welfare  
1-2-2 Kasumigaseki Chiyoda-ku Tokyo 100-8916  
Telephone: +81 3 3595 3287, Facsimile: +81 3 3503099  
E-mail: hayashi-shuichiro@mhlw.go.jp

KOREA, REPUBLIC OF  
Ms Siwon Choi  
Epidemic Intelligence Service Officer  
Division of Vaccine-Preventable Diseases Control and National Immunization Programme  
Korea Centers for Disease Control and Prevention OHTAC, 200, Osongsaengmyeong 2-ro, Osong-eup Heungdeok-gu, Cheongju-si Chungcheongbuk-do 28160  
Telephone: +82 43 719 6822  
Facsimile: +82 43 719 6858  
Email: siwon1221@korea.kr

LAO PEOPLE’S DEMOCRATIC REPUBLIC  
Dr Viengkhan Phisay  
Deputy of Management Planning  
Division National Immunization Program Maternal and Child Health Center  
Ministry of Health Vientiane  
Telephone: +856 20 22225953  
Email: vkphixay@gmail.com
LAO PEOPLE’S DEMOCRATIC REPUBLIC (cont’d.)

Dr Chansay Pathammavong Deputy Vaccine-Preventable Disease Division Ministry of Health
Kampengmeung Road Vientiane
Telephone: +856 021 312352
Facsimile: +856 021 312120
Email: chansay_epi@yahoo.com

Ms Bouaphanh Khamphaphongphane Chief Epidemiology Division Ministry of Health Km 3, Thadue Road Vientiane
Telephone: +856 21 312351, Facsimile: +856 21 350209
E-mail: bkhamphaphongphane@gmail.com

MACAO SAR (CHINA)

Dr Leong Iek Hou Head Unit of Communicable Disease Prevention and Diseases Surveillance CDC-NDIV, Health Bureau, 7/F Building "Hot Line" No. 335-341 Alameda Dr Carlos d’Assumpcao Macao
Telephone: +853 28533525, Facsimile: +853 28533524
E-mail: ihleong@ssm.gov.mo

MALAYSIA

Dr Norhayati Rusli Director Disease Control Division Ministry of Health Malaysia Level 3, Block 10, Complex E 62590 Putrajaya
Telephone: +603 8883 4419 / +6019-315 4610
Facsimile: +603 8888 0643
Email: dr_norhayati@moh.gov.my

Dr Rokiah Mohd Deputy Director Family Health Development Division Ministry of Health Malaysia Level 7, Block E 10, Complex E Federal Government Administrative Centre 62590 Putrajaya
Telephone: +603 8883 4088 / +6012-473 0937
Facsimile: +603 8888 6175
Email: drrokiyah@moh.gov.my

Dr A’aisah Senin Head of Sector Vaccine Preventable/Food and Waterborne Diseases Disease Control Division Ministry of Health Malaysia Level 3, Block E 10, Parcel E Federal Government Administrative Centre 62590 Putrajaya
Telephone: +603 8883 4411 / +6019-331 2382
Facsimile: +603 8889 1013
Email: aaisah@moh.gov.my

MONGOLIA

Ms Dashpagam Otgonbayar Head Immunization Department National Center for Communicable Diseases Nam-Yan-Ju Street, Bayanzurkh District Ulaanbaatar
Telephone: +976 88081464
Email: dashpagam08@gmail.com
MONGOLIA (cont’d.)

Ms Baigal Volodiya Head Vaccine Preventable Diseases Monitoring and Surveillance Division Immunization Department National Center for Communicable Diseases 416 Nam-Yan-Ju Street, Bayanzurkh District Ulaanbaatar Telephone : +976 99142047, Facsimile : +976 11451798 Email : v_baigal@yahoo.com

Dr Jigjidsuren Enkhtsetseg Officer in Charge Immunization and Health Services for Vaccine Preventable Diseases Department of Public Health Ulaanbaatar Telephone : +976 99080400, Facsimile : +976 11 320916 Email : enkheed2000@gmail.com

NEW ZEALAND

Dr Androniki Stefanogiannis Deputy Director of Public Health Ministry of Health 133 Molesworth St. Wellington 6011 Telephone : +64 21 840 881, Facsimile : +64 4 496 2340 Email : niki_stefanogiannis@moh.govt.nz

Ms Christine Millar Senior Advisor Immunisation Ministry of Health 133 Molesworth St. Wellington 6011 Telephone : +64 4 816 2090 / 641 21 907 017 Email : chris_millar@moh.govt.nz

PHILIPPINES, REPUBLIC OF THE

Dr Ruby Constantino Director IV Department of Health San Lazaro Compound Sta Cruz, Manila Telephone : +63 44 8168618 Mobile : +63 917 7150553 Email : dirrrcc.doh@gmail.com

Dr Ma. Nemia Sucaldito Chief Applied Epidemiology and Health Management Division Epidemiology Bureau Department of Health San Lazaro Compound Sta Cruz, Manila Telephone : +63 2 9909452, Facsimile : +63 2 7313726 Email : manemia_sucaldito@yahoo.com

Dr Maria Wilda Silva Medical Specialist II Disease Prevention and Control Bureau Department of Health San Lazaro Compound Sta Cruz, Manila Telefax : +63 2 7329956 Mobile : +63 917 5080211 Email : wilda_silva@hotmail.com

SINGAPORE

Mr Lim Soon Kok Senior Assistant Director Communicable Diseases Division Ministry of Health 16 College Road College of Medicine Building Singapore 169854 Telephone : +65 6325 7486 Email : lim_soon_kok@moh.gov.sg
Mr Yuske Kita  
Senior Public Health Officer Strategy and  
Prevention Communicable Diseases Division  
Ministry of Health  
16 College Road Singapore 169854  
Telephone: +65 6325 8600  
Facsimile: +65 6221 5528  
Email: YUSKE_KITA@MOH.GOV.SG  
OR yuske.kita@gmail.com

Dr Nguyen Minh Hang  
Deputy Director General  
Department of Preventive Medicine  
Ministry of Health  
135 Nui Truc, Ba Dinh Hanoi  
Telephone: +844 384 62364, Mobile: +849 042 45868  
Facsimile: +844 373 67379  
E-mail: hang0907@gmail.com

Associate Professor Duong Thi Hong  
Vice Director  
National Institute of Hygiene and Epidemiology  
No. 1 Yersin Street, Hai Ba Trung District Hanoi  
Telephone: +84 43 9711 588  
Facsimile: +84 43 8213 782  
Email: hongepi2010@gmail.com

Dr Dang Thi Thanh Huyen  
Vice Head, NEPI Office  
National Institute of Hygiene and Epidemiology  
No. 1 Yersin Street, Hai Ba Trung District Hanoi  
Telephone: +84 43 9721 334  
Facsimile: +84 43 8213 782  
Email: epi.huyen@gmail.com

4. OBSERVERS/ REPRESENTATIVES

ASIAN DEVELOPMENT BANK  
Mr Ki Fung Kelvin Lam  
Health Specialist Social Sectors  
and Public Sector Management Division Pacific  
Department Mandaluyong City Philippines  
Email: klam@adb.org

DEPARTMENT OF HEALTH, PHILIPPINES  
Dr Monrey Isaiah Mancilla  
Medical Officer III  
Department of Health Center for Health Development –  
Bicol Legazpi City, Albay  
Mobile: +63 916 4118898  
Email: dohrov.monreymancilla@gmail.com

Ms Ronna Cabantog  
Senior Health Program Officer RESU  
Region III Government Center Maimpis San Fernando  
City Pampanga  
Telephone: +45 861 3425  
Mobile: +63 942 367 1576  
Email: cl.chd3@gmail.com

Ms Shiela Esteban  
Nurse V EPI Region III Government  
Center Maimpis San Fernando City Pampanga  
Telephone: +45 861 3425 to 29  
Email: chd3epi@gmail.com
DEPARTMENT OF HEALTH, PHILIPPINES (cont’d.)

Mr Romeo Catbagan Jr. Nurse IV Department of Health
No. 1 Casilagan San Juan, La Union
Telephone: +63 651 7800 local 1726-1727
Email: children@doh.gov.ph

Ms Jezza Jonah Aclan Nurse III Epidemiology Bureau
Department of Health San Lazaro Compound Sta Cruz, Manila
Mobile: +63 917 5667375
Email: jezzajonah@gmail.com

GAVI, THE VACCINE ALLIANCE

Ms Alexa Reynolds Senior Country Manager Gavi, the Vaccine Alliance
2 chemin des Mines CH-1202 Geneva Switzerland
Email: areynolds@gavi.org

Ms Kori Cook Project Officer, Vaccines Wellcome Trust
Gibbs Building 215 Euston Road London NW1 2BE United Kingdom
Telephone: +44 20 7611 7259
Mobile: +44 7702 972 272
Email: k.cook@wellcome.ac.uk

HIROSHIMA UNIVERSITY

Professor Junko Tanaka Vice-Dean Department of Epidemiology Infectious Disease Control and Prevention Hiroshima University Graduate School of Biomedical and Health Sciences 1-2-3 Kasumi, Minami-ku Hiroshima 734-8551 Japan
Telephone: +81 82 2575161
Facsimile: +81 82 257 5164
Email: jun-tanaka@hiroshima-u.ac.jp

INTERNATIONAL VACCINE INSTITUTE (IVI)

Dr Tarun Saluja Research Scientist Development and Delivery Unit International Vaccine Institute SNU Research Park 1 Gwanak-ro, Gwanak-gu Seoul Republic of Korea
Email: tarun.saluja@ivi.int

KAWASAKI CITY INSTITUTE FOR PUBLIC HEALTH

Dr Takako Misaki Director of Infectious Disease Surveillance Center Kawasaki City Institute for Public Health 3-25-13 Tono-Machi Kawasaki-Ku Kawasaki City Kanagawa Prefecture 210-0821 Japan
Telephone: +81 44 276 8250 Facsimile: +81 44 2882044
Email: tmisaki14@gmail.com / misakit@city.kawasaki.jp

KOREA CENTERS FOR DISEASE CONTROL AND PREVENTION

Ms Hwami Kim Epidemic Intelligence Service Officer Division of VPR Control and NIP Korea Centers for Disease Control and Prevention OHTAC, 200, Osongsaengmyeong 2-ro Chungcheongbuk-do 28160 Republic of Korea
Telephone: 82 43 7196833
Email: mk0314@korea.kr
MACAO HEALTH BUREAU

Ms Chan Choi Wan Senior Technical Officer Unit of Communicable Disease Prevention and Surveillance CDC-NDIV, Health Bureau, 7/F Building "Hot Line" No. 335-341 Alameda Dr Carlos d'Assumpcao Macao
Telephone: +853 28533525, Facsimile: +853 28533524
Email: sharonchan@ssm.gov.mo

MINISTRY OF HEALTH, CAMBODIA

Mr Kong Heang Kry Logistics and Cold Chain Officer National Immunization Program Ministry of Health of the Kingdom of Cambodia Phnom Penh
Telephone: +855 23 426257, Facsimile: +855 23 426257
Email: kongheangkry@gmail.com

MINISTRY OF HEALTH, LAO PEOPLE’S DEMOCRATIC REPUBLIC

Dr Phonepaseuth Ounaphom Deputy Director General of DHHP Ministry of Health Simeuang Road, Sisattanak District Vientiane
Telephone: +20 55506352
Email: phonepaseuth14@gmail.com

Dr Chanthavong Savatchirang Head of the Communication Division Mother and Child Health Center Ministry of Health Vientiane
Telephone: +20 55814965
Email: janwonvientiane@hotmail.com

Dr Latsamy Thammavong Department Chief of MCH Division of DHHP Ministry of Health Vientiane
Telephone: 856 020 56997211
Email: tlatsamy62@yahoo.com

NATIONAL CENTER FOR GLOBAL HEALTH AND MEDICINE (NCGM)

Dr Masahiko Hachiya Director Division of Global Health Policy and Research Department of Planning and Management Bureau of International Health Cooperation National Center for Global Health and Medicine 1-21-1 Toyama, Shinjuku-ku Tokyo 162-8655 Japan
Telephone: +81 3 3202 7181 (ext 2722)
Facsimile: +81 3 3205 7860
Email: m-hachiya@it.ncgm.go.jp

Dr Tomomi Ohta Pediatrician National Center for Global Health and Medicine 1-21-1 Toyama, Shinjuku-ku Tokyo 162-8655 Japan
Telephone: +81 3 3202 7181
Email: tota@hosp.ncgm.go.jp
Dr Mami Shimada Fellow Bureau of International Health Cooperation Division of Human Capacity Building National Center for Global Health and Medicine 1-21-1 Toyama, Shinjuku-ku Tokyo 162-8655 Japan Telephone: +81 080 6552 3030 Email: mashimada@hosp.ncgm.go.jp

Professor Kristine Macartney Director National Centre for Immunisation Research and Surveillance Locked Bag 4001 Westmead, NSW 2145 Australia Email: kristine.macartney@health.nsw.gov.au

Dr Nguyen Ba Doan Planning of EPI National Expanded Programme on Immunization National Institute of Hygiene and Epidemiology 1 Yersin Street, Hai Ba Trung District Hanoi Viet Nam Telephone: +84 24 9711588 Facsimile: +84 24 8213782 Email: doanguyen.epi@gmail.com

Dr Chang-Kweng Lim Chief Laboratory of Arboviruses Department of Virology I National Institute of Infectious Diseases 1-23-1, Toyama, Shinjuku-ku Tokyo 162-8640 Japan Email: ck@nih.go.jp

Dr Masamichi Muramatsu Director Department of Virology II National Institute of Infectious Diseases 1-23-1, Toyama, Shinjuku-ku Tokyo 162-8640 Japan Email: muramatsu@nih.go.jp

Dr Ryosuke Suzuki Chief Laboratory of Hepatitis Viruses Department of Virology II National Institute of Infectious Diseases 1-23-1, Toyama, Shinjuku-ku Tokyo 162-8640 Japan Email: ryosuke@nih.go.jp

Dr Makoto Takeda Director Department of Virology III National Institute of Infectious Diseases 1-23-1, Toyama, Shinjuku-ku Tokyo 162-8640 Japan Email: mtakeda@nih.go.jp

Dr Noriyuki Otsuki Chief Laboratory of Measles Virus Department of Virology III National Institute of Infectious Diseases 1-23-1, Toyama, Shinjuku-ku Tokyo 162-8640 Japan Email: otsuki@nih.go.jp

Dr Tomimasa Sunagawa Chief Surveillance and Information Division (Division 2) Infectious Disease Surveillance Center National Institute of Infectious Diseases 1-23-1, Toyama, Shinjuku-ku Tokyo 162-8640 Japan Email: sunatomi@nih.go.jp
PATH

Dr Anthony Marfin Director Vaccine Introduction and Impact PATH's Center for Vaccine Innovation and Access P.O. Box 90922 Seattle, Washington 98109 United States of America
Email : aamarfin@path.org

Dr Nguyen Phu Cuong Project Manager PATH Mekong Regional Program Office Unit 01, Floor 11 Hanoi Towers 49 Hai Ba Trung Hoan Kim District Hanoi Viet Nam
Email : cnguyen@path.org

Mr Sang Dinh Dao Program Officer PATH Viet Nam Country Program Hanoi Viet Nam Telephone : +84 936759668
Email : sdao@path.org

RESEARCH INSTITUTE FOR TROPICAL MEDICINE (RITM)

Dr Mayan Lumandas Medical Specialist IV Research Institute for Tropical Medicine 9002 Research Drive, Filinvest Corporate City Alabang, Muntinlupa City Philippines
Telephone : +632 807 2628, Facsimile : +632 809 7120
Email : maylumandas@gmail.com

Dr Lea Necitas Apostol Technical Supervisor NRL for Polio and other Enteroviruses Research Institute for Tropical Medicine 9002 Research Drive, Filinvest Corporate City Alabang, Muntinlupa City Philippines
Email : leianecitas9780@yahoo.com

Ms Leonibel Reyes Technical Supervisor NRL for Measles and other Exanthems Research Institute for Tropical Medicine 9002 Research Drive, Filinvest Corporate City Alabang, Muntinlupa City Philippines
Email : leonibel_agajona@yahoo.com

ROTARY INTERNATIONAL DISTRICT 2650

Mr Hendo Okamura Chair International Service Commission Rotary International District 2650 International Service Commission Shin Kyoto Bldg. Room 520 614 Higashi-Shiokoji-cho Simogyoku Kyoto 600-8216 Japan
Telephone : +81 75 3432650, Facsimile : + 81 75 3432651
Email : kannon32@biscuit.ocn.ne.jp

Dr Hideo Kishi Vice Chair International Service Commission Rotary International District 2650 International Service Commission Shin Kyoto Bldg., Room 520 614 Higashi-Shiokoji-cho Simogyoku Kyoto 600-8216 Japan
Telephone : +81 753432650, Facsimile : + 81 753432651
Email : hideokishi@gmail.com
ST MARIANNA SCHOOL OF MEDICINE, JAPAN

Dr Tomohiro Katsuta
Assistant Professor
St Marianna University School of Medicine
Division of Infectious Diseases
Department of Pediatrics
2-16-1 Sugao, Miyamae-ku Kawasaki-shi, Kanagawa 216-8511 Japan
Telephone: +81 44 9778111, Facsimile: +81 44 9778603
Email: katsuta-7-@marianna-u.ac.jp

THE JIKEI UNIVERSITY SCHOOL OF MEDICINE, JAPAN

Dr Mai Okuyama
Staff Department of Pediatrics
The Jikei University School of Medicine
Nishi Shimbashi 3-19-18, Minato-ku District Tokyo 105-8471 Japan
Telephone: +81 3 34331111
Email: m-okuyama@jikei.ac.jp OR maiokuyama0511@gmail.com

UNICEF HEADQUARTERS

Mr Richard Duncan
Senior Adviser Immunization
Health Section UNICEF Headquarters
3 United Nations Plaza
New York United States of America
Telephone: +1 212 3267446 Mobile: +1 917 2440646
Email: rduncan@unicef.org

UNICEF EAST ASIA AND THE PACIFIC (EAPRO)

Dr Xia Wei
Immunisation Specialist
United Nations Children's Fund East Asia and Pacific Regional Office
19 Phra Atit Road Bangkok 10200 Thailand
Email: wxia@unicef.org

UNICEF CAMBODIA

Dr Rathmony Hong
Health Specialist
UNICEF Cambodia
No. 11, 7th Street Srachark Quartier Phnom Penh
Email: rhong@unicef.org

UNICEF LAO PEOPLE'S DEMOCRATIC REPUBLIC

Dr Hendrikus Raaijmakers
Chief Health and Nutrition
UNICEF Lao People’s Democratic Repbulic
P.O. Box 1080 Vientiane
Email: hraaijmakers@unicef.org

UNICEF MONGOLIA

Dr Bataa Chuluunbaatar
Health Specialist
United Nations Children’s Fund
UN House, United Nations Street-14 Ulaanbaatar Mongolia
Telephone: +976 11 312217, Facsimile: +976 11 327313
Email: bchuluunbaatar@unicef.org

UNICEF PAPUA NEW GUINEA

Dr Md Monjur Hossain
Chief Child Survival and Development
UNICEF Papua New Guinea
Port Moresby
Email: mhossain@unicef.org

UNICEF PHILIPPINES

Dr Carla Ante Orozco
Procurement Services Specialist
UNICEF Philippines
14/F North Tower Rockwell Business Center
Sheridan Sheridan Street corner United Street
Highway Hills 1550 Mandaluyong City
Telephone: +63 2 249 5428 or +63 9175588254
Email: corozco@unicef.org
UNICEF PHILIPPINES (cont’d.)

Dr Madonna Anabieza Immunization Consultant
UNICEF Philippines 14/F North Tower Rockwell Business Center Sheridan Sheridan Street corner United Street Highway Hills 1550 Mandaluyong City
Mobile: +63 927 8065838
Email: manabieza@unicef.org

Dr Amador Catacutan Immunization Consultant UNICEF Philippines 14/F North Tower Rockwell Business Center Sheridan Sheridan Street corner United Street Highway Hills 1550 Mandaluyong City
Mobile: +63 917 3583666
Email: acatacutan@unicef.org

Dr Reinhard Dalumpines Immunization Consultant UNICEF Philippines 14/F North Tower Rockwell Business Center Sheridan Sheridan Street corner United Street Highway Hills 1550 Mandaluyong City
Mobile: +63 917 8425704
Email: rdalumpines@unicef.org

Mr Bernardo Bersola Supply Chain Consultant UNICEF Philippines 14/F North Tower Rockwell Business Center Sheridan Sheridan Street corner United Street Highway Hills 1550 Mandaluyong City
Mobile: +63 918 9341412
Email: bbersola@unicef.org

UNICEF VIET NAM

Dr Nguyen Huy Du Maternal and Child Health Specialist
UNICEF Viet Nam 81A Tran Quoc Toan Street Hanoi
Email: nhdu@unicef.org

UNITED STATES CENTERS FOR DISEASE CONTROL AND PREVENTION (USCDC)

Dr Eric Mast Deputy Director for Science and Program Global Immunization Division US Centers for Disease Control and Prevention Atlanta, Georgia
United States of America
Email: emast@cdc.gov

Mr Gabriel Anaya Deputy Chief Strategic Information and Workforce Development Branch US Centers for Disease Control and Prevention Atlanta, Georgia
United States of America
Email: gda1@cdc.gov

Dr Heather Scobie Epidemiologist Global Immunization Division US Centers for Disease Control and Prevention Atlanta, Georgia United States of America
Email: vih8@cdc.gov
5. SECRETARIAT

WHO WESTERN PACIFIC REGIONAL OFFICE (WPRO)

Dr Yoshihiro Takashima Coordinator Expanded Programme on Immunization World Health Organization Regional Office for the Western Pacific United Nations Avenue 1000 Manila
Telephone : +63 2 528 9746, Facsimile : +63 2 521 1036
Email : takashimay@who.int

Ms Varja Grabovac Scientist Expanded Programme on Immunization World Health Organization Regional Office for the Western Pacific United Nations Avenue 1000 Manila
Telephone : +63 2 528 9747, Facsimile : +63 2 521 1036
Email : grabovavc@who.int

Dr James Heffelfinger Technical Officer Expanded Programme on Immunization World Health Organization Regional Office for the Western Pacific United Nations Avenue 1000 Manila
Telephone : +63 2 528 9033, Facsimile : +63 2 521 1036
Email : heffelfingerj@who.int

Dr Ananda Amarasinghe Technical Officer Expanded Programme on Immunization World Health Organization Regional Office for the Western Pacific United Nations Avenue 1000 Manila
Telephone : +63 2 528 9032, Facsimile : +63 2 521 1036
Email : amarasignhea@who.int

Dr Tigran Avagyan Technical Officer Expanded Programme on Immunization World Health Organization Regional Office for the Western Pacific United Nations Avenue 1000 Manila
Telephone : +63 2 528 9737, Facsimile : +63 2 521 1036
Email : avagyant@who.int

Dr Nyambat Batmunkh Technical Officer Expanded Programme on Immunization World Health Organization Regional Office for the Western Pacific United Nations Avenue 1000 Manila
Telephone : +63 2 528 9741, Facsimile : +63 2 521 1036
Email : batmunkhn@who.int

Dr José Hagan Medical Officer Expanded Programme on Immunization World Health Organization Regional Office for the Western Pacific United Nations Avenue, 1000 Manila Philippines
Telephone : +63 2 528 9034, Facsimile : +63 2 521 1036
Email : haganj@who.int
WHO WESTERN PACIFIC REGIONAL OFFICE (WPRO) (cont'd.)

Dr Roberta Pastore Technical Officer Expanded Programme on Immunization World Health Organization Regional Office for the Western Pacific United Nations Avenue 1000 Manila Telephone: +63 2 528 9018, Facsimile: +63 2 521 1036 Email: pastorero@who.int

Ms Analisa Bautista Technical Officer Expanded Programme on Immunization World Health Organization Regional Office for the Western Pacific United Nations Avenue 1000 Manila Telephone: +63 2 528 9025, Facsimile: +63 2 521 1036 Email: bautistaa@who.int

Dr Santosh Gurung Technical Officer Expanded Programme on Immunization World Health Organization Regional Office for the Western Pacific United Nations Avenue 1000 Manila Telephone: +63 2 528 9704, Facsimile: +63 2 521 1036 Email: gurungs@who.int

Dr Jinho Shin Medical Officer Essential Medicines and Technology World Health Organization Regional Office for the Western Pacific United Nations Avenue 1000 Manila Telephone: +63 2 528 9057, Facsimile: +63 2 521 1036 Email: shinj@who.int

Dr Ogochukwu Chukwujekwu Technical Officer Integrated Service Delivery World Health Organization Regional Office for the Western Pacific United Nations Avenue 1000 Manila Telephone: +63 2 528 9898, Facsimile: +63 2 521 1036 Email: chukwujekwuo@who.int

WHO CAMBODIA

Dr Md Shafiqul Hossain Technical Officer Expanded Programme on Immunization WHO Representative Office in Cambodia No. 61-64, Preah Norodom Blvd. (corner Street 306) Sangkat Boeung Keng Kang I Khan Chamkamorn Phnom Penh Telephone: +855 23 81011, Facsimile: +855 23 216211 E-mail: hossains@who.int

Dr Chham Samnang National Professional Officer Measles and Elimination High Risk Communities WHO Representative Office in Cambodia No. 61-64, Preah Norodom Blvd. (corner Street 306) Sangkat Boeung Keng Kang I Khan Chamkamorn Phnom Penh Telephone: +855 23 81048, Facsimile: +855 23 216211 E-mail: chhams@who.int
WHO CHINA  

Dr Zuo Shuyan National Professional Officer Expanded Programme on Immunization WHO Representative Office in China 401, Dongwai Diplomatic Office Building 23, Dongzhimenwai Dajie Chaoyang District Beijing 100600  
Telephone: +8610 6532 7190  
Facsimile: +8610 65322359  
E-mail: zuos@who.int

WHO LAOS PEOPLE’S DEMOCRATIC REPUBLIC  

Mr Keith Feldon Technical Officer Expanded Programme on Immunization WHO Representative Office in the Lao People’s Democratic Republic 125 Saphanthong Road, Unit 5 Ban Saphanthonthai, Sisattanak District Vientiane  
E-mail: feldonk@who.int

WHO PHILIPPINES  

Dr Wang Xiaojun Medical Officer Expanded Programme on Immunization WHO Representative Office in the Philippines Ground Floor, Building 3 Department of Health San Lazaro Compound, Rizal Avenue Sta. Cruz, Manila  
Telephone: +632 528 9062, Facsimile: +63 2 310 6550  
E-mail: wangxia@who.int

Dr Achyut Shrestha Medical Officer Expanded Programme on Immunization WHO Representative Office in the Philippines Ground Floor, Building 3 Department of Health San Lazaro Compound, Rizal Avenue Sta. Cruz, Manila  
Telephone: +63 2 528 9065, Facsimile: +63 2 310 6550  
E-mail: shresthaa@who.int

WHO SOUTH PACIFIC  

Dr Jayaprakash Valiakolleri Short Term Consultant Expanded Programme on Immunization WHO Representative Office in the South Pacific Level 4 Provident Plaza One Downtown Boulevard 33 Ellery Street Suva  
E-mail: valiakollerij@who.int

WHO VIETNAM  

Dr Nihal Singh Medical Officer Expanded Programme on Immunization WHO Representative Office in Viet Nam 304 Kim Ma Street Hanoi  
Email: singhn@who.int

Dr Makiko Iijima Technical Officer Expanded Programme on Immunization WHO Representative Office in Viet Nam 304 Kim Ma Street Hanoi  
E-mail: iijimam@who.int

WHO HEADQUARTERS  

Ms Tracey Goodman Manager Immunization Policies and Strategies Expanded Programme on Immunization Plus World Health Organization Headquarters Office in Geneva Avenue Appia 20 1211 Geneva 27  
Telephone: +41 22 7912947  
E-mail: goodmant@who.int
WHO HEADQUARTERS (cont’d.)

Dr Ann Lindstrand Coordinator Expanded Programme on Immunization Plus World Health Organization Headquarters Office in Geneva Avenue Appia 20 1211 Geneva 27
Telephone : +41 22 7913436
E-mail : lindstranda@who.int

Dr Roland Sutter Coordinator Research, Policy and Containment World Health Organization Headquarters Office in Geneva Avenue Appia 20 1211 Geneva 27
Telephone : +41 22 7914682
E-mail : sutterr@who.int

Mr Patrick Lydon Technical Officer Expanded Programme on Immunization Plus World Health Organization Headquarters Office in Geneva Avenue Appia 20 1211 Geneva 27
Telephone : +41 22 7914238
E-mail : lydonp@who.int
### ANNEX 2

**28TH MEETING OF THE TECHNICAL ADVISORY GROUP ON IMMUNIZATION AND VACCINE-PREVENTABLE DISEASES IN THE WESTERN PACIFIC REGION**

Manila, Philippines, 18–21 June 2019

#### TIMETABLE

<table>
<thead>
<tr>
<th>Time</th>
<th>Tuesday, 18 June 2019</th>
<th>Time</th>
<th>Wednesday, 19 June 2019</th>
<th>Time</th>
<th>Thursday, 20 June 2019</th>
<th>Time</th>
<th>Friday, 21 June 2019</th>
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<tbody>
<tr>
<td>0800–0830</td>
<td>REGISTRATION</td>
<td>0830–0845</td>
<td>4. VPD Surveillance, Laboratory Support and Data Management</td>
<td>10:45–1200</td>
<td>10:45–1200</td>
<td>Strategic Goal. Vaccine-Preventable Diseases targeted for Accelerated Control and Elimination in the Western Pacific Region in 2021-2030 (continuation)</td>
<td>0800–1000</td>
</tr>
<tr>
<td>0830–0900</td>
<td>Opening session</td>
<td>0845–0900</td>
<td>4.1 WHO Immunization Information System (WISE) for better access and use of data</td>
<td>10:45–1200</td>
<td>10:45–1200</td>
<td>Strategic Goal. Vaccine-Preventable Diseases targeted for Accelerated Control and Elimination in the Western Pacific Region in 2021-2030 (continuation)</td>
<td>10:30–1050</td>
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<tr>
<td></td>
<td></td>
<td>0900–0915</td>
<td>4.2 VPD Sero-prevalence Surveillance System for developing and evaluating immunization strategies</td>
<td>10:45–1200</td>
<td>10:45–1200</td>
<td>10.2 Background &amp; Overview of Regional Strategic Framework for Vaccine-Preventable Diseases and Immunization in the Western Pacific, 2021-2030</td>
<td>10:50–1100</td>
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<tr>
<td></td>
<td></td>
<td>0930–0945</td>
<td>Discussion</td>
<td>10:45–1200</td>
<td>10:45–1200</td>
<td>10.3 Strategic Goal. Vaccine-Preventable Diseases targeted for Accelerated Control and Elimination in the Western Pacific Region in 2021-2030</td>
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<td></td>
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<td>0945–1000</td>
<td>4.4 VPD Surveillance Systems: Regional Goal 2030 and Strategic Direction</td>
<td>10:45–1200</td>
<td>10:45–1200</td>
<td>10.3 Strategic Goal. Vaccine-Preventable Diseases targeted for Accelerated Control and Elimination in the Western Pacific Region in 2021-2030</td>
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<td>1000–1015</td>
<td>Discussion</td>
<td>10:45–1200</td>
<td>10:45–1200</td>
<td>10.3 Strategic Goal. Vaccine-Preventable Diseases targeted for Accelerated Control and Elimination in the Western Pacific Region in 2021-2030</td>
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<td>0900–0940</td>
<td>GROUP PHOTO AND COFFEE BREAK</td>
<td>1015–1045</td>
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<td>COFFEE BREAK</td>
<td>1000–1030</td>
<td>COFFEE BREAK</td>
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<tr>
<td>1010–1025</td>
<td>1.2 Regional Overview (2) - Background</td>
<td>1125–1140</td>
<td>5.2 Field Guide for Preparedness and Response to Diphtheria Outbreaks in the Western Pacific</td>
<td>1045–1200</td>
<td>1045–1200</td>
<td>10.4 Global vision &amp; strategy for immunization 2021-2030 (“Immunization Agenda 2030”) and development of regional immunization strategies (Synthesis of Regional Immunization Strategies)</td>
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</tbody>
</table>

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**Notes:**
- REGISTRATION
- COFFEE BREAK
- GROUP PHOTO AND COFFEE BREAK
### 2. Measles & Rubella Elimination

**2.1 Global update on (i) measles resurgence in multiple regions and (ii) progress towards establishment of global commitment to measles eradication**

**2.2 Progress, achievements and challenges in (i) implementing the 2017 RC Resolutions and (ii) Operational Targets by 2020 (including the 2017-2019 Resurgence in PHL)**

**2.3 Country presentation: Measles Outbreaks and Responses in 2018-2019**
- Cambodia
- Hong Kong
- New Zealand

**Discussion**

### 2.4 Rubella Outbreak & Immunization Strategy in Japan

### 2.5 Risk analysis of outbreaks / resurgence of measles and rubella in the Western Pacific Region: How to achieve Operational Targets by 2020

### 2.6 Measles and Rubella Elimination: Regional Goal 2030 and Strategic Direction (Discussion)

### 3. Polio Eradication

**3.1 Global Overview from the perspective of current and anticipated developments and challenges**

**3.2 Regional Overview from the perspective of current and anticipated developments and challenges**

**3.3 Regional overview of the**

### 6. Vaccine Immunization Safety

**6.1 Regional Overview on Immunization Safety Issues in the Western Pacific**

**6.2 Regional progress on vaccine regulatory and safety in the Western Pacific**

**Discussion**

**7. Vaccine Acceptance & Demand**

**7.1 Vaccine Acceptance & Demand: Global Overview**

**7.2 Country Experience: Promotion of Vaccine Acceptance & Demand**

**7.3 WPR guidance on generating acceptance and demand for vaccination**

### 10.3 Strategic Objective 1. Strengthening and expanding immunization system and programme

### 10.4 Strategic Objective 2. Managing health intelligence on vaccine-preventable diseases and immunization

### 10.5 Strategic Objectives 3. Prepared for and responding to public health emergency

**11.3 Strategic Area 3. Regional Strategic Framework and Health Security & Emergency / Environment & Climate Change**

**11.4 IHR 2015, APSED, Pandemic Influenza and Immunization System & Programme**

**Discussion**
<table>
<thead>
<tr>
<th>1515–1545</th>
<th>COFFEE BREAK</th>
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<tr>
<td>1545–1600</td>
<td>3.4 Update on outbreak of cVDPV in PNG</td>
<td>1515–1525</td>
<td>8. New Vaccines</td>
<td>1630–1650</td>
<td>10.6 Regional Strategic Framework and HSS / UHC</td>
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<td>1600–1615</td>
<td>3.5 cVDPV in the Western Pacific Region: Lessons learned in the last 20 years</td>
<td>1525–1545</td>
<td>8.1 Under-utilized Vaccines &amp; New Vaccines in 2021-2030: Global Perspective</td>
<td>1635–1645</td>
<td>10.7 Health System Strengthening, Universal Health Coverage and Immunization System &amp; Programme</td>
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<tr>
<td>1615–1630</td>
<td>3.6 Implication of long-term use of OPV in polio-free countries</td>
<td>1545–1600</td>
<td>8.2 Under-utilized Vaccines &amp; New Vaccines in 2021-2030 in the Western Pacific Region</td>
<td>1645–1700</td>
<td>Discussion</td>
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<td>1630–1645</td>
<td>3.7 Polio Eradication: Regional Goal 2030 and Strategic Direction</td>
<td>Discussion</td>
<td>9. Immunization Service Delivery</td>
<td>Discussion</td>
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<td>1645–1700</td>
<td>Discussion</td>
<td>1600–1615</td>
<td>8.1 Overview and Future on Immunization Services throughout the Life Course</td>
<td>1630–1645</td>
<td>10.6 Regional Strategic Framework and HSS / UHC</td>
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<td>1800</td>
<td>RD’s Reception</td>
<td>1615–1630</td>
<td>8.2 Regional Overview on Routine Immunization Programme: Progress, Achievements and Challenges</td>
<td>1635–1645</td>
<td>10.7 Health System Strengthening, Universal Health Coverage and Immunization System &amp; Programme</td>
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<td>8.3 Country Experience 1: Improve delivery of immunization service through combination of different strategies (e.g. routine immunization, SIA, school-based immunization, etc.) - China</td>
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<td>8.4 Country Experience 2: Expansion of Immunization Services throughout the Life Course – Australia</td>
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<td>1700–1715</td>
<td>Discussion</td>
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Implementation of poliovirus laboratory containment (GAP III) in the Western Pacific