Meeting Report

26TH MEETING OF THE TECHNICAL ADVISORY GROUP ON IMMUNIZATION AND VACCINE-PREVENTABLE DISEASES IN THE WESTERN PACIFIC REGION

13–16 June 2017

Manila, Philippines

World Health Organization
Western Pacific Region

WORLD HEALTH ORGANIZATION

REGIONAL OFFICE FOR THE WESTERN PACIFIC

RS/2017/GE/40(PHL) English only

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Convened by:

WORLD HEALTH ORGANIZATION
REGIONAL OFFICE FOR THE WESTERN PACIFIC

Manila, Philippines
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Not for sale

Printed and distributed by:

World Health Organization
Regional Office for the Western Pacific
Manila, Philippines

September 2017

NOTE

The views expressed in this report are those of the participants of the 26th Meeting of the Technical Advisory Group (TAG) on Immunization and Vaccine-Preventable Diseases in the Western Pacific Region and do not necessarily reflect the policies of the conveners.

This report has been prepared by the World Health Organization Regional Office for the Western Pacific for Member States in the Region and for those who participated in the 26th Meeting of the Technical Advisory Group (TAG) on Immunization and Vaccine-Preventable Diseases in the Western Pacific Region in Manila, Philippines from 13 to 16 June 2017.

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Keywords:

Immunization / Vaccines / Regional health planning

SUMMARY

The 26th Meeting of the Technical Advisory Group (TAG) on Immunization and Vaccine-Preventable Diseases in the Western Pacific Region was held on 13–16 June 2017 in Manila, Philippines. The meeting was attended by six TAG members, four temporary advisers, 30 participants from 15 countries and areas, and 34 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 poliomyelitis (polio) endgame strategies as well as the new regional plans of action for measles and rubella elimination and triple elimination of HIV, hepatitis B and syphilis. Discussion also covered regional plans for hepatitis B control goals and the global supply of inactivated polio vaccine and its implication for this Region.

The TAG's key recommendations included developing implementation measures to fill immunity gaps among 14–24-year-olds in China, the Philippines, and Viet Nam to prevent outbreaks of rubella and congenital rubella syndrome. The TAG recommended that incremental cost and cost-effectiveness research on hepatitis B perinatal interventions be completed to inform countries and help move them towards the global hepatitis B elimination goal of ≤ 0.1% hepatitis B surface antibody prevalence among children by 2030. In addition, the TAG urged Member States, once inactivated polio vaccine (IPV) supply is available, to develop strategies to address gaps in population immunity against type 2 poliovirus due to delayed introduction or possible stock-out of IPV. The TAG recommends that WHO conduct a survey to map diphtheria laboratory capacity in the Region and gather information on diagnostic testing methods. The TAG also recommended that a regional strategy and plan of action for accelerated Japanese encephalitis control be developed. The TAG recommended that countries with suboptimal representativeness and sensitivity of vaccine-preventable disease surveillance systems strengthen their systems by prioritizing support for the surveillance of diseases targeted by elimination goals. Finally, the TAG urged each Member State in which surveillance includes laboratory confirmation of diseases targeted by new vaccines to monitor and improve the quality of surveillance implementation.

1. INTRODUCTION

1.1 Meeting organization

The meeting was attended by six members of the Technical Advisory Group (TAG) on Immunization and Vaccine-Preventable Diseases in the Western Pacific, four temporary advisers, 30 participants from 15 countries and areas, and 34 representatives from partner organizations, and WHO staff from headquarters, the Regional Office for the Western Pacific and representative country offices. The timetable of the meeting is provided in Annex 1. The list of participants is included in Annex 2.

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 specified by the *Regional Framework for Implementation of the Global Vaccine Action Plan (GVAP) in the Western Pacific* and the strategic objectives of 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 the GVAP strategic objectives; and
(3) to prepare recommendations by the TAG for WHO and countries.

2. PROCEEDINGS

2.1 Opening session

In his opening remarks, Dr Shin Young-soo acknowledged the progress made by Member States towards achieving the goals of the GVAP. He highlighted achievements among the eight framework goals, including maintaining polio-free status because of timely and comprehensive response efforts. He also noted that a total of 18 countries have achieved the regional target of coverage above 95% with three doses of diphtheria–tetanus–pertussis (DTP) vaccine, and a further 25 countries achieved coverage of 90% or above. Dr Shin noted that the 2017 regional goal of reducing the prevalence of hepatitis B in 5-year-old children to less than 1% has been achieved and national immunization programmes (NIPs) have averted more than 7 million deaths and 37 million chronic cases among children born between 1990 and 2014. Also, to date, 9 of the 12 countries with risk for Japanese encephalitis (JE) have introduced JE vaccine in some high-risk areas or have very low levels of disease without vaccination. Finally, as of 2016, five countries and two areas in the Region were verified to have achieved and maintained measles elimination. All countries and areas in the Region have introduced rubella-containing vaccine into NIPs.

Dr Shin concluded his remarks by noting challenges that many Member States are facing, notably finding other financial resources to replace the support of Gavi, the Vaccine Alliance and the Global Polio Eradication Initiative (GPEI) over the coming years. Dr Shin pointed out that ensuring equitable access to immunization and communicating the importance and safety of vaccinations will remain key tasks. Dr Shin thanked TAG members and Member States for the hard-fought accomplishments and

thanked all TAG attendees for their further discussions during this meeting to remain on track to meet the goals and objectives of the Regional Framework.

2.2 Update on implementation of the Global Vaccine Action Plan (GVAP) and from the Strategic Advisory Group of Expert (SAGE)

In its 2016 GVAP midterm progress report, SAGE remained gravely concerned that progress toward the goals to eradicate poliomyelitis (polio), eliminate measles and rubella, eliminate maternal and neonatal tetanus, and increase equitable access to life-saving vaccines was too slow. SAGE noted that global average immunization coverage increased only by 1% since 2010 with 68 countries falling short of the target to achieve at least 90% national coverage with the third dose of DTP-containing vaccine. The only 2015 target that was met is that of the number of low- or middle-income countries to have introduced at least one new vaccine since 2010.

SAGE urged all countries, as a first step, to conduct an assessment of the current role of private providers in immunization service delivery, considering: contribution to coverage, immunization advocacy, adverse event surveillance and vaccine-preventable disease (VPD) surveillance. An inventory of key stakeholders should be undertaken to identify strengths, challenges and solutions to the issues identified.

SAGE further called for drastic efforts on the part of all countries and immunization stakeholders to accelerate progress to achieve GVAP goals by 2020 by working innovatively with a sense of urgency, sustained focus and high-level support.

2.3 Report: GVAP implementation at the global level

Key drivers in countries that made significant progress in their progress towards the GVAP goals included: strong leadership, investments in health systems and health workforces, the ability to count on dedicated people able to overcome challenges, the arsenal of known interventions and tools, and accountability. Stagnation has resulted from: inaccessibility, low commitment, poor government oversight, weak surveillance, poor data quality, as well as a disconnect between immunization and the health system agenda. Decreased coverage has resulted from: conflicts and humanitarian emergency situations, disruptive and expensive outbreaks and vaccine stock-outs.

As such, some of the priority actions to accelerate progress include: reducing the many missed opportunities for vaccinations and establishing a new norm to make every health service contact an opportunity to vaccinate; developing an operating model to address the information gap on the global supply and demand dynamic for vaccines; supporting improvement of data quality and use; and increasing collaboration and communication with private providers. Critical to progress are the provision of adequate training for all health-care providers, the quality implementation of activities, the sharing of experiences between countries and regions, implementation research, engaging communities to understand and deliver vaccines, and thinking in social versus physical distance.

At the 2017 World Health Assembly, ministers of health endorsed a resolution on strengthening immunization to achieve the goals of the GVAP. Building on several SAGE recommendations, the resolution urges Member States to strengthen the governance and leadership of NIPs, and improve monitoring and surveillance systems to ensure up-to-date data guide policy and programmatic decisions to optimize performance and impact.

2.4 Report: GVAP implementation at the Western Pacific Region level

Endorsed by the World Health Assembly in 2012, the GVAP is a framework to achieve the Decade of Vaccines vision of delivering universal access to immunization. The Regional Framework for Implementation of the GVAP in the Western Pacific (Regional Framework) translates the global goals to fit the regional context and adds goals specific to the Western Pacific Region in the following eight areas:

1. Sustaining polio-free status: Sixteen countries switched from using trivalent to bivalent oral polio vaccine (OPV) in the Region by 1 May 2016. In Mongolia and Viet Nam, two birth cohorts will not have protection against type 2 poliovirus as it is unlikely that inactivated polio vaccine (IPV) will be introduced before April 2018.
2. Maternal and neonatal tetanus elimination (MNTE): Maternal and neonatal transmission has been eliminated in all countries and areas in the Region, except for Papua New Guinea and the Philippines.
3. Measles elimination: Seven countries or areas achieved measles elimination.
4. Rubella elimination: All countries in the Western Pacific Region introduced rotavirus-containing vaccine into NIPs.
5. Accelerated control of hepatitis B: The 2017 Regional target of less than 1% seroprevalence among 5-year-old children has been achieved. Eighteen countries and areas have been verified as meeting this 2017 target.
6. Accelerated control of JE: A total of 10 of 12 countries with endemic JE transmission have introduced a JE vaccine in some (1 country) or all (7 countries) JE risk areas or have very low levels of disease without vaccination (2 countries). Of the two remaining countries with JE virus transmission risk, one (Philippines) is planning a subnational JE vaccination campaign in 2018 and plans to introduce JE vaccine into the national programme thereafter.
7. Meeting regional vaccination targets: Closing the immunity gaps among underserved populations is one of the main focuses of the Regional Office's work with priority countries.
8. Introduction of new vaccines: Ten middle-income countries introduced 25 new vaccines between 2010 and June 2016.

2.5 Accelerated hepatitis B control

2.5.1 Global and regional level

Recommendations on the use of hepatitis B vaccine were discussed by SAGE in October 2016, including its support for countries that are interested in using hepatitis birth dose (HepB-BD) outside of the cold chain (OCC). SAGE is looking to publish an updated policy paper in July 2017, which will include information on OCC, controlled temperature chain and birth dose. In 2016, the World Health Assembly approved the *Global Health Sector Strategy on Viral Hepatitis 2016–2021* with 2020 targets including 90% third-dose hepatitis B (HepB3) coverage and 50% HepB-BD coverage. Furthermore, the Global Strategy looks to reduce the incidence to less than 1% in children by 2020 and to less than 0.1% by 2030. Global HepB-BD and HepB3 coverage in 2015 were 39% and 84%,

respectively, with wide regional variation in birth dose coverage ranging from 10% in the African Region and 83% in the Western Pacific Region.

With 83% HepB-BD and 93% HepB3 coverage among all countries per the 2016 WHO–United Nations Children's Fund (UNICEF) Joint Reporting Form (JRF), the Western Pacific Region's vaccination coverage is primarily responsible for decreasing the Regional hepatitis B surface antigen (HBsAg) prevalence from over 8% among 5-year-old children in 1990 to 0.93% among children born in the Region in 2012. The 2016 *Vaccine* paper, which compares the before and after situation of hepatitis B vaccine introduction, indicates that the 2017 Regional goal of less than 1% prevalence has been met. As of May 2017, 18 countries and areas have been verified by the Western Pacific Region Hepatitis B Immunization Expert Resource Panel (ERP) as having achieved the less than 1% goal of HBsAg.

The WHO Regional Office for the Western Pacific is developing a regional framework for the triple elimination of mother-to-child transmission of HIV, hepatitis B and syphilis. This framework proposes an integrated and coordinated approach towards triple elimination using the shared maternal, newborn and child health interventions as well as the platform employed for elimination of mother-to-child transmission of HIV and syphilis such as antenatal screening, treatment and postnatal follow-ups.

2.5.2 Country presentations

Cambodia

Cambodia's HepB-BD activities and recently completed serosurvey between March and April 2017 were discussed. There is an increasing trend of HepB-BD vaccination coverage since its introduction in 2005. A national demographic health survey conducted in 2014 showed that 83% of infants received HepB-BD vaccine compared to 73% in 2010. Birth dose improvement activities during the last three years included training of midwives and new staff on HepB-BD in national and referral hospitals; publication and wide distribution of birth dose guidelines among health facilities; and mass media distribution on birth dose through radio, posters and pamphlets. A total of 2520 children aged 5–7 years from 269 villages in 70 communes participated in this cross-sectional, two-stage serosurvey. Eighty-one per cent of children received HepB-BD according to their immunization card and health centre records. Of the 2520 children tested, 14 were positive for HBsAg. Taking into account the cluster survey design, the preliminary weighted prevalence is 0.55% (95% CI: 0.32–0.98%). The preliminary serosurvey results show what amounts to a rapid success of the immunization programme and that Cambodia appears to have potentially achieved the Regional 2017 hepatitis B control goal of less than 1% prevalence.

China

Historically, about 10% of China's population were chronically infected with hepatitis B virus (HBV) and the majority of transmission occurred perinatally. Beginning in 1985 with the licensure of plasma-derived hepatitis B vaccine, China started to prevent and control HBV infection through a three-part strategy of source control, transmission interruption and prevention. Central to China's strategy has been the implementation of the timely HepB-BD (defined as birth dose given within 24 hours of delivery), followed by two more doses during infancy. In cooperation with the Jiang Xiao programme that brought childbirth into hygienic facilities, and with the principle of "whoever delivers the baby vaccinates the baby"; the use of the timely birth dose increased rapidly to its current level of over 90%. Key milestones include the introduction of the hepatitis B vaccine into Expanded Programme on

Immunization (EPI) management in 1992, making hepatitis B vaccination free of charge in 2002, and implementing nationwide HBV screening of pregnant women in 2015. China decreased the prevalence of chronic HBV infection among young children by 97%, from 9.8% in 1992 to 0.32% in 2014, surpassing the Western Pacific Regional goal. Challenges include eliminating vertical HBV transmission, which requires strengthening the programme and prevention strategies, implementing post-vaccination serological testing as a standard and maintaining confidence in the hepatitis B immunization.

2.5.3 Triple elimination of mother-to-child transmission of HIV, hepatitis B and syphilis

The World Health Assembly's endorsement in 2016 of three separate but similarly structured global health sector strategies for HIV, viral hepatitis and sexually transmitted infections (STIs), which look to end the HIV/AIDS, viral hepatitis and STI epidemics as public health threats by 2030. Working in consultation with Member States and having held an expert consultation on triple elimination of mother-to-child transmission of HIV, hepatitis B and syphilis, the Regional Office for the Western Pacific is developing a regional framework for triple elimination. As mentioned earlier, this framework proposes an integrated and coordinated approach towards triple elimination using the shared maternal, newborn and child health intervention platform during antenatal, delivery and postnatal care. The similarity of interventions for these three infections through the common platform provides a unique opportunity for coordination and integration of services that maximizes their accessibility, effectiveness and sustainability. The framework will be presented at the 2017 Regional Committee for the Western Pacific.

2.6 Maternal and neonatal tetanus elimination (MNTE)

2.6.1 Regional progress

In 1999, 59 priority countries were identified for MNTE and six countries from the Western Pacific Region were included on this list. Viet Nam was validated as having achieved MNTE in 2005, China in 2012, the Lao People's Democratic Republic in 2013 and, most recently, Cambodia in 2015.

The Philippines conducted a survey in February 2015 in which 16 of 17 regions surveyed were validated as having achieved MNTE. The only region in which elimination has not been validated, the Autonomous Region of Muslim Mindanao (ARMM), is currently conducting three rounds of tetanus–diphtheria supplementary immunization activities (SIAs) in high-risk districts and areas. The expected timeline for validation is by the end of 2017. Regarding Papua New Guinea, WHO conducted a joint assessment with UNICEF and the National Department of Health in June 2016 to outline the plan of action for the country to achieve elimination. A tetanus toxoid (TT) SIA is under way in their high- and medium-risk provinces as a step towards achieving elimination in the country.

2.6.2 Country presentation

Philippines

The Philippines had approximately 20,000 cases of neonatal tetanus in 1982. Since the early 1990s, the country has been working towards MNTE but progress has been affected by the TT controversy that persisted in the country for almost 11 years. Elimination efforts were fast-tracked after the Philippines Department of Health, WHO and UNICEF desk review in 2009, which led to three rounds

of TT SIA in 2011–2012 in nine high-risk districts in Luzon and Mindanao. Pre-validation exercises followed in 2013 and 2014. These revealed significant improvements in the MNTE indicators; hence, the country expressed readiness for validation. In 2015, the lot quality assurance sampling (LQAS) in Occidental Mindoro led to the validation of 16 of 17 administrative regions. ARMM was not included in the LQAS as it includes the lowest-performing districts due to their persistent security risk. To complete the validation of ARMM, three-rounds of tetanus–diphtheria toxoids (Td) SIA and two phases of external rapid coverage assessments (RCAs) were conducted. Coverage of women of childbearing age who received three doses of Td reached 83% and each round reached more than 80%, as per the target. Despite the current challenges in ARMM following the recent siege in Marawi City, the Philippines remains optimistic that it will achieve complete validation by the end of 2017.

2.7 Measles and rubella elimination

2.7.1 Global overview and midterm review

The presentation highlighted the main conclusions and recommendations of the midterm review that was endorsed by SAGE in October 2016 of the *Global Measles and Rubella Strategic Plan 2012-2020*. The review concluded that despite tremendous progress made since 2001, neither measles nor rubella elimination was on track. While the Region of the Americas has eliminated both measles and rubella, which demonstrates its feasibility, only 63 WHO Member States had achieved measles elimination and 55 rubella elimination by May 2017. Half of the global birth cohort is without access to rubella vaccine and coverage. The basic strategies are sound but require full implementation and at times local adaptation. Full implementation has been limited by lack of country ownership and global political will. As a result, it is premature to set a time frame for global measles eradication.

There is an urgent need to strengthen the collection and use of surveillance data to better guide programme strategy and implementation. Emphasis should be placed on prevention of outbreaks through monitoring of risk status and increased attention to vaccination of underserved communities and high-risk settings. Incidence of measles and rubella and coverage with measles and rubella vaccines should be considered among primary indicators of immunization system performance. Strengthening of immunization systems is critical to achieving regional elimination goals, including a need to shift from SIAs to primary reliance on routine immunization to deliver two doses of vaccine and sustain high population immunity at national and subnational levels. Every opportunity should be taken to vaccinate people not adequately vaccinated, particularly those under 15 years of age. Immunity gaps among adolescents and adults need to be addressed. SAGE also stressed the importance of more effective communication and engagement with the public.

The May 2017 World Health Assembly resolution on strengthening immunization to achieve the goals of the GVAP requests the Director General of WHO to report in 2020 to the Seventy-third World Health Assembly through the Executive Board on the epidemiological aspects and feasibility of, and potential resource requirements for, measles and rubella eradication.

2.7.2 Regional progress

Characteristics of the regional measles resurgence from 2013 to 2016 and recent rubella epidemiology in the Region include:

1. Endemic countries experienced increased ongoing transmission.
2. Importation caused large-scale or multiple measles outbreaks in many countries where interruption of measles transmission had been achieved or measles incidence had become very low.
3. Importation re-established endemic transmission in countries where interruption of measles transmission had been achieved or measles incidence had become very low.
4. The burden of congenital rubella syndrome (CRS) has been largely unmeasured, unrecognized and underestimated in the Western Pacific Region.
5. The proportion of people of reproductive age infected with rubella has been significantly increasing in several countries.

The operational targets to be achieved in 2017–2020 for measles and rubella elimination initiatives in the Western Pacific Region include:

1. Prevent resurgence of endemic measles virus transmission.
2. Interrupt all ongoing measles transmission in endemic countries.
3. Achieve and sustain interruption of measles virus transmission in countries and areas approaching measles elimination and having reached measles elimination.
4. Prevent large-scale outbreaks after importation.
5. Establish and maintain verification-standard measles surveillance supported by WHO-accredited laboratories in all countries and areas of the Region.
6. Develop regional verification guidelines for rubella elimination (by 2017).
7. Set a regional target year for rubella elimination in the Region (in 2017).
8. Set a national target year for rubella elimination in all countries (by 2018).
9. Develop national strategies and plan of action for rubella elimination in all countries (by 2018).
10. Establish CRS surveillance in all countries.

2.7.3 Report from the Regional Verification Commission

The background and terms of reference of the Regional Verification Commission for Measles and Rubella Elimination in the Western Pacific (RVC) were presented. The RVC was established in 2012 in response to the 2010 resolution of the WHO Regional Committee for the Western Pacific, requesting the Regional Director to establish a regional verification mechanism for measles elimination and urging Member States to establish independent national verification processes following the standardized Regional verification mechanism. The RVC has the following objectives:

1. Serve in an honorary capacity and verify the progress of measles and rubella elimination first by country or area, the Pacific subregion, and eventually for the Region as a whole.

2. Establish criteria and procedures required for the verification of measles and rubella elimination in the Region.
3. Help develop verification guidelines for measles and rubella elimination in the Region.
4. Provide guidance and conduct field visits when necessary to national verification committees (NVCs) and/or the Pacific subnational verification committee (SRVC) on measles and rubella elimination.
5. Advise NVCs on issues related to verifying measles and rubella elimination and to provide feedback about RVC conclusions and recommendations.
6. Advocate measles and rubella elimination in collaboration with WHO, NVCs and the SRVC.

At the 5th RVC meeting in 2016, Australia, Brunei Darussalam, Cambodia, Hong Kong SAR (China), Japan, Macao SAR (China) and the Republic of Korea were verified to have interrupted endemic measles virus transmission for more than 36 months. During this meeting, guidelines on verification were revised and rubella elimination was also included.

2.7.4 New Regional strategy and report on Regional consultation on measles and rubella elimination

Current issues and challenges to be addressed for achieving the proposed operational targets for 2017–2020 include the following:

1. changing measles epidemiology (e.g. increased measles virus transmission among adolescents and young adults not targeted by the present immunization strategy and among infant too young to be vaccinated; repeated outbreaks among minority groups and special populations (e.g. migrant workers, urban slum dwellers, etc.); becoming more diverse within countries with large populations; etc.);
2. changing rubella epidemiology (e.g. the proportion of reproductive-aged people infected with rubella has been significantly increasing in several countries of the Western Pacific Region);
3. immunization system not yet strong enough to achieve and maintain elimination (e.g. planning at subnational levels, cold chain, vaccine management, etc.);
4. national measles and rubella laboratory lacking sufficient capacity to conduct serological testing in a timely manner during large-scale outbreak;
5. delayed outbreak investigation, insufficient outbreak response, insufficient case management and nosocomial transmission; and
6. lack of partnership and collaboration at subnational levels.

To address these issues and progress towards regional measles and rubella elimination, the application of strategies and activities proposed by *Measles and Rubella Elimination in the Western Pacific: Regional Strategy and Plan of Action* were discussed. Conclusions and recommendations of the April 2017 Consultation on Regional Measles and Rubella Elimination in the Western Pacific were also presented and discussed.

2.8 Japanese encephalitis (JE) accelerated control

2.8.1 Global and regional update and report on the biregional JE meeting

A presentation was made on JE burden, surveillance and vaccination programmes globally and in the Region. Ten of 12 countries and areas with endemic JE transmission in the Region have introduced JE vaccine in some or all JE risk areas or have very low levels of disease without vaccination. Seven countries have introduced JE vaccine in all risk areas; one country has introduced JE vaccine in some risk areas; two countries have very low levels of disease and have made a decision not to introduce JE vaccine; one country is planning a subnational JE campaign in 2018 followed by routine introduction; and one country is collecting JE burden data in preparation to make a decision on introduction. Dr Heffelfinger also gave updates on the conclusions and recommendations of the 2016 JE Expert Resource Consultation and the 2016 Biregional Meeting on Control and Prevention of JE.

2.8.2 JE laboratory network in the Western Pacific Region

Comprised of 20 laboratories (1 global, 2 regional, 7 national and 10 subnational), the JE laboratory network in the Western Pacific Region supports surveillance through laboratory confirmation of JE suspected cases. Laboratories are using the WHO-recommended InBios JE IgM ELISA kit and standardized reporting system. Completeness of data reported has been satisfactory and surpassed the more than 80% indicator target but timeliness of reporting is still low. Quality control is implemented through an external quality assessment programme and through confirmatory testing at global and regional reference laboratories. All laboratories have a concordance rate of more than 90%. In order to strengthen laboratory capacity and ensure good quality of laboratory testing, biregional (WHO South-East Asia and Western Pacific regions) hands-on laboratory training has been organized for 31 July–4 August 2017 in Manila. Challenges remain with regard to specimen collection, specifically obtaining samples of cerebrospinal fluid (CSF), and the availability of genotype-level data from circulating viruses. Close collaboration is needed between surveillance systems in order to obtain virus isolates to better understand the epidemiology of JE disease and to support vaccine efficacy research.

2.9 Polio

2.9.1 Global update

The GPEI continues its efforts to stop polio transmission and deliver on its promise of a polio-free world. In 2016, just 37 cases of wild poliovirus type 1 (WPV1) were detected in three countries: Pakistan, Afghanistan and Nigeria. This is the lowest annual total ever recorded. As of 6 June 2017, just five cases have been reported. In addition, since the global switch from trivalent to bivalent OPV in April 2016, there have been eight cases (and three contacts and four environmental isolates) of circulating vaccine-derived poliovirus type 2 (cVDPV2) confirmed in six distinct outbreaks in four countries (Nigeria, Pakistan, Democratic Republic of the Congo and Syria).

The remaining polio-endemic countries of Pakistan, Afghanistan and Nigeria have the best opportunity yet to stop polio if national emergency action plans are fully implemented and there is continued commitment and oversight from national governments. Reaching highly mobile populations

in Afghanistan and Pakistan as well as currently inaccessible children in Borno State, Nigeria will be critical for success.

Given the risk that type 2 poliovirus now represents to the programme, the rapid detection of and appropriate response to these viruses continues to be a programme priority. The GPEI priorities for the next six months are to: 1) interrupt WPV in the last remaining reservoirs; 2) stop all cVDPV2 transmission; 3) increase sensitivity of surveillance for polioviruses; and 4) maintain a high level of donor support.

2.9.2 Polio eradication and regional update

The Western Pacific Region has remained polio-free since certification in 2000. The four components critical to sustaining polio-free status are:

1. risk assessments;
2. routine vaccination and SIAs;
3. surveillance for polioviruses; and
4. preparedness and response to polio importation and outbreak.

In 2016, the Regional Certification Commission for Polio Eradication identified two countries (Papua New Guinea and the Philippines) at high risk for poliovirus importation and transmission. However, high-risk areas/territories were also identified in countries identified as being at medium and low risk. National-level coverage with the third dose of polio vaccine in 2016 was high for the Region (90% or more). Yet, there are still countries/areas with immunity gaps due to suboptimal coverage with polio vaccines. The quality of surveillance for acute flaccid paralysis (AFP) cases was generally high, but performance varies notably among countries/areas.

The Regional priorities for 2017–2020 include:

1. achieving/maintaining a high level of population immunity against polio and improving/sustaining performance of AFP surveillance, with a focus on the subnational level;
2. addressing the shortage of IPV supply;
3. expanding environmental surveillance in priority countries;
4. continuing work on polio containment in line with the requirements of the *WHO Global Action Plan to Minimize Poliovirus Facility-Associated Risk after Type-Specific Eradication of Wild Polioviruses and Sequential Cessation of Oral Polio Vaccine Use* (GAPIII); and
5. proceeding with polio transition.

2.9.3 Polio laboratory network and environmental surveillance update

The regional polio laboratory network plays a crucial role in monitoring the presence of poliovirus (including WPV, VDPV and Sabin virus), confirmation of results of AFP cases and non-AFP cases, and documentation of the elimination of type 2 polioviruses following the switch from trivalent to bivalent OPV. Regional polio network laboratories are conducting intratypic differentiation (ITD) of polioviruses using the WHO-recommended protocol. As of June 2017, of 43 polio laboratories in the Western Pacific Region, 41 have the capacity to perform ITD testing, of which 30 are provincial laboratories in China. No type 2 poliovirus was detected from AFP cases or environmental

surveillance (ES) samples three months post-switch (August 2016). ES has been implemented in five countries in the Western Pacific Region (Australia, China, Japan, Malaysia and the Philippines). The Philippines started testing ES samples in April 2017 and have identified three samples with type 3 Sabin viruses.

2.9.4 GPEI outbreak response

From May 2016 to 6 June 2017, a total of 38 vaccine-derived poliovirus type 2 (VDPV2) events and 6 VDPV2 outbreaks were reported. Other than wild poliovirus circulating in endemic countries, no other outbreak from any other poliovirus has been reported in the last 12 months.

All cVDPV2 outbreaks detected in 2016 have been covered with at least two rounds of monovalent OPV type 2 (mOPV2) and there are plans to use mOPV2 in the Democratic Republic of the Congo and Syria following recent detection of cVDPV2 in these countries. This is the most appropriate and effective vaccine to rapidly stop circulation of VDPV2.

The outbreak response standard operating procedures were updated in May 2017 in light of continued global shortages of IPV, evolving risk scenarios for countries and lessons learnt from recent outbreak response activities. These updated practices have been shared with all regions and countries.

Changes include an increased emphasis on evaluating risk as well as modifications to response strategies following the detection of VDPV2. VDPVs will no longer be classified based solely on the number of nucleotide changes from Sabin virus.

As of September 2016, the detection of Sabin type 2 (SL2) must be notified and investigated as it may constitute a potential event of public health concern.

Recent outbreaks in areas with security and acute access challenges highlight the importance of sensitive surveillance and high immunity in vulnerable or underserved populations

2.9.5. Country presentation

Lao People's Democratic Republic

An outbreak of circulating vaccine-derived poliovirus type 1 (cVDPV1) started in October 2015. Since the start of the outbreak, there have been 11 cases of cVDPV1, which has been isolated also from the stools of 25 healthy contacts.

Outbreak response activities have been conducted nationwide. A polio outbreak response plan was developed and emergency operations centres have been activated at the national and provincial level. Since the first case, the Ministry of Health has conducted 10 rounds of bOPV SIAs in 18 provinces. The range of the reported administrative coverage was between 87% and 101% in the rounds at the national level. The active involvement of village chiefs, village health volunteers and community leaders ensured effective social mobilization and communication for successful achievements of SIAs.

The thirteenth meeting of the Emergency Committee under the International Health Regulations (IHR [2005]) regarding the international spread of poliovirus was convened in April 2017. The IHR Committee noted that the onset of the most recent case of cVDPV was in January 2016 and, based on the most recent outbreak response assessment and the criteria of the Committee, the country is no longer considered infected but remains vulnerable.

2.9.6 Global IPV introduction and supply

The IPV supply situation remains constrained at the global level, but is likely to improve sufficiently in 2018 to be able to allow all countries to introduce IPV into their NIPs. The available supply continues to be allocated based on risk, with a review of country risk profiles ongoing. While several new manufacturers are working on bringing IPV to market, this is not likely to happen before 2021. Within the Western Pacific Region, Mongolia and Viet Nam have not yet had access to IPV and should start discussing plans for catch-up campaigns for missed birth cohorts, which include those born as of April 2016.

2.9.7 SAGE recommendations on fractional IPV

SAGE has completed a review of all the available data on fractional-dose IPV (fIPV) and concluded that regional and national immunization technical advisory groups should recommend two fractional IPV doses in national routine immunization schedule, where feasible. To date, 22% of the world's birth cohort is already receiving IPV through fractional doses. Countries interested in exploring this approach are encouraged to discuss it with their National Immunization Technical Advisory Groups (NITAGs). Countries moving to fIPV will also be prioritized for IPV supply.

OPV will continue to be used for approximately four years after the last case of polio. Once OPV is withdrawn, vaccination with IPV will continue for at least 10 years. Countries with a poliovirus essential facility (PEF) need to plan for longer use of IPV, in alignment with GAPIII requirements. Once OPV is withdrawn, SAGE recommends giving at least two, either full or fractional doses, of IPV to all children. The first dose should be given at 14 weeks or after, and the second dose at least 4 months after the first dose.

2.9.8 Polio laboratory containment

Implementation of polio laboratory containment (GAPIII) has been ongoing but with some operational impediments. While all countries have reported on containment of WPV/VDPV type 2 (Phase 1, Part 1), the progress of identifying potentially infectious materials that may contain Sabin/OPV type 2 poliovirus (Phase 1, Part Two) has been delayed. It is pending finalization of the WHO guidance document detailing classification of these materials based on the likelihood of contamination with type 2 poliovirus. Five countries in the Region will designate PEFs that will handle and store WPV/VDPV/OPV/Sabin type 2: Australia, China, Japan, the Republic of Korea and Viet Nam. The total number of PEFs globally is currently 77 in 30 countries. WHO has developed the GAPIII Containment Certification Scheme (CCS) to guide countries in the containment certification process. Countries with designated PEFs should identify a national authority for containment (NAC) that will be responsible for certification of PEFs in line with GAPIII and as outlined in CCS. The Global Certification Commission (GCC) on polio eradication will review and validate containment certificates.

2.9.9 Polio post-certification strategy

The Post-Certification Strategy is being developed to establish the high-level technical standards that are needed to sustain a polio-free world after global certification of polio eradication. Development of the Strategy was initiated in 2017 by the GPEI and is being elaborated in regular consultation with

national health authorities, global partners, scientific experts, donors and other stakeholders. It will go to the World Health Assembly for endorsement in 2018.

The Post-Certification Strategy has three goals:

1. Contain polio sources: ensure potential sources of polioviruses are properly controlled or removed.
2. Protect populations: immunize populations against unanticipated polio events.
3. Detect and respond: promptly detect any poliovirus reintroduction and rapidly respond to prevent transmission.

Additional focus is placed on "Enabling and Cross-Cutting Areas", to specify the ongoing governance and management model, advocacy and resource mobilization, research activities and the monitoring required to sustain a polio-free world.

2.10 Diphtheria outbreak and response

2.10.1 Country presentations

Malaysia

Malaysia vaccinates against diphtheria, pertussis and tetanus in three primary series at 2, 3 and 5 months respectively, with a booster at 18 months and a further diphtheria and tetanus toxoid vaccination (DT) at 7 years. DTP3 coverage in Malaysia was over 95% in 2016. There has been an increased incidence of diphtheria with 4 cases in 2013, 2 in 2014, 4 in 2015 and 31 in 2016. Of the 31 cases reported in 2016, 27 (87%) were Malaysian nationals and 4 (13%) were foreign nationals, with a fairly even split between females (46%) and males (54%). Ten (36%) of the individuals had incomplete vaccination status, 12 (43%) had received complete vaccination, 6 (21%) had a history of no vaccination and the rest had unknown vaccination status. Five deaths were reported in 2016. The country has an investigation and outbreak management manual for health-care personnel. The diphtheria antitoxin (DAT) was the mainstay of treatment available in the hospitals. Due to inadequate stocks, support was obtained from Thailand and Singapore. There is an opportunity to close the existing immunity gaps through: raising awareness among health-care workers and the general public, SIAs, pre-school vaccination requirement, and advocacy to promote vaccines through health-care workers and influential religious leaders. Challenges involve vaccine hesitancy groups, low coverage in low socioeconomic groups and working parents who are unable to take their children to health facilities for vaccination.

Viet Nam

Viet Nam introduced the diphtheria–pertussis–tetanus vaccine (DPT) primary series in 1985. It was replaced with the pentavalent vaccine in 2011, alongside the introduction of DPT4 at 18 months. Viet Nam keeps high coverage (> 95%) of DPT3, with the exception of 2013, when vaccines were suspended following an adverse event following immunization (AEFI). DPT4 coverage had been 90-93% in 2015–2016. Reported diphtheria incidence dropped from 4.1 per 100 000 population in 1984 to below 0.5 per 100 000 in 1993. However, several outbreaks occurred among ethnic minorities with low routine immunization coverage in remote areas bordering the Lao People's Democratic Republic and Cambodia in 2014–2017. The most affected age group was those aged more than 15

years, followed by 10–14-year-olds. Td-SIAs, prophylaxis antibiotics and disinfection were conducted as outbreak responses.

Key challenges that persist include:

1. immunization gap among ethnic minorities, mobile populations that move across borders and those in remote areas;
2. adolescents and adults who are not in the EPI target population, but are at risk; and
3. lack of DAT for proper case management.

Actions have been taken to strengthen routine immunization. These include the requirement of up-to-date routine immunizations for school entry in remote areas. Furthermore, the National Expanded Program on Immunization will propose to the Ministry of Health to introduce a Td booster dose at age 7 years into EPI. Public communication and health-care worker training will help ensure early detection and proper treatment of diphtheria. Lastly, the Ministry of Health will discuss the DAT stockpile.

2.10.2 Regional overview

Globally, reported diphtheria cases declined from almost 10 000 cases per year during 2000–2004 to 5288 per year during 2005–2009, and since 2009 annual reported cases have levelled off. The South-East Asia Region is the primary driver of global diphtheria incidence. In the Western Pacific Region, there has been an increased incidence in diphtheria cases in recent years from the Lao People's Democratic Republic, Malaysia, the Philippines and Viet Nam. There have been no reported cases of diphtheria from most countries and areas. In Papua New Guinea, no cases have been reported since 2005 despite low DTP3 coverage in the country ranging from 55% to 75% over the last 16 years. The lack of case-based data for diphtheria makes it difficult to analyse and respond during outbreaks. There is a wide variety of immunization schedules for diphtheria toxoid in the Region, mainly regarding how many booster doses are given. The WHO-recommended schedule for diphtheria toxoid is six doses (three primary doses plus three booster doses prior to adolescence). As tetanus and diphtheria vaccines are frequently administered together, it is programmatically advantageous to harmonize their schedules.

2.11 Strengthening routine immunization programme

2.11.1 Need and opportunity for strengthening routine immunization programme: way forward

The Western Pacific Region is making progress towards achieving many of the Regional Framework and GVAP goals. Since 2009, the Region as a whole has sustained coverage above 95% with DTP3, reaching 97.3% in 2016. However, there are disparities among countries: 14 countries have achieved DTP coverage of 95% or above (the Regional Framework 2020 coverage target), while 22 countries have reached the GVAP target of more than 90% coverage. Only 10 countries and areas in the Region reached more than 90% DTP3 coverage in all districts. Notable dropout rates from DPT1 to DPT3 and first dose of measles-containing vaccine (MCV1) were observed in some countries at either or both national and subnational levels.

There is a potential risk of emerging VPDs due to gaps in population immunity, so there is a need to intensify the use of all available opportunities and strategies, such as Reaching Every District (RED),

the second year of life (2YL) platform, world immunization weeks (WIWs) and collaboration with private providers to reach high immunization coverage to protect all communities against VPDs.

Nineteen middle-income countries (MIC) in the Western Pacific Region are relying on domestic financing, meaning that the WHO-initiated MIC strategy is expected to be a game changer for improving immunization.

2.11.2 Update on strengthening decision-making: NITAGs

Updates were provided on strengthening decision-making. The key objective in both the GVAP and the Regional Framework is to strengthen national capacity for formulating evidence-based immunization policies through the establishment and strengthening of NITAGs or equivalents. NITAGs in the Western Pacific Region operate at varying levels of quality. Some are advanced with clear policies and processes and make use of best evidence-based decision-making practices. Other NITAGs are newly formed. Some lack independence of membership, structure and procedures, and have challenges in arriving at sound recommendations. There have been examples of successful progress towards effective immunization decision-making bodies in each country, but more needs to be done to meet the Regional objective. Support is available to assist with improving NITAG processes and procedures, and capacity in evidence-based decision-making processes. Regional collaboration could provide an opportunity to address some of the common challenges faced by NITAGs.

2.11.3 2YL approach

A presentation was made on the rationale and approaches for strengthening platforms to administer vaccines in the 2YL. Monitoring the uptake of the second dose of measles-containing vaccine (MCV2) has shown that achieving high coverage is not as easy as it is for vaccines scheduled during infancy. Reasons for this include that immunization systems were built for administering vaccines during infancy and are often not modified, and there is a lower demand for 2YL vaccines due to the common and deep-rooted perception that a child does not need vaccine beyond infancy. Strengthening the 2YL platform will be an important step as programmes move towards a life-course approach to vaccination while also addressing more immediate goals of preventing disease and outbreaks by fully protecting children from VPDs.

Countries need to establish at least one scheduled immunization visit during the 2YL to accommodate the increasing number of vaccines recommended or have options to be administered in the 2YL (see figure below). This visit brings an important opportunity to catch up missed infant vaccines and helps us get closer to the 90% national/80% district-level GVAP coverage targets. Strengthening 2YL platforms can play a significant role in helping the Western Pacific Region achieve measles elimination by designing a system that provides two timely doses and a safety net that will identify a missed dose during a 2YL visit and schedule subsequent visits until fully protected.

Key features of strong 2YL platforms include: having clear policies and guidance for scheduled 2YL and catch-up vaccination; considering other health interventions at a 2YL visit; modifying the vaccine supply to accommodate reaching coverage targets and full implementation of catch-up vaccination; reviewing and modifying data systems so that 2YL vaccines can be efficiently and accurately monitored; and assessing and having high demand for 2YL vaccines from the service delivery and community perspectives.

2.11.4 Country presentation: Middle-income country strategy to strengthen logistics in the Philippines

In November 2016, the MIC Task Force visited the Philippines and started a dialogue with the Department of Health with the aim of identifying issues and proposing solutions to improve immunization coverage and develop strategies to achieve the GVAP targets. Discussions were focused on strengthening NITAG functionality, ensuring programme sustainability, increasing demand for immunization and increasing equity in immunization service delivery. Following the Task Force recommendations, the Philippines NITAG has been receiving support from WHO to develop standard operating procedures. To secure vaccine supply, the Philippines Department of Health shifted procurement of traditional vaccines to UNICEF, strengthened the role of the national vaccine store and adopted new tools to improve management of vaccine stocks, storage and distribution. To improve coverage, the Department of Health is partnering with WHO and UNICEF to increase demand for immunization and to improve service delivery to marginalized populations, especially in the urban setting. However, the Department of Health calls for the support of partners to help middle-income countries improve equity in immunization by advocating to bring down the cost of new vaccines such as pneumococcal conjugate vaccine (PCV) and human papillomavirus (HPV) vaccine to enable security of supply and scale up nationwide introduction.

2.11.5 WIW: enhanced opportunities to strengthen routine immunization

Australia's childhood immunization coverage rate is approximately 93% of all children aged 5 years. Based on available information, there are gaps in immunization coverage rates for a number of at-risk populations including Aboriginal and Torres Strait Islander people, pregnant women and people living in communities containing high numbers of vaccine hesitators. While immunization is not compulsory in Australia, the Australian Government is a strong supporter of immunization and actively promotes community immunization through dissemination of resources and public communication campaigns.

Recent campaigns include influenza vaccination in pregnancy (targeting pregnant women) and the National Shingles Vaccination Program (targeting people aged 70–79 years). Lessons learnt through the implementation of these campaigns include:

1. Consumer research conducted on behalf of the Department of Health indicates that a recommendation to vaccinate is most influential when delivered by a credible health-care professional or provider.
2. Therefore, communication and campaign activities that target health-care professionals in addition to consumers (e.g. pregnant women) are likely to be most effective.
3. Programme risk issues such as lack of available supply have the potential to damage relationships with implementation partners, providers and consumers.
4. Education and communication campaign activities should be scaled to the level of available supply of vaccines.

2.11.6 Intensified approaches: lesson learnt from the Special Integrated Routine EPI Strengthening Program (SIREP) in Papua New Guinea

Several identified challenges, including low coverage, poor leadership and management, and absence or poor quality of cold chain equipment, are being addressed through the SIREP strategy. SIREP is supported by WHO and UNICEF and aims to revive the routine EPI programme. Using this opportunity, the country also introduced three new vaccines (PCV13, measles and rubella and IPV) and launched the strategy in two regions in August 2015, followed by the remainder of the country in 2016. The main focus of the SIREP strategy was leadership and management, awareness communication, social mobilization and community participation, vaccine and cold chain management, and supervision and monitoring. This focus worked well in six provinces, which achieved almost 80–95% coverage for measles–rubella vaccine. Financial constraints, specifically in provinces where Gavi funded no more than 60% of the operational cost, were linked to poor coverage. Two provinces were unable to start SIREP due to significant management and leadership issues.

Based on the experience from the beginning of SIREP, WHO assigned three Stop Transmission of Polio (STOP) Program staff to six low-performing provinces in mid-2016. The outcome of this intervention shows at least a 5–10% increase in routine vaccine coverage in most provinces over one year. WHO and UNICEF have identified provinces for SIREP support in 2017, to be funded by Gavi. The National Department of Health hopes that development partners will continue their support to improve the routine EPI programme under the SIREP strategy, with the aim of achieving 95% coverage by 2020.

2.11.7 The Child Immunization Information Management System (CIIMS): a tool to improve EPI performance

China began to develop its Child Immunization Information Management System (CIIMS) in 2004 to replace an inefficient and inaccurate paper-based reporting system for recording vaccines administered to children through the EPI system. Following pilot implementation, CIIMS spread to almost the entire country by 2010 and over 95% of townships now use CIIMS. This Internet-based system is integrated with the AEFI surveillance system, and also integrates vaccine and cold-chain management systems. The client-server architecture has been augmented with apps for both providers and parents in some areas, facilitating appointment making and record-keeping, even away from a clinic computer. Use of CIIMS is associated with increased vaccination coverage and reduced workload. Ongoing enhancements include empowering the national platform to exchange data with

provinces, enabling province-level interoperability, identifying best practices for clinics, evaluating performance and enrolling unregistered children into EPI.

2.12 Review and monitoring of immunization programme

2.12.1 New approach to programme review

An EPI review is a comprehensive assessment of strengths and weaknesses of an immunization programme at national, subnational and service delivery levels, in order to provide evidence for revision of EPI strategies and identify priority activities. Conducting a high-quality EPI review has become challenging because of the increasing complexity and scope of immunization programmes, and the growing need to align or integrate with other assessments, including but not limited to new vaccine post-introduction evaluations and VPD surveillance reviews. Besides the usual focus on EPI building blocks (i.e. service delivery, vaccine supply and management, data quality, etc.), there is an increasing need to review EPI financing mechanisms, especially for countries without access to donor funding or those transitioning out of it. The review must also consider broader aspects that can impact immunization programmes such as population movements, urbanization, overall development of the health sector and the extent of government decentralization. WHO has developed new EPI review guidelines that take into account these challenges and aim to guide countries in the implementation of a high-quality and comprehensive EPI review.

2.12.2 Country presentation

Mongolia in combining broader sustainability issues in EPI review

Mongolia conducted a comprehensive EPI review on 17–31 May 2017 using the new WHO EPI review guidelines for the preparation and implementation process. Mongolia conducted a thorough desk review which identified priority components of the immunization system: human resources management, financial sustainability, service delivery, new vaccine introduction and VPD surveillance and coverage monitoring. The general EPI review was integrated with financial sustainability assessment and post-introduction evaluation, and conducted through deployment of eight teams at both national and subnational levels. The EPI review was conducted with the support of nine international monitors, including from WHO, the United States Centers for Disease Control and Prevention (US CDC) and senior consultants, who acted as leads of each field team as well as topic leads during the consolidation of the findings. The EPI review was a capacity-building opportunity for the NIP. It demonstrated the feasibility of integrating three different assessments, which enabled reviewing broader system issues that affect the capability to strengthen technical aspects of EPI. Engagement of traditional and non-traditional stakeholders was essential, as well as the participation of high-level government officers. Mongolia is now planning to develop a midterm costed strategic plan and an action plan to implement the review's recommendations.

2.12.3 Use of subnational data to monitor GVAP progress (beyond JRF data)

Immunization coverage is a key indicator to monitor progress towards GVAP and Regional Framework goals pertaining to coverage targets and equity in access to immunization. Subnational immunization coverage data are necessary to unmask possible disparities in coverage and identify immunity gaps even where national coverage is high. Subnational level coverage is routinely

monitored through the JRF, using the proportion of districts reporting coverage within a certain range. However, this indicator presents several limitations: 1) progress over time cannot be monitored within each district; 2) geographical coverage distribution is unknown; 3) the number of children missed in each district is unknown; and 4) data quality checks are very limited. Therefore, WHO and UNICEF have decided to request that all countries annually submit subnational coverage data at the same time as JRF submission, including at the minimum the target population and number of children vaccinated for DTP1, DTP3 and MCV1 for each district or equivalent administrative level. Data will be used to progressively develop district-level coverage profiles.

2.12.4 Status of VPD surveillance in the Region: results from 2017 survey

Surveillance systems provide key information to support decision-making and monitor the impact of immunization on morbidity and mortality. Usefulness and comparability of surveillance data across countries depends on their quality, which in turn depends on the representativeness and sensitivity of the system. Representativeness and sensitivity change substantially depending on the inclusion of VPDs among notifiable diseases, suspected case definition, health facilities included in the surveillance system and integration with syndromic surveillance. In 2017, a global survey on VPD surveillance systems was conducted in order to gain a better understanding of their characteristics. Survey results showed that surveillance systems for all or most VPDs are in place in all countries in the Region. However, representativeness and sensitivity vary among countries and among VPDs: 25-40% of surveillance systems are sentinel based; for CRS and new and underutilized vaccines more than 60% of systems are subnational; 20–30% of countries do not include diphtheria, pertussis and tetanus among notifiable VPDs; and acute fever and rash are used as a definition for suspected cases of measles and rubella in only 25% of countries. Use of surveillance data should consider the limitations and diversity of national surveillance systems.

2.12.5 Strengthening regulatory capacity and safety: regional update on regulatory capacity

All countries and areas in the Region are supplied with quality-assured vaccines for NIPs thanks to WHO and United Nations programmes, including the rigorous process of setting regulatory standards for manufacturing and licensing evaluation, prequalification and safety programmes. All these programmes are supported by advanced regulatory authorities and institutions. Since June 2015, 91% of the population from seven Member States in the Region have had access to quality-assured vaccines meeting WHO assessment criteria, as stipulated by the respective National Regulatory Authority (NRA). The NRAs of 20 Member States comprising 9% of the total population still need the following: improvement in registration, competencies for marketing authorization file evaluation, pharmacovigilance, storage and distribution inspections, as well as laboratory testing when necessary. The Regional Office works with priority countries to improve the process of AEFI case reporting by applying the Vaccine Adverse Event Information Management System software. Lastly, China successfully developed three inactivated enterovirus 71 vaccine products against hand, foot and mouth disease, and Viet Nam first licensed domestically developed measles–rubella combined vaccine in 2017.

2.12.6 Strengthening regulatory capacity and safety: regional update on AEFI surveillance and response

In 2016, only 11 countries in the Region had met the GVAP reporting indicator of a functioning AEFI reporting system of at least 10 AEFI cases per 100 000 surviving infants per year. This suggests that the improvement of AEFI surveillance has been too slow, particularly pertaining to underreporting. This is concerning given the vaccine safety implications, especially of new and underutilized vaccines. In particular, countries with limited resources must improve AEFI reporting and data quality and share data for inclusion in the WHO safety database which can be used for comprehensive responses at national and regional levels.

In 2016, nine countries reported 13 vaccine stock-outs, of which 7 were at the national level. Five events went on for more than three months. The Effective Vaccine Management (EVM) initiative provides materials and tools to improve supply chain performance. There is a need for effective vaccine and immunization communication capacity to sustain public trust and demand of vaccines and immunization. WHO provides technical support in the form of the latest available scientific information to Member States.

2.12.7 Country presentation: HPV implementation challenges

Republic of Korea

HPV vaccine was introduced into the Republic of Korea's NIP in June 2016. The vaccine is administered with a two-dose schedule (0 and 6 months) for girls aged 12 years. As of the end of 2016, HPV vaccine coverage reached about 50%, but concerns about HPV vaccine safety remain one of the main challenges to increasing vaccine coverage. To overcome rumours about safety issues, the Korea Centers for Disease Control and Prevention (KCDC) distributed leaflets addressing the misunderstandings and relating the truths about the HPV vaccine through social networking services. KCDC also conducted internal case-by-case monitoring and reporting. Furthermore, the National AEFI Compensation Committee discussed the causality of post-vaccination symptoms, followed by the issuance of a press release by KCDC, which detailed the results of the causality assessment. KCDC will conduct a survey considering the reasons that parents are HPV vaccine hesitant, in order to inform further strategies for vaccine safety communication.

2.13 New and underutilized vaccines introduction (NUVI)

2.13.1 Global and regional update

An overview of available new vaccines and introduced new vaccines globally and in the Western Pacific Region was given. 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. *Haemophilus influenzae* type b (Hib), HPV, JE, pneumococcal conjugate, rotavirus (RV) and rubella vaccines were considered new vaccines. During 2010–2016, 11 (69%) of 16 low- and middle-income countries that had not introduced all new vaccines prior to 2010 were successful in introducing at least one new vaccine by June 2016. Nine (90%) of 10 low- and lower-middle-income countries and 2 (33%) of 6 upper-middle-income countries introduced at least one new vaccine by June 2016. 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 low- and lower-middle-income countries.

2.13.2 New vaccine surveillance networks

The Global Invasive Bacterial Vaccine-Preventable Disease (IB-VPD) and Rotavirus Surveillance Networks were established from existing surveillance systems and standardized across all WHO regions in 2008. There are 54 (116 sentinel sites) WHO Member States reporting their data to the IB-VPD surveillance system and 52 (110 sentinel sites) Member States reporting to the RV Surveillance Network.

A presentation on the surveillance objective and mechanism as well as results from both surveillance networks was given. It was concluded that most surveillance sites performed well and maintained or improved their performance during the last few years. Surveillance is essential to generate evidence for the decision-making process before vaccine introduction and for continued monitoring of pneumococcal, Hib, meningococcal and RV diseases after vaccine introduction. There is a need to coordinate, harmonize and integrate with other surveillance systems and VPDs (e.g., JE surveillance) to create a strong, sustainable network for the future with greater country ownership and financing.

2.13.3 New vaccines laboratory networks in the Western Pacific Region

Laboratory networks for RV and IB-VPDs have been established in the Western Pacific Region to support surveillance systems, to provide an evidence base for burden of disease and vaccine introduction, as well as to monitor vaccine impact. Laboratories have been using WHO-recommended protocols for testing and are implementing recommended quality assurance and control mechanisms for monitoring laboratory proficiency and performance indicators. Laboratory capacity and proficiency are constantly improving and are being monitored, but some challenges remain. These are being addressed through training, on-site visits and laboratory assessment. Substantial efforts have been made to strengthen laboratory capacity since 2011 and progress has been evident: the majority of RV laboratories (26 out of 30, or 86%) and IB-VPD laboratories (6 out of 8, or 75%) have established molecular capacity for genotyping RV as well as serotyping and serogrouping bacterial pathogens, respectively. Reduced funding from donors has affected support provided for laboratory surveillance and it will be important to ensure that countries maintain ownership of the surveillance systems.

2.13.4 Impact of NUVI and new vaccine surveillance on immunization programme

A presentation was given on the impact of new vaccine introduction on NIPs, including the impact on surveillance and laboratory capacity for vaccines included in routine immunization programmes. Also discussed were concepts of new vaccine introduction, emphasizing that preparation for introduction, introduction, and monitoring and evaluation of new vaccine introductions are key issues. Well-executed new vaccine introductions can strengthen routine immunization programmes, whereas poorly conceived and poorly executed introductions can jeopardize routine immunization programmes.

2.13.5 Country presentations

Malaysia

A presentation was given on the introduction of school-based HPV vaccination in Malaysia. The rationale and process for introducing HPV vaccine into the national immunization schedule; the decision-making and planning steps for introducing HPV vaccine; and the implementation of HPV vaccine in the NIP, including the communication and social advocacy strategies that were used (e.g., a media campaign, providing public access to interactive information, and rumour surveillance); monitoring and evaluation of the HPV vaccination programme; monitoring of the impact of HPV vaccination; and lessons learnt from and challenges of the HPV vaccination programme were described.

Cambodia

Six new vaccines have been introduced in Cambodia during 2005–2016 in Cambodia, including three that were introduced within a 14-month period, and the HPV vaccine demonstration project that began in January 2017. Cambodia's sentinel surveillance for VPDs was described, noting the positive and negative impacts of the introduction of new vaccines in Cambodia. Positive impacts include increased community engagement, reduced disease burden due the diseases being prevented by the new vaccines, increased EPI staff understanding of the diseases and other aspects of immunization programmes from training for introduction, and increased collaboration between EPI and other Ministry of Health departments arising from the demonstration project. Negative impacts resulted from the introduction of many new vaccines in a relatively short period, which took up substantial staff time with planning for and implementing the introduction and detracted from the time and resources for routine immunization activities.

Republic of Korea

A presentation on the impact of pneumococcal vaccine introduction and surveillance in the Republic of Korea was given. The introduction of pneumococcal vaccines (23-valent pneumococcal polysaccharide vaccine in the elderly in 2013; PCV-10 and PCV-13 in children younger than 5 years in 2014) was described. The burden of invasive pneumococcal disease (IPD), trends in pneumococcal vaccination coverage and surveillance for pneumococcal diseases (e.g. the main goals and the surveillance systems) were described. The presenter then described changes in the serotype distribution in IPD cases in children younger than 5 years and in IPD cases in the elderly, the change in proportion of cases of bacterial meningitis in children younger than 18 years due to *Streptococcus pneumoniae*, and the changes in pneumococcal serotypes in meningitis cases in children younger than18 years since the introduction of pneumococcal vaccines. Lastly, she described the strengths and challenges of surveillance in the country.

2.14 TAG report on implementation and progress of GVAP in the Western Pacific Region

All WHO regions were requested by SAGE to report their progress on implementation of GVAP through their regional immunization TAGs. The TAG reports on lessons learnt, progress made, remaining challenges and updated action to reach Regional Framework and GVAP targets and goals. The Western Pacific Region is steadily making progress towards achieving seven out of eight Regional immunization goals. The Region has made significant progress in implementing many "priority actions" proposed by the Regional Framework. All achievements are supported by the governments' commitment, public interest and partners' support.

While sustaining the achievement of most targets, intensifying progress towards measles, MNTE and Regional coverage targets is the focus for 2017–2020. The potential risk of resurgence of VPDs due to the population immunity gaps is a Regional concern and therefore all available strategies to strengthen immunization services need to be intensified. Achieving progress will require continued partner support, especially for middle-income countries and countries transitioning out of Gavi support. Further government commitment and partner support by all means are necessary to reach the Regional and global immunization goals by 2020.

2.15 Partners' meeting

A presentation on Gavi's funding model and the seven recipient countries in the Region. Two countries, Mongolia and Kiribati, are fully self-financed; Cambodia is the only country in initial self-financing; four countries are in preparatory transition; and two countries are in accelerated transition. He noted the revision of HPV introduction applications, which must be nationwide, but can be phased; support for the Cold Chain Equipment Optimisation Platform (CCEOP) and country-specific needs for leadership, management and coordination; and reporting and renewal times.

The National Institute of Infectious Diseases (NIID), Japan, highlighted their work with epidemiological and laboratory expertise specifically related to work on measles outbreaks, JE, hepatitis B and poliovirus.

The reorganization of PATH's vaccine development and vaccine access and delivery into the Center for Vaccine Innovation and Access has been completed. PATH continues to support the Japanese Encephalitis Vaccine Introduction & Sustainability Project (JE VISP), which will continue until June 2019. The project is currently producing a series of documents to help decision-makers make choices related to the vaccine. There are also three ongoing post-licensure studies in Asia. The new project of the Typhoid Vaccine Acceleration Consortium (TyVAC) was also highlighted.

The UNICEF East Asia and Pacific presentation was guided by the health and other indicators in the Sustainable Development Goals as well as the UNICEF Strategic Plan and Strategy for Health. The presentation touched on topics of equity, immunization supply chain and demand for immunization. Challenges were highlighted relating to rapid urbanization and the associated difficulties of tracking undocumented/unregistered mobile populations. A further challenge in the region is the transition from Gavi support and vaccine hesitancy.

A member of the Ministry of Health and Welfare, Republic of Korea noted plans to continue to contribute to global efforts towards achieving the GVAP goals, particularly by continuing to partner with other institutes and networks in the Western Pacific Region. The presenter stressed the need for resources for electronic vaccination records and AEFI surveillance. The Republic of Korea proposes creating regular and long-term training programmes in this area. Lastly, as the Region is undergoing a shift to new vaccines, Dr Kong suggested that WHO and partners predict the global balance of vaccine supply and demand to prevent vaccine shortages in the Region and to help in meeting unexpected urgent demand.

The US Centers for Disease Control and Prevention presented on collaborative activities and contributions to GVAP goals in the Western Pacific Region. He discussed the US CDC's *Strategic Framework for Global Immunization, 2016–2020*, highlighting the five goals from impact to evidence. There are many collaborative efforts throughout the Region, ranging from their STOP programme, measles and rubella, hepatitis B, assessment of immunization programmes, JE programmes and

immunization week, and countries receiving specific technical support. It was noted that the US CDC is committed to continuing this support.

The Rotary International District 2650 outlined their role in the continued efforts towards polio eradication. Two pillars of contribution: 1) financial, through the PolioPlus programme, and 2) the Support Mission were discussed. There have been recent successful missions to the Philippines, Viet Nam and the Lao People's Democratic Republic. Lastly, Rotary International District 2650 reiterated the need for continued cooperation between institutes to achieve polio eradication.

3. CONCLUSIONS AND RECOMMENDATIONS

3.1 Conclusions

Global Vaccine Action Plan

1. The TAG notes that the Western Pacific Region is on track to achieve most GVAP targets and highlights the urgency of accelerating progress towards achievement of these targets. Progress will require continued technical and in some cases financial support, especially for countries transitioning out of eligibility for support from Gavi and/or other donors.

2. The TAG notes that the WHO Regional Office for the Western Pacific has begun to implement the WHO MIC Strategy.

3. The TAG notes that the WHO Regional Office for the Western Pacific aims to use the *Global Routine Immunization Strategies and Practices (GRISP)* document to guide countries in sustaining programme gains, accelerating progress towards regional and global immunization goals, and addressing the needs of hard-to-reach and marginalized populations.

3.1.1 Accelerated control of hepatitis B

4. The TAG is pleased that the ambitious Regional goal of reducing HBsAg seroprevalence among 5-year-old children to less than 1% by 2017 has been achieved.
5. The TAG is encouraged to learn about the two proposed post-2017 hepatitis B control goals by the ERP:
    a. All countries and areas in the Western Pacific Region should reduce HBsAg prevalence to less than 1% among children at least 5 years of age by 2025.
    b. Countries and areas in the Western Pacific Region that have reduced HBsAg prevalence to less than 1% among children at least 5 years of age should aim to further reduce HBsAg seroprevalence to less than 0.5% among children at least 5 years of age by 2025.
6. The TAG affirms that HepB-BD and HepB3 coverage remains the cornerstone of hepatitis B control. However, the TAG acknowledges that hepatitis B elimination will require interventions beyond high HepB-BD and HepB3 coverage. Additional research on the incremental cost and cost-effectiveness of these interventions is necessary to inform countries' selection of interventions and incorporation into their immunization programmes.

3.1.2 Measles and rubella elimination

7. The TAG reaffirms its 2015 and 2016 recommendations to Member States and WHO, which proposed 2020 as the rubella elimination target year for the Western Pacific Region.

8. The TAG supports the conclusions and recommendations of the Consultation on Regional Measles and Rubella Elimination in the Western Pacific on 19–21 April 2017 in Manila, Philippines.

9. The TAG endorses the sixth draft of the *Measles and Rubella Elimination in the Western Pacific: Regional Strategy and Plan of Action* for submission to the 68th session of the WHO Regional Committee for the Western Pacific in October 2017.

10. The TAG notes that the proportion and risk of rubella cases among adolescents and young adults aged 14–24 years has increased significantly in China, Viet Nam and the Philippines. Considering the devastating effects of CRS on the welfare of patients' families and on societies, the TAG is seriously concerned that this increase poses a high risk of increased CRS cases due to infection of pregnant women in these countries as these birth cohorts enter their peak fertility years. The TAG considers these immunity gaps to represent an increased risk for outbreaks of rubella and CRS.

11. The TAG reaffirms that prevention of CRS is the most important reason for immunization with rubella-containing vaccines and that elimination of rubella by interrupting circulation of rubella virus is the best way to prevent CRS occurrence.

12. The TAG reaffirms that setting a regional target year for rubella elimination is critical to help build political will, to support a coordinated approach among government sectors, and to mobilize resources from governments and partners. Setting a regional target year will also support a synchronized effort across the Western Pacific Region.

13. The TAG notes that while many countries in the Western Pacific Region have developed a national plan for rubella elimination by 2020 and can achieve this goal, some countries may require a longer period to achieve rubella elimination.

3.1.3 Sustaining polio-free status and implementation of polio endgame strategies

14. The TAG acknowledges the successful progress in global polio eradication and efforts to sustain polio-free status in the Western Pacific Region. However, poliovirus remains endemic in two countries (Afghanistan and Pakistan) bordering the Western Pacific Region and the risk of international spread of poliovirus remains a Public Health Emergency of International Concern.

15. The TAG notes that supply of IPV to all countries in the Western Pacific Region that have introduced the vaccine into their national immunization schedules is secure for 2017, but subsequent interruptions in the supply are still possible. The TAG also notes with disappointment that due to shortages in the global supply, introduction of IPV in Mongolia and Viet Nam has been further postponed until 2018.

16. The TAG notes that the use of IPV in routine immunization is especially important as population immunity to type 2 poliovirus has continued to decrease since the time of the switch from trivalent to bivalent OPV. The TAG also notes the scientific evidence and proposed options for IPV use after global withdrawal of OPV.

17. The TAG congratulates the Lao People's Democratic Republic for interrupting transmission of cVDPV within 120 days and notes that the IHR Emergency Committee on Polio no longer considers the country to be infected with cVDPV.

18. The TAG notes that while coverage with three doses of polio vaccine is high at the national level for countries in the Region (90% or higher in many countries), there are still countries that have not achieved this coverage level.
19. The TAG notes the high quality of surveillance for AFP cases at the Regional level, but surveillance performance varies among countries.
20. The TAG notes the plan of expansion of environmental surveillance in the Western Pacific Region.
21. The TAG notes the need for global guidance to support implementation of GAPIII Phase 1 (Part Two) to prepare for containment of Sabin/OPV poliovirus type 2.
22. The TAG notes the need for countries with PEFs to start the certification process and submit reports to the GCC for validation.
23. The TAG notes that the Post-Certification Strategy is to be finalized in close consultation with countries and regions and is scheduled to be presented to the World Health Assembly in 2018.

3.1.4 Maternal and neonatal tetanus elimination

24. The TAG notes that there are still two countries in the Region (the Philippines and Papua New Guinea) that have not yet been validated to have achieved MNTE.
25. The TAG commends the continued efforts of the Philippines to complete validation and achieve MNTE by the end of 2017.
26. The TAG notes the delay in implementation of the TT SIAs in Papua New Guinea.

3.1.5 Prevention of and response to diphtheria outbreak

27. The TAG notes that many national schedules for diphtheria immunization, especially for booster doses, are not aligned with the 2017 WHO recommendations for diphtheria vaccines.
28. The TAG notes the importance of targeting children in the 2YL and at school for vaccination, particularly for booster doses of diphtheria vaccine.
29. The TAG considers that strengthening routine immunization is the most effective way to meet the coverage targets of the Regional Framework, including for diphtheria immunization.
30. The TAG notes the need to improve reporting of diphtheria cases and enhance laboratory capacity to improve laboratory diagnosis of diphtheria in the Region.
31. The TAG notes the need for standard guidelines for investigation, reporting and management of diphtheria cases.
32. The TAG notes the challenges with global supply of equine DAT and the lack of availability of DAT in some countries and areas.

3.1.6 Japanese encephalitis

34. The TAG acknowledges the publication of the report on JE surveillance and immunization in the WHO *Weekly Epidemiological Record* and the US CDC *Morbidity and Mortality Weekly Report* on 9 June 2017.
35. The TAG notes that during the JE biregional meeting, convened in August 2016 in Manila, Philippines, participants from the WHO South-East Asia and Western Pacific regions

discussed JE vaccination, surveillance, new developments in JE prevention and control, and lessons learnt during JE vaccine introduction in the two Regions; and that participants built upon current communication and collaborative efforts and identified key action items and next steps to promote JE prevention and control in the two Regions.

36. The TAG notes that the coverage with a primary series of JE vaccination in Member States where JE vaccine has been introduced into the routine immunization programme ranges from 44% to the target coverage level of at least 95% based on 2016 WHO–UNICEF JRF data.

37. The TAG notes the 60% reduction in JE cases reported through the JRF between 2011 and 2015 as described in the WHO *Weekly Epidemiological Record* in June 2017. This suggests a substantial decline in JE cases, although the TAG acknowledges that this finding must be interpreted with caution due to limitations in JRF case report data.

38. The TAG notes that weaknesses in JE surveillance continue to limit efforts to estimate disease burden, define target populations for vaccination and measure the impact of vaccination in some countries.

39. The TAG notes that for the countries that have not yet achieved a high degree of JE control, strengthening surveillance with laboratory confirmation is critical for providing disease burden data and evidence of vaccine impact.

40. While the TAG acknowledges the progress and several important advances in accelerated control of JE in the Western Pacific Region, the TAG also notes that development of strategies and a plan of action will help the Region achieve its accelerated JE control goal of extending vaccination to all JE risk areas where JE incidence exceeds very low levels and achieve Regional JE incidence and vaccination coverage targets.

3.1.7 Routine immunization

41. The TAG acknowledges the efforts that Member States are making to use various strategies to strengthen routine immunization services to achieve the immunization goals set by GVAP and the Regional Framework.

42. The TAG notes the potential risk of emerging VPDs due to gaps in population immunity and immunization services and the need to intensify the use of all available strategies such as the RED approach, strengthening the 2YL platform, WIWs and private sector collaboration to reach high immunization coverage to protect all communities against VPDs.

43. The TAG notes that the Region still has significant work to do in order to achieve the target of having a functional NITAG or equivalent body in every country by 2020, and acknowledges the efforts of countries and partners to strengthen the functions of these bodies.

44. The TAG acknowledges WHO and partner efforts to support strengthening immunization systems through MIC strategies in the Region.

45. The TAG notes that the WHO Regional Office for the Western Pacific and Member States are making progress to sustain immunization achievements.

Review and monitoring of immunization programmes

46. The TAG notes that updated EPI review guidelines have been developed by WHO in coordination with other partners, and these include guidance for assessment of broader health system aspects and programme sustainability and guidance on integration of reviews of specific topics into the general EPI review. The aspects addressed by the new EPI review guidelines are important and very relevant, especially for MICs.

47. The TAG acknowledges and affirms WHO's and UNICEF's request that all countries submit subnational immunization coverage data to strengthen monitoring of progress towards achievements of GVAP and the Regional Framework coverage targets and to promote equity.

48. The TAG notes that a survey on VPD surveillance systems in countries in the Western Pacific Region was conducted. The results show that there are weaknesses in some countries in the Region, especially in terms of representativeness and sensitivity of the surveillance, with potential impact on country capacity to use surveillance data to support disease control and elimination.

49. The TAG notes that surveillance and control of VPDs would benefit from regular and strong coordination and collaboration between neighbouring regions.

Vaccine management, regulatory capacity and safety

50. The TAG notes that Member States have made significant efforts to improve surveillance for AEFIs and build national and subnational capacity for AEFI surveillance.

51. The TAG appreciates Member States' timely and effective responses to immunization safety incidents.

52. The TAG notes that Member States are making efforts to improve vaccine supply and logistics.

53. The TAG notes that both Member States and the WHO Regional Office for the Western Pacific have made efforts to assess and address the capacity gaps in vaccine regulation through support from the Regional Alliance for National Regulatory Authorities for Vaccines in the Western Pacific and by adopting the WHO NRA assessment and benchmarking tool as a core strategy.

54. With regard to a GVAP indicator on the percentage of doses of vaccine used worldwide that are of assured quality, the TAG notes that seven Member States, comprising 91% of the total Regional population, have met the WHO benchmarking standard for critical regulatory functions for vaccines since June 2015.

55. The TAG acknowledges that both Member States and the WHO Regional Office for the Western Pacific are working together in priority countries to improve AEFI reporting and data sharing with WHO.

56. The TAG notes that the WHO Regional Office for the Western Pacific and Member States are making efforts to build capacity in vaccine and immunization safety communications.

Introduction of new and underutilized vaccines

57. The TAG notes that low- and middle-income countries in the Western Pacific Region have made significant progress introducing new and underutilized vaccines, yet some still lag behind high-income countries in including new vaccines in their NIPs.

58. The TAG notes that upper-middle-income countries overall lag behind low- and lower-middle-income countries in including some new vaccines in their NIPs, in part because they do not have access to support from donor organizations that low- and lower-middle-income countries have.

59. The TAG notes that achievement of the GVAP goal for introduction of new and improved vaccines will require that countries evaluate evidence on disease burden including surveillance, cost and cost-effectiveness; the role of other disease prevention and control measures; vaccine characteristics; vaccine supply; and immunization programme and health system strength. Surveillance with laboratory confirmation is a key source of evidence, and the quality of surveillance requires consistent attention and oversight.

3.2 Recommendations

3.2.1 Recommendations for Member States

Global Vaccine Action Plan

1. The TAG recommends that Member States as a matter of urgency review and update their national immunization plans in accordance with the resolution at the Seventieth World Health Assembly to accelerate progress towards achieving the GVAP goals.
2. The TAG recognizes the growing complexity of immunization programmes and requests that Member States establish strong national leadership and deploy well-trained and capable managers and supervisors at all levels.

Accelerated control of hepatitis B

3. The TAG reaffirms the long-standing WHO guidance that all countries should universally administer HepB-BD, as soon as possible after birth and preferably within 24 hours, even in countries with low hepatitis B endemicity.
4. The TAG recommends that countries and areas remain focused on meeting and sustaining the 95% HepB-BD and HepB3 2017 coverage milestones in accordance with the *Regional Action Plan for Viral Hepatitis in the Western Pacific 2016–2020*.
5. The TAG reiterates its support for the use of hepatitis B vaccine outside the cold chain, in accordance with the October 2016 Immunization Practice Advisory Committee statement on out-of-cold-chain and controlled-temperature-chain use of vaccines, to facilitate delivery of HepB-BD. The TAG endorses the October 2016 recommendation by SAGE to support countries that choose to pursue an out-of-cold-chain policy and follow the Immunization Practices Advisory Committee recommendations.

Measles and rubella elimination

6. The TAG encourages all Member States to protect women of reproductive age and their babies from infection with rubella virus through vaccination as a matter of urgency and to identify rubella immunity gaps and expediently implement measures to fill these immunity gaps to prevent outbreaks of rubella and CRS.
7. The TAG encourages Member States to use SIAs and school-based vaccination screening and/or delivery to achieve high vaccination coverage among susceptible populations as quickly as possible.
8. The TAG recommends that all Member States develop, or update, and accelerate implementation of national plans for measles and rubella elimination as soon as possible. The TAG encourages Member States that have not yet developed plans with a national target year for rubella elimination to do so before the 68th session of the Regional Committee for the Western Pacific in October 2017.
9. The TAG recommends that Member States set a regional target year for rubella elimination in the Western Pacific during the 68th session of the Regional Committee in October 2017.
10. The TAG encourages Member States that have not yet established a CRS monitoring system to do so as soon as possible.

11. The TAG encourages Member States to use measles and rubella containing vaccines (MRCV), and not single-antigen measles vaccine or rubella vaccine, whenever vaccination against measles or rubella is indicated.

Sustaining polio-free status and implementation of polio endgame strategies

12. The TAG urges Member States to maintain vigilance and adequate levels of preparedness and response capacities considering the continuous threat of importation of wild poliovirus from endemic countries.
13. The TAG urges Member States to regularly update their assessment of the risk of poliovirus transmission after a possible importation of wild poliovirus or possible emergence of cVDPVs. This information should be shared with WHO.
14. The TAG urges Member States to analyse and fill population immunity gaps by strengthening routine vaccination with polio vaccines and conducting polio SIAs, particularly in high-risk areas.
15. The TAG urges Member States to improve surveillance for AFP cases and conduct active surveillance, especially in underperforming areas as outlined by the 22nd Regional Certification Commission. In addition, all countries and areas should ensure comprehensive and timely notification of all new type 2 polioviruses detected from all sources, including environmental surveillance, as prompt detection and reporting of type 2 polioviruses is critically important following the switch from trivalent to bivalent OPV.
16. The TAG urges Member States to ensure that national polio outbreak response plans are updated in line with global guidance and are used for timely and comprehensive response to any polio events or outbreaks.
17. The TAG urges Member States, once IPV supply is available, to develop strategies to address gaps in population immunity against type 2 poliovirus due to delayed introduction or possible stock-outs of IPV. Strategies should include prioritization of IPV allocation to high-risk areas and planning for catch-up campaigns for missed birth cohorts.
18. Given the recent SAGE recommendation and based on a review of the evidence to improve seroconversion rates, the TAG strongly encourages Member States to explore the programmatic feasibility of delivering two fractional doses of IPV rather than one full dose.
19. Once global guidance becomes available, the TAG urges Member States to comply with GAPIII Phase 1 (Part Two) requirements to identify, destroy, or appropriately handle and store type 2 poliovirus potentially infectious materials including all those that may harbour OPV2, OPV-like type 2, and Sabin 2 viruses.
20. The TAG urges Member States with PEFs to establish a National Authority for Containment (NAC) that will be responsible for certifying PEFs, to nominate members for the NAC, and to operationalize it.
21. The TAG urges countries with PEFs to start the certification process as soon as possible and submit reports to the GCC for validation.
22. The TAG urges Member States to proactively start planning for the post-polio eradication certification era, including ensuring that they have the capacity and resources they need to maintain polio-essential functions (i.e. surveillance, containment and polio immunization), as outlined in the Polio Post-Certification Strategy Plan.
23. The TAG recommends that all polio laboratories take necessary actions to achieve and maintain high proficiency of laboratory testing and capacity in order to detect and

characterize polioviruses. Timely corrective actions should be taken by laboratories that were found to have unsatisfactory performance during the 2016 proficiency testing.

Maternal and neonatal tetanus elimination

24. The TAG urges the two countries in the Western Pacific Region that have not yet been validated to have achieved MNTE to implement required actions to achieve validation of MNTE. To this end, the TAG recommends that:
    a. the Philippines complete tetanus–diphtheria vaccine supplemental immunization activities and conduct a validation assessment in order to achieve national validation by 2017; and
    b. Papua New Guinea complete TT SIAs in high- and medium-risk provinces and conduct a survey to validate achievement of MNTE as early as possible in 2018.
25. The TAG reiterates the recommendations of the 25th TAG, including:
    a. All countries and areas should maintain elimination status by regularly reviewing the core and surrogate indicators for maternal and neonatal tetanus at the district level and take appropriate corrective actions in coordination with maternal, neonatal and child health programmes.
    b. Every case of neonatal tetanus should be thoroughly investigated, including an assessment of the tetanus vaccination status among women of reproductive age residing in the same community, to determine underlying risk factors and possible corrective actions that can be implemented.
    c. All countries are encouraged to use TT combination products containing diphtheria toxoid, rather than TT alone, when immunization against tetanus is indicated.
    d. School-based immunization with tetanus and diphtheria toxoids for both boys and girls should be considered as part of a national strategy to provide protection against tetanus and diphtheria.

Prevention of and response to diphtheria outbreaks

26. The TAG recommends that countries review their national schedules for diphtheria toxoid vaccination, including booster doses and use in combination with TT, and revise if necessary to be consistent with WHO recommendations.
27. The TAG recommends that countries consider school-based immunization with booster doses of diphtheria toxoid-containing vaccine as part of national immunization schedules.
28. The TAG recommends that all countries improve accuracy and completeness of diphtheria case data submitted through the JRF and consider implementation or expansion of case-based diphtheria surveillance.
29. The TAG requests that Member States analyse diphtheria surveillance data to better define the disease burden and potential need for DAT.

Japanese encephalitis

30. The TAG reiterates that countries should develop national plans for JE control and that the primary strategy to achieve accelerated control of JE in the Region is introduction of JE vaccine into the routine immunization programme along with a catch-up campaign for

a locally defined target age group, using a phased approach when necessary depending on resources and capacities of countries.

31. The TAG reaffirms that Member States should reach the primary regional target of reducing JE incidence to less than 0.5 cases per 100 000 population in the targeted population (typically children under 15 years of age) in affected areas (national and subnational). Member States that do not have high-quality JE surveillance should reach the intermediate Regional target of at least 95% coverage with primary JE vaccine series among the targeted population in affected areas. The new Regional targets should be achieved by a date to be determined by Member States, WHO and JE experts.
32. The TAG recommends that Member States consider improving collection of cerebrospinal fluid specimens and sharing these specimens to allow genotyping and sequencing at reference laboratories.
33. The TAG recommends that Member States encourage laboratories to continue to achieve performance criteria set forth by the WHO JE laboratory accreditation programme.

Routine immunization

34. The TAG urges Member States to work with WHO and partners to strengthen routine immunization services to reach high immunization coverage.
35. The TAG urges Member States to identify opportunities and intensify use of all available strategies to improve immunization coverage based on the GRISP framework, including the RED approach, strengthening the 2YL platform, reducing missed opportunities to vaccinate, WIWs and private sector collaboration.
36. The TAG urges Member States to strengthen the functionality and effectiveness of NITAGs or equivalent immunization decision-making bodies.
37. The TAG urges Member States to ensure sustainability of achievements and to continue efforts to achieve the Regional Framework goals.

Review and monitoring of immunization programmes

38. The TAG recommends that countries approaching the time to revise their national immunization strategies plan EPI reviews that address broader health system aspects and programme sustainability and that integrate other assessments as feasible. The new WHO EPI review guidelines should be used as a reference document.
39. The TAG recommends that countries collect and analyse national and subnational surveillance and coverage data to strengthen immunization programmes.
40. The TAG recommends that Member States share subnational coverage data annually together with the JRF data in order to strengthen monitoring of progress towards coverage targets and immunization equity. At a minimum, countries should submit data on target populations and number of children with DTP1, DTP3 and MCV1 down to the district level or equivalent administrative level.
41. The TAG recommends that countries with VPD surveillance of suboptimal representativeness and/or sensitivity strengthen their surveillance systems. Countries should prioritize strengthening the systems that support surveillance of diseases targeted by elimination goals. Duplication of surveillance systems for VPDs and other communicable diseases is not desirable.

Vaccine management, regulatory capacity and safety

42. The TAG urges Member States to further improve AEFI reporting and share findings with WHO.
43. The TAG urges Member States to strengthen effective vaccine management and share information about vaccine shortages and stock-outs with NIPs; NRAs; central, provisional and district medical stores; WHO; UNICEF; and other relevant stakeholders that can assist with vaccine supply issues.
44. The TAG urges Member States to develop a stepwise approach to strengthen vaccine regulatory systems, in accordance with the country stage of implementation of regulatory systems for medicines and vaccines.
45. The TAG urges Member States to continue efforts to strengthen vaccine and immunization safety communication capacity.

Introduction of new and underutilized vaccines

46. The TAG reiterates its recommendation urging each Member State to develop a national plan for evidence-based introduction of new vaccines. NITAGs or equivalent bodies should play a central role in making recommendations to government about the introduction of new vaccines. This plan could be part of the comprehensive multi-year plan for immunization or another health plan.
47. The TAG urges each Member State in which surveillance includes laboratory confirmation for diseases targeted by new vaccines to monitor and improve the quality of surveillance implementation.
48. The TAG reiterates that Member States should 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.

3.2.2 Recommendations for WHO Secretariat

Global Vaccine Action Plan

1. The TAG requests that the WHO Regional Office for the Western Pacific continue to provide technical support to monitor the progress of NIPs with the use of high-quality data and to accelerate the progress that has been made to achieve the GVAP goals in the Western Pacific.
2. The TAG requests that the WHO Regional Office for the Western Pacific continue to support NIPs to develop an evidence base, including through operational research, and to use evidence to identify priorities with the guidance of NITAGs.
3. The TAG recommends that the WHO Regional Office for the Western Pacific continue to engage global, regional and national immunization partners to mobilize technical and financial support to ensure sustainability of national programmes.

Accelerated control of hepatitis B

4. The TAG recommends adoption of the ERP's proposed post-2017 control goals that all Member States reduce HBsAg prevalence among children at least 5 years of age to less than 1% and reduce HBsAg prevalence among children at least 5 years of age in countries that have met the less than 1% goal to less than 0.5% by 2025. These goals are in line with the global target of eliminating viral hepatitis as a public health threat by reducing the global HBsAg prevalence to 0.1% or less among children by 2030.

5. The TAG requests that the ERP develop and prioritize recommendations for additional interventions to be incorporated into perinatal programmes, considering cost and cost-effectiveness along with other attributes, to achieve the post-2017 hepatitis B goals.
6. The TAG endorses the ERP's 2017 vaccine-related recommendations, including:
    a. to provide incentives for countries and areas to increase health facility delivery rates;
    b. for countries to mitigate negative perceptions of hepatitis B immunization through proactive risk communication planning and health education outreach; and
    c. to consider the best ways to support triple elimination of mother-to-child transmission of HIV, hepatitis B and syphilis while ensuring that universal birth dose-inclusive infant vaccination programmes are maintained in and extended to all Member States.

Measles and rubella elimination

7. The TAG encourages WHO to support Member States in establishing a timeline with a national target year for rubella elimination before the 68th session of the Regional Committee in October 2017 so that the Regional Committee can set a regional target year for rubella elimination in the Western Pacific.
8. The TAG recommends that WHO submit the draft *Measles and Rubella Elimination in the Western Pacific: Regional Strategy and Plan of Action* to the 68th session of the Regional Committee in October 2017 for endorsement.
9. The TAG recommends that WHO develop the following regional technical guidelines to support countries and areas of the Western Pacific Region to effectively implement *Measles and Rubella Elimination in the Western Pacific: Regional Strategy and Plan of Action*:
    a. guidelines for planning and implementing MRCV SIAs in the Region;
    b. guidelines for measles, rubella and CRS surveillance in the Region; and
    c. guidelines for measles and rubella outbreak investigation and response in the Region.
10. The TAG recommends that WHO continue to support countries to develop or update their national plans for measles and rubella elimination, with consideration of country-specific situations.
11. The TAG recommends WHO to continue to collaborate with partners to mobilize resources to support countries to implement their national strategies and plans of action.

Sustaining polio-free status and implementation of polio endgame strategies

12. The TAG encourages WHO to support Member States in maintaining polio-free status and addressing gaps in AFP surveillance and population immunity, including gaps in population immunity against type 2 poliovirus.
13. The TAG encourages WHO to support selected Member States to develop national development plans for environmental surveillance and establish capacity for environmental surveillance.
14. The TAG encourages WHO to continue supporting Member States in the implementation of the GAPIII and:

a. to share global guidance for implementation of GAPIII Phase 1 (Part Two) with Member States as soon as this becomes available; and

b. to provide support to NACs with the certification process.

15. The TAG encourages WHO to analyse the implications of the GPEI budget ramp-down and subsequent decrease in polio-related funding to the Western Pacific Region. The TAG also encourages WHO to identify the necessary resources to support Member States to maintain the polio-essential functions as defined by the Post-Certification Strategy.

Prevention of and response to diphtheria outbreak

16. The TAG requests that WHO develop standard guidelines for investigation and reporting of diphtheria cases, including contact tracing, prophylaxis, DAT use and outbreak response.

17. The TAG recommends that WHO conduct a survey to map diphtheria laboratory capacity in the Region and gather information on diagnostic testing methods.

18. The TAG encourages WHO to support implementation of the recent SAGE recommendations on DAT supply.

Japanese encephalitis

19. The TAG recommends that the WHO Regional Office for the Western Pacific consult with experts on JE control and prevention to set a timeline for achieving the Regional accelerated control target.

20. The TAG reiterates the recommendations of the 24th and 25th TAG meetings that JE surveillance with laboratory confirmation be further strengthened in endemic areas of the Western Pacific Region, and sentinel surveillance be systematized to facilitate reporting at the regional level. Mobilization of additional resources will be needed to implement this recommendation.

21. The TAG recommends that the WHO Regional Office for the Western Pacific expand the use of the JE surveillance structured tool for the assessment of detection and reporting of JE and vaccine impact.

22. The TAG recommends that the WHO Regional Office for the Western Pacific develop a regional guidance document to help Member States to develop national JE control plans.

23. The TAG recommends that a draft Regional Strategy and Plan of Action for Accelerated Japanese Encephalitis Control be developed and that it be proposed for review and endorsement by the Regional Committee in 2018.

24. The TAG requests that WHO revise the 2007 WHO *Manual for the Laboratory Diagnosis of Japanese Encephalitis Virus Infection* to reflect current responsibilities of the network and to provide recommendations, resources and guidelines for laboratory diagnosis of JE, data management and reporting of laboratory results, and implementation of quality assurance.

Routine immunization

25. The TAG recommends that the WHO Office for the Western Pacific Region continue to support countries to sustain their achievements and work towards achieving the Regional Framework goals.

26. The TAG recommends that WHO and partners support countries to overcome immunization coverage gaps, including through promotion of use of all available strategies.

27. The TAG recommends that WHO support Pacific island countries to improve their immunization programmes and immunization policy-making, including by assessing the feasibility of establishing a subregional TAG.
28. The TAG recommends that WHO and partners support MICs to achieve the Regional Framework goals through the MIC Strategy and other strategies.

Review and monitoring of immunization programmes

29. The TAG recommends that WHO support countries that are planning to conduct EPI reviews in the design and implementation of these reviews to address EPI priorities, including programme sustainability and topic-specific reviews as applicable to country-specific contexts.
30. The TAG recommends that WHO support Member States to analyse and use subnational coverage data to define strategies to strengthen their immunization programmes.
31. The TAG recommends that WHO and UNICEF use subnational coverage data submitted by countries to monitor GVAP and Regional Framework implementation.
32. The TAG recommends that WHO use the results of the VPD surveillance systems surveys to identify and support countries to strengthen their surveillance systems.
33. The TAG recommends that WHO support Member States to strengthen inter-regional coordination for VPD surveillance and response.

Vaccine management, regulatory capacity and safety

34. The TAG recommends that WHO map regional gaps in vaccine safety surveillance, vaccine supply, quality and access and provide technical support to Member States to address identified gaps.
35. The TAG recommends that WHO continue to promote partnerships to develop a pool of experts from the Region to advise countries in their development of policies and systems for vaccine safety.
36. The TAG recommends that WHO explore ways to support Pacific island countries and areas to assess AEFI causality and to train medical personnel to investigate and report AEFI cases in a timely manner.

Introduction of new and underutilized vaccines

37. The TAG reiterates that WHO should continue to provide technical support and capacity-building for the development of national plans for evidence-based introduction of new vaccines and to assess and improve the quality of surveillance implementation.

Annex 1

LIST OF TAG MEMBERS, EPI NATIONAL MANAGERS/SURVEILLANCE OFFICERS, MINISTRY/DEPARTMENT OF HEALTH STAFF, TEMPORARY ADVISERS, OBSERVERS/REPRESENTATIVES AND SECRETARIAT

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Annex 2

26TH MEETING OF THE TECHNICAL ADVISORY GROUP ON IMMUNIZATION
AND VACCINE-PREVENTABLE DISEASES IN THE WESTERN PACIFIC REGION
Manila, Philippines, 13–16 June 2017

TENTATIVE TIMETABLE

Time	Tuesday, 13 June 2017	Time	Wednesday, 14 June 2017	Time	Thursday, 15 June 2017	Time	Friday, 16 June 2017
0800–0830	REGISTRATION		7. Accelerated Japanese Encephalitis Control		10. Strengthening Immunization Systems		12. Technical Advisory Group's report on GVAP
0830–0900	1. Opening • Opening speech • Self–introduction • Election of officers: Chairperson, Vice–Chairperson and Rapporteur • Administrative announcements	0830–0900 0900–0910 0910–0930	7.1 Global/Regional update + report on the Biregional Meeting 7.2 Western Pacific Region Japanese encephalitis laboratory network Discussion	0830–0845 0845–0900 0900–0915 0915–0930 0930–0945	10.1 Strengthening routine immunization programme a. Need and opportunities for strengthening routine immunization programme; Way forward b. Update on strengthening decision making: National Immunization Technical Advisory Groups c. Second year life approach d. Middle-income countries strategy to strengthen vaccine logistic; experience from Philippines e. Regional Immunization Week: enhanced opportunities to strengthen routine immunization	0830–0900 0900–0915 0915–0955	12.1 TAG Report on Implementation and Progress of GVAP in the Western Pacific Region Discussion 13. Partners' support to immunization in WPRO
0900–0930	*GROUP PHOTO AND COFFEE BREAK*	0930–1000	*COFFEE BREAK*	0945–1015	*COFFEE BREAK*	0955–1025	*COFFEE BREAK*
0930–0940 0940–0950 0950–1005 1005–1020 1020–1035 1035–1050 1050–1115 1115–1130 1130–1145 1145–1205	2. Objectives and Overview of the 26th TAG Meeting 3. Global Vaccine Action Plan (GVAP) 3.1 Strategic Advisory Group of Experts (SAGE) on Immunization Working Group Report 3.2 Report: GVAP Implementation at HQ level 3.3 Report: GVAP Implementation at WPR level Discussion 4. Accelerated Hepatitis B Control 4.1 Global/Regional overview 4.2 Hepatitis B birth dose and serosurvey • Cambodia 4.3 Hepatitis B birth dose • China Discussion	1000–1020 1020–1040 1040–1100 1100–1120 1120–1140 1140–1200	8. Sustaining Polio-free Status & Implementation of Polio Endgame Strategies 8.1 Global update 8.2 Regional update 8.3 Polio laboratory network and environmental surveillance update 8.4 Global Polio Eradication Initiative outbreak response 8.5 Circulating vaccine derived poliovirus outbreak in Lao People's Democratic Republic Discussion	1015–1030 1030–1045 1045–1100 1100–1110 1110–1125 1125–1135 1135–1150 1150–1205	f. Intensified approaches; lessons learnt from Special Integrated Routine EPI g. Child Immunization Management System: a tool to improve EPI performances Discussion 10.2 Review and Monitoring of Immunization Programme a. New approach to programme review b. Experience of Mongolia in combining broader sustainability issues in EPI review c. Use of subnational coverage data to monitor GVAP progresses (beyond joint reporting form data) d. Status of vaccine-preventable diseases surveillance in the Region - results from 2017 survey Discussion	1025–1105 1105–1135	Partners' support to immunization in WPRO *(cont.)* 13.1 Discussion on regional immunization partnership
1205–1315	*LUNCH BREAK*	1200–1330	*LUNCH BREAK*	1205–1335	*LUNCH BREAK*	1135–1430	*LUNCH BREAK*

1315–1330	4.4 Triple Elimination of Mother-to-child Transmission of HIV, Hepatitis B and Syphilis	1330–1345	8.6 Global inactivated polio vaccine (IPV) introduction and supply		10.3 Strengthening regulatory capacity and safety	1430–1600	Technical Advisory Group conclusions and recommendations (closed session)
1330–1350	Discussion	1345–1400	8.7 SAGE recommendations on Fractional IPV	1335–1350	a. Regional update on strengthening regulatory capacity		
	5. Maternal and neonatal tetanus elimination (MNTE)	1400–1420	Discussion	1350–1405	b. Regional update on adverse events following immunization surveillance and response		
1350–1405	5.1 Regional Update	1420–1435	8.8 Laboratory containment	1405–1420	c. Country presentation: addressing vaccine safety communication		
1405–1420	5.2 Progress towards MNTE in the Philippines	1435–1450	Discussion	1420–1435	Discussion		
1420–1435	Discussion	1450–1510	8.9 Polio Post Certification Strategy		11. New and Underutilized Vaccine (NUVI)		
	6. Measles and rubella elimination	1510–1530	Discussion	1435–1455	11.1 Global NVI Update		
1435–1455	6.1 Global overview / Mid-term review			1455–1515	11.2 Regional NVI Update		
1455–1510	6.2 Regional overview						
1510–1525	6.3 Report from Regional Verification Commission						
1525–1550	*COFFEE BREAK*	1530–1600	*COFFEE BREAK*	1515–1545	*COFFEE BREAK*	1600–1630	*COFFEE BREAK*
						1630–1700	Technical Advisory Group conclusions and recommendations
1550–1615	6.4 New Regional Strategy and report on Regional Consultation on Measles & Rubella Elimination		9. Diphtheria outbreak	1545–1605	11.3 Surveillance networks		
			9.1 Country Presentation: Diphtheria outbreak and response	1605–1615	11.4 Western Pacific Region rota and invasive bacterial disease (IBD) laboratory networks	1700–1730	14. Closing Session
1615–1700	Discussion	1600–1615	• Malaysia				
		1615–1630	• Viet Nam	1615–1635	11.5 Impact of NVI and NV Surveillance on immunization programme		
		1630–1645	9.2 Regional overview		11.6 Country presentation: Impact of NVI and NV surveillance on national immunization programme		
		1645–1700	Discussion	1635–1645	• Malaysia		
				1645–1655	• Cambodia		
				1655–1705	• Republic of Korea		
				1705–1725	Discussion		

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