

Tenth Meeting of the WHO South-East Asia Regional Immunization Technical Advisory Group

New Delhi, India, 9–12 July 2019



REGIONAL OFFICE FOR

**World Health
Organization**

South-East Asia

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Abbreviations

AEFI	adverse event following immunization
AES	acute encephalitis syndrome
AFP	acute flaccid paralysis
ASEAN	Association of South-East Asia Nations
AVSSR	Association of South-East Asia Nations Vaccine Security and Self-Reliance
bOPV	bivalent oral poliovirus vaccine
CRS	congenital rubella syndrome
CES	coverage evaluation survey
cVDPV	circulating vaccine-derived poliovirus
DTP	diphtheria-tetanus-pertussis vaccine
DTP1	first dose of diphtheria-tetanus-pertussis vaccine
DTP3	third dose of diphtheria-tetanus-pertussis vaccine
EAPRO	East Asia and Pacific Regional Office for UNICEF
EPI	Expanded Programme on Immunization
ES	environmental surveillance
FIC	fully immunized child
GAPIII	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
Gavi	Gavi, the Vaccine Alliance
GIS	geographical information system
GPEI	Global Polio Eradication Initiative

HepB	hepatitis B vaccine
HepB3	third dose of hepatitis B vaccine
HepB-BD	hepatitis B vaccine birth dose
HPV	human papilloma virus
IHR	International Health Regulations
IPV	inactivated poliovirus vaccine
ITAG	Immunization Technical Advisory Group
JE	Japanese encephalitis
JRF	joint reporting form
LMICs	lower-middle-income countries
MCV	measles-containing vaccine
MCV1	first dose of measles-containing vaccine
MCV2	second dose of measles-containing vaccine
MNTE	maternal and neonatal tetanus elimination
MoH	Ministry of Health
MR	measles-rubella vaccine
NAC	national authority for containment
NCCPE	national certification committee for polio eradication
NIP	national immunization programme
NITAG	national immunization technical advisory group
NRA	national regulatory authority
NVC	national verification committee (for the elimination of measles and rubella/CRS control)
OPV	oral poliovirus vaccine
OPV3	third dose of oral poliovirus vaccine
PCV	pneumococcal conjugate vaccine
PEF	poliovirus essential facility
Penta	pentavalent vaccine
PIE	post-introduction evaluation

QA	quality assurance
ROSA	Regional Office for South Asia (UNICEF)
RCCPE	Regional Commission for the Certification of Poliomyelitis Eradication
RCV	rubella-containing vaccine
RI	routine immunization
RRL	Regional reference laboratory
RV	rotavirus vaccine
SAGE	(WHO's) Strategic Advisory Group of Experts on Immunization
SEA	South-East Asia
SEAR-ITAG	South-East Asia Regional Immunization Technical Advisory Group
SEARN	South-East Asia Regulatory Network
SEAR-VAP	South-East Asia Regional Vaccine Action Plan
SIAs	supplementary immunization activities
Td	tetanus-diphtheria vaccine
TT	tetanus toxoid
TT2+	more than two doses of tetanus toxoid containing vaccine among pregnant women
TTCV	tetanus-toxoid--containing vaccine
tOPV	trivalent oral poliovirus vaccine
UN	United Nations
UNICEF	United Nations Children's Fund
US CDC	United States Centers for Disease Control and Prevention
VAEIMS	Vaccine adverse events information management system
V3P	(WHO's) Vaccine Product, Price and Procurement Web Platform
VDPV	vaccine-derived poliovirus
VPD	vaccine-preventable disease
WHA	World Health Assembly
WHO	World Health Organization
WPV	wild poliovirus

Introduction

The Tenth Meeting of the World Health Organization's (WHO's) South-East Asia Regional Immunization Technical Advisory Group (SEAR-ITAG) was held from 9–12 July 2019 in New Delhi, India. The SEAR-ITAG (referred to hereafter as the ITAG) is a regional technical expert group, established by WHO's Regional Director for South-East Asia to provide advice on all aspects of immunization, vaccines and the prevention, control, elimination and eradication of vaccine-preventable diseases (VPD). It comprises experts from such disciplines as programme management, communicable disease and VPD control, virology, epidemiology and immunization. National Expanded Programme on Immunization (EPI) managers, national surveillance focal points, representatives of national immunization technical advisory groups (NITAGs) and partner agencies participate in the ITAG's annual meeting.

The ITAG has the following terms of reference.

- Review regional and Member States' policies, strategies and plans for the control, elimination and/or eradication of VPDs, in particular, the eradication of polio, elimination of measles, control of rubella and congenital rubella syndrome (CRS), maternal and neonatal tetanus elimination (MNTE), and acceleration of the control of Japanese encephalitis (JE) and hepatitis B.
- Provide guidance on the setting of regional priorities for immunization and vaccines.
- Make recommendations on the framework for the development of national immunization policies, as well as the operational aspects of the implementation of these policies; and provide a framework for and approaches to periodic evaluation and strengthening of routine immunization (RI) services and systems.
- Advise Member States on appropriate choices of new vaccines, recommend optimal strategies, and provide technical guidance on the introduction of

these vaccines and on the monitoring and impact evaluation of new vaccines once they are introduced into national immunization programmes (NIPs).

- Promote and provide technical guidance on the implementation of high-quality VPD surveillance, including high-quality laboratory networks to support VPD surveillance.
- Advise Member States on the regulatory requirements for ensuring the quality and safety of vaccines used in NIPs.
- Provide guidance on public-private partnerships in immunization and vaccines.
- Identify research topics in immunization and vaccines and review the conduct and results of such research projects.

Objectives

The objectives of this meeting were to:

- review the progress in the performance of NIPs relative to the strategic goals outlined in the South-East Asia Regional Vaccine Action Plan 2016–2020 (SEAR-VAP);
- review the progress in the implementation of the recommendations of the ninth meeting of the SEAR-ITAG, held in July 2018; and
- identify priority actions that should be taken during 2019–2020 to achieve the milestones and goals outlined in the SEAR-VAP.

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Organization of the meeting

The meeting lasted for a period of four days and included six components:

- (1) Review of the progress of performance of the national immunization programme of each Member State, relative to the goals outlined in the SEAR-VAP
- (2) Review of the progress of the implementation of the recommendations of the ninth meeting of the SEAR-ITAG
- (3) Poster presentations by the Member States on:
 - (a) innovations to improve the coverage and equity of immunization; and
 - (b) sharing one example of a best practice on immunization.
- (4) Informational sessions on new vaccines on the horizon – dengue vaccine, malaria vaccine
- (5) Cross-cutting session of special interest – data management, quality and coverage estimations
- (6) Looking beyond 2020 – supporting co-creation of a global vision and strategy and aligning global and regional priorities and goals.

The meeting began with an opening address by Dr Poonam Khetrpal Singh, WHO Regional Director for South-East Asia (see Annex 1 for the address). The meeting was chaired by Professor Gagandeep Kang and co-chaired by Professor Mohammad Shahidullah. It was attended by all ITAG members. The other participants of the meeting included:

- representatives from the NITAGs of 11 countries of the South-East Asia Region of WHO;
- national EPI managers and surveillance focal points from the ministries of health of the 11 countries of the Region;

- the chairperson and two members of WHO's Strategic Advisory Group of Experts on Immunization (SAGE);
- the chairpersons of the SEA Regional Certification Commission for Polio Eradication and the Regional Verification Commission for Measles Elimination and Rubella Control;
- representatives and technical experts from the headquarters of the United Nations Children's Fund (UNICEF) and from UNICEF's Regional Office for South Asia (ROSA) and East Asia and Pacific Regional Office (EAPRO), as well as immunization focal points from its country offices;
- representatives from the United States Centers for Disease Control and Prevention (US CDC);
- immunization and VPD surveillance focal points from WHO country offices in the Region;
- representatives and technical experts from the WHO headquarters and the WHO Regional Office for South-East Asia; and
- representatives of regional and global partners, donors and stakeholders in immunization and vaccines, including Gavi, the Vaccine Alliance, PATH and Rotary International.

(See Annex 2 for the programme and Annex 4 for the full list of participants.)

Methodology for the review of NITAG country progress reports

- Eight weeks prior to the tenth ITAG meeting, a country-tailored template being used since 2017 for annual reporting on the progress made in meeting SEAR-VAP goals was refined and shared with all NITAGs in the Region.
- The annual progress reports, based on the template mentioned above, were submitted to the ITAG (through the WHO's Regional Office for South-East Asia) by all 11 NITAGs by the end of June 2019. The Regional Office and the country offices of WHO provided technical support to the NITAGs, as required.
- For each country report, two ITAG members were assigned as reviewers (Annex 3). The ITAG members were provided with a checklist to guide the review of the countries' progress in implementing the recommendations of the ninth ITAG meeting and any newer initiatives, and in achieving the SEAR-VAP goals.

During the meeting

- The country progress reports and the reviewers' reports were provided to all ITAG members.
- The NITAG representatives presented their respective country progress reports as per the template shared prior to the meeting.
- The ITAG members and partners provided comments on the progress reports.
- Country-specific discussions were conducted during the closed-door session of the ITAG and recommendations made accordingly.

Review of SEAR-VAP goals - progress, conclusions and recommendations

The SEAR-VAP describes a set of goals and objectives for immunization and the control of VPDs for the period 2016–2020. It has eight goals, as follows:

- (1) Routine immunization (RI) systems and services are strengthened.
- (2) Measles is eliminated, and rubella/congenital rubella syndrome (CRS) controlled.
- (3) Polio-free status is maintained.
- (4) Elimination of maternal and neonatal tetanus is sustained.
- (5) Control of JE is accelerated.
- (6) Control of hepatitis B is accelerated.
- (7) Introduction of new vaccines and related technologies is accelerated.
- (8) Access to high-quality vaccines is ensured.

Overall conclusions

The ITAG appreciated the Region's overall progress in achieving the goals of the SEAR-VAP. It commended the ministries of health of all 11 countries of the Region on their commitment to implement strategies targeted at achieving these goals, as well as on the follow-up actions taken by them vis-à-vis the recommendations made at the ninth ITAG meeting.

The ITAG noted that all countries in the Region had established NITAGs that provide technical support and monitoring oversight to the NIPs. It acknowledged that the NITAGs needed more support to work with their NIPs and appreciated the efforts of the WHO Regional Office to build the capacity of the NITAGs by conducting a workshop.

The ITAG was pleased with the high quality of country reports submitted by the NITAGs of all 11 countries and fully endorsed the recommendations made by them.

The SEAR-ITAG:

- recognized the critical role of the NITAGs in monitoring progress and guiding actions to overcome the various challenges at the national and subnational levels in achieving the goals of the SEAR-VAP;
- congratulated the immunization partners for providing strategic support to the countries of the Region; and
- noted that challenges and risks remain and that concerted efforts would be required to overcome these if all goals outlined in the SEAR-VAP were to be achieved.

Overall recommendations

The SEAR-ITAG made the following recommendations.

- Continued monitoring of the implementation of its recommendations at the national and subnational levels by the NIPs and NITAGs.
- Immunization partners should coordinate technical and financial support for monitoring the programme and meeting challenges at the national level, and particularly at the subnational level.
- The 2018 ITAG recommendations should be fully implemented and monitored by the NITAGs.
- The NIPs and NITAGs should implement the recommendations of the Regional Meeting on Strengthening Capacity of NITAGs (March 2019). This should include a review of the current terms of reference (ToRs), formalization of processes and declarations of interest, and capacity-building of NITAG members (full list of recommendations are included under goal 1 below).
- The WHO Regional Office should conduct an external evaluation of the NITAGs in the Region.

Goal 1. RI systems and services are strengthened

Progress

The strengthening of the RI systems and services is the overarching goal of the SEAR-VAP 2016–2020. The key targets are as follows.

- By 2015, all countries should have $\geq 90\%$ national coverage and $\geq 80\%$ coverage in every district or equivalent with three doses of DPT-containing vaccine (**DPT3**).
- By 2020, all countries should have $\geq 90\%$ national coverage and $\geq 80\%$ coverage in every district or equivalent **with all vaccines** in the national programmes, unless otherwise recommended.

As per the WHO/UNICEF estimates, Bangladesh, Bhutan, DPR Korea, Maldives, Myanmar, Nepal, Sri Lanka and Thailand achieved 90% or more national coverage with DPT3 in 2018. India has achieved 89%, Timor-Leste 83% and Indonesia 79% DPT3 coverage. Bangladesh, Bhutan, DPR Korea, Maldives, Sri Lanka and Thailand have achieved 90% coverage or more for all vaccines provided during infancy. As per the 2018 national reports, all districts had achieved more than 80% DPT3 coverage in Bangladesh, DPR Korea, Maldives and Sri Lanka. Ninety-five percent districts in Bhutan and 90% districts in Thailand reported more than 80% coverage. From 2000 to 2018, the overall DPT3 coverage in the Region increased from 64% to 89%.

India reported 5 293 diphtheria cases, 23 766 pertussis cases and 12 032 measles cases in 2018, while Indonesia reported 954 diphtheria cases, 1 043 pertussis cases and 9 035 measles cases during the same period. Myanmar reported 68 diphtheria cases and 1 293 measles cases, while Nepal reported 232 diphtheria cases and 4 153 pertussis cases in 2018. The occurrence of these cases demonstrates that the populations are vulnerable to diseases for which vaccines have been available for a long time, due to suboptimal coverage with the vaccines and policy barriers.

All countries in the Region have committed to immunization through legislation or a framework that upholds immunization as a priority. National immunization plans are integrated into national health plans, and the countries are demonstrating good stewardship in the implementation of their national plans. All countries are implementing their national comprehensive multi-year immunization plans.

In March 2019, the South-East Asia Regional Meeting on Strengthening Capacity of NITAGs was held in New Delhi, India. Some of the key observations and recommendations of this meeting that were noted by the ITAG are as follows.

- All countries in the Region have established NITAGs. However, the composition and ToRs, declaration of interest, number of meetings conducted each year, availability of standard operation procedures (SOPs) and method of analysis of evidence varied among the countries.
- The composition of NITAGs should be reviewed by the Ministry of Health (MoH) to align it with WHO recommendations, to the extent possible, by specifying the core members, ex-officio members, liaison members and secretariat. Each NITAG should define the voting members and non-voting members to ensure independence in decision-making. It is best not to include representatives from industries with interests in vaccines as members of the NITAG.
- Each MoH and NITAG should review the current ToRs of the NITAG and amend them, as appropriate, to accommodate roles of providing guidance to the national programmes on policies and strategies relating to vaccination; introduction of new vaccines; updated information on the safety and quality of vaccines; and monitoring the overall vaccination performance in the country with a focus on SEAR-VAP: 2016–2020.
- The processes followed by the NITAGs should be formalized with written documents on SOPs and templates for policy briefs.
- The declaration of interest of all NITAG members should be brought up to date.
- NITAGs in the region are currently engaged in assisting and guiding NIPs to monitor progress towards the achievement of the national immunization goals. This function should be further strengthened by including the progress of NIPs as a standing item on the NITAG agenda. In addition, it would be useful to include activities to monitor progress towards the NIP goals in the NITAG work plan.
- A framework for monitoring the performance of NIPs in achieving their goals should be developed by the NITAGs, while ensuring that the NITAGs do not get involved in the implementation of the activities of NIPs and maintain an independent status. Their role should be that of monitoring and guiding the progress towards the achievement of the goals.

- The NITAGs should prioritize and adapt the ITAG and SAGE recommendations in a manner that is relevant to the country, in coordination with the national programme leadership. These recommendations should then become part of the NITAG work plan. Challenges and reasons for the current performance should then be drafted as country-specific needs for communication to the Regional Office/ITAG.
- The WHO Regional Office should develop guidelines to orient NITAG members on the key performance indicators of RI and surveillance to be monitored, and the tools and processes to be used for monitoring.
- The Regional Office should encourage collaboration and sharing of experiences among the NITAGS on setting priorities and sharing best practices, including the process of declaration of interest, and ensuring the independence of decision-making by the NITAG.
- NITAGs should conduct self-evaluation, using either SIVAC or another simplified evaluation tool.

The countries in the Region are involved in assessing coverage at the district and subdistrict levels to identify pockets of low coverage and taking appropriate actions to improve coverage and reach the un-immunized. EPI and VPD surveillance reviews and EPI coverage evaluation surveys (CES) have been conducted to identify areas of low coverage, barriers to immunization and to recommend appropriate actions. Bangladesh, DPR Korea, Indonesia, Nepal and Timor-Leste have recently conducted EPI coverage evaluations surveys. Of these, Bangladesh, Indonesia and Timor-Leste used the new WHO methodology in 2018. India continues to conduct evaluation surveys in phases. Bhutan, Maldives, Myanmar and Nepal have relied on demographic and health surveys, while Myanmar is planning to conduct a survey using the new WHO methodology in 2019.

The countries of the Region have developed some innovative approaches, such as mapping hard-to-reach areas using geographical information system (GIS) mapping tools, that have not only strengthened RI services but also increased the access of the general population to the health system. Bangladesh is using an electronic registration of beneficiaries and an urban immunization strategy. DPR Korea has installed solar direct drive (SDD) refrigerators at the rural Ri levels and is tracking children who have missed immunization with the help of household doctors. India implemented the 'Intensified Mission Indradhanush' for immunization of children and pregnant women and included immunization in its Gram Swaraj Abhiyan in 2018. Indonesia

declared 2018 as the “immunization acceleration year”. Maldives has introduced a system of verifying the completion of childhood vaccine doses at the time of entry into school. Myanmar has prioritized townships for service delivery improvement. Nepal has launched a fully immunized district initiative, while Thailand has adopted a nationwide adult vaccine programme. Timor-Leste has a system of community registration and additional outreach clinics for immunization. These approaches have not only strengthened RI services but have also increased access of the general population to the health system.

Promoting vaccination demand

In South-East Asia – as elsewhere in the world – there is a substantial need to improve confidence in immunization. Put more positively, there is an opportunity to promote a resilient demand for vaccines. The demand for and refusal of vaccines is not a binary issue. There is a spectrum from outright refusal, through to hesitancy, to passive acceptance, to resilient demand. Parents’ decisions on whether to vaccinate their children, or not, are based on multiple factors. Communication plays a key part in addressing concerns regarding vaccination and in promoting its benefits. But communication alone is insufficient. Action to strengthen the demand for vaccines needs to be multi-faceted to:

- reduce barriers – using data and evidence to make vaccination the easiest action for parents to take;
- build trust – cultivating and sustaining trust in vaccines and services through social and political will, and ensuring resilience and preparedness for challenges to trust;
- tailor services – involving communities to improve the quality and accountability of services; and
- activate intentions – using motivation to overcome the gap between intentions and action through community engagement.

Countries in the Region have been engaging communities in effective discussions on their knowledge, attitudes and practices related to immunization, and health services in general, and are implementing and evaluating strategies to increase community demand for immunization. All countries are building capacity by training front-line health workers in effective communication techniques and recruiting new voices to champion immunization. As a part of the EPI CES, caretakers’ knowledge of immunization, sources of immunization and reasons for not vaccinating or partial

vaccination are evaluated. According to the CES in Bhutan and DPR Korea, there was no vaccine hesitancy in these countries. There are issues of vaccine hesitancy in some areas of India and Thailand. At the onset of the second phase of the measles–rubella (MR) immunization campaign in 2018 in Indonesia, there was resistance to the use of the MR vaccine.

To assist and support countries in the development of multi-year strategies and plans for the promotion of the demand for immunization (or the review of the existing plans), UNICEF ROSA, in partnership with the WHO Regional Office and the UNICEF EAPRO, is developing guidance for regional programmes for the promotion of resilient demand for vaccinations in South and South-East Asia. The first part of this guidance was presented to the ITAG for its input. Over the next year, the full guidance will be developed, piloted in two countries, and presented to the ITAG in 2020.

Conclusions

The ITAG made the following observations.

- The countries of the Region have initiated the implementation of the 2018 ITAG recommendations on improving coverage. However, improving coverage requires ongoing efforts.
- Financial sustainability is essential to maintain equity and achievements in coverage, even in countries with high coverage. It is an indicator of sustainable immunization programmes.
- There were diphtheria outbreaks in some countries of the Region.
- Some recommendations of the 2018 ITAG on diphtheria, such as introducing booster doses, shifting from TT to Td and initiating case-based surveillance supported by laboratories, had not been fully implemented in some countries.
- There are multifactorial determinants of the performance of NIPs, including the strength of the health systems, in addition to the social factors that influence the delivery of, demand for and acceptance of vaccines.
- The ITAG supported the direction being taken by UNICEF to develop practical and user-friendly guidance on demand generation for vaccines for use by national and subnational programmes.

Recommendations

General recommendations

- (1) In-country financing for immunization should increase in countries that are currently not fully self-funding their immunization programmes.
- (2) The NITAGs' capacity should be strengthened and their engagement in monitoring NIPs intensified.
- (3) NIPs should continue to:
 - (a) identify and prioritize districts for interventions to strengthen immunization services
 - (b) identify gaps and the reasons why children are not fully vaccinated
 - (c) improve micro-plans for immunization
 - (d) track and reach missed children
 - (e) improve the quality of data on immunization and surveillance
 - (f) monitor progress and provide supportive supervision to the immunization programme
 - (g) strengthen laboratory-supported surveillance for VPDs.

Diphtheria

The ITAG reiterated the following recommendations of the 2018 ITAG:

- (1) Strengthening laboratory-supported case-based surveillance for diphtheria
- (2) Achieving high coverage with DPT3 and minimizing DPT1-DPT3 dropouts in all areas in all countries
- (3) Ensuring three booster doses of diphtheria vaccination, at appropriate times of the life cycle, based on epidemiological evidence
- (4) Implementing timely and appropriate response to outbreaks that includes immunization of close contacts and chemoprophylaxis, as specified in the Regional surveillance guidelines.

Demand generation

The ITAG recommended the following.

- (1) Demand generation should be a standing item on the agenda of future ITAG meetings.
- (2) Practical guidance on the generation of demand should be finalized on an urgent basis and shared with countries.
- (3) Strategies should be developed, implemented and evaluated to improve the communication skills of immunization providers to better inform patients/parents/guardians about the benefits and safety of vaccines.
- (4) The NIP should work closely with the national regulatory authority (NRA) and other key stakeholders on the development of strategies for risk communication in the case of adverse events following immunization (AEFI) or other events, to mitigate the risk of public loss of confidence in vaccinations.

Recommendations for specific countries

Bangladesh

- (1) Adequate government funds should be allocated for the NIP and vacancies should be filled at the earliest.
- (2) The urban immunization strategy should be urgently implemented.

Bhutan

- (1) AEFI surveillance should be strengthened.

India

- (1) An evaluation of Mission Indradhanush (MI) and Intensified MI should be conducted. The findings should be presented at the next ITAG meeting.
- (2) The lessons learned from urban immunization strengthening pilots and best practices in other urban settings should be identified and expanded.

Indonesia

- (1) Tailored subnational plans, supported by partners, should be developed, implemented and monitored to improve coverage and equity.
- (2) Sufficient subnational resources should be made available to address un- and under-immunized populations.

Maldives

- (1) A clear policy and plan should be developed to recruit NIP staff.

Myanmar

- (1) Strategies should be developed and implemented to improve immunization for urban, hard-to-reach areas and migrant populations.

Nepal

- (1) The data available from different information systems, including VPD surveillance and RI monitoring, should be integrated and used to inform programmatic decisions to improve the coverage of immunization and equity.
- (2) Quality information systems should be built and used to provide real-time information on the performance of the immunization programme. The information should be disaggregated to the local level to guide programme actions.
- (3) Consideration should be given to appropriately relocating and/or constructing cold chain facilities following federalization.

Thailand

- (1) The utility of the immunization registry should be improved to facilitate the accurate estimation of coverage, identification and reminder/recall of children who are due or late for immunization and targeting of public health interventions.
- (2) Plans should be developed to expand the immunization registry nationwide.
- (3) Operational research should be carried out to assess the impact of vaccines (particularly new vaccines) and other programme priorities.

Goal 2. Measles is eliminated, and rubella/CRS controlled

Progress

During its sixty-sixth session in September 2013, the WHO Regional Committee for South-East Asia had adopted resolution SEA/RC66/R5, aimed at the elimination of measles and control of rubella/CRS in the Region by 2020. To ensure the provision of adequate technical guidance to accelerate progress towards the goal, a Strategic Plan for Measles Elimination and Rubella and Congenital Rubella Syndrome Control 2014–2020 was developed.

The South-East Asia Regional Verification Commission for measles elimination and rubella/CRS control has verified that five countries in the Region – Bhutan, DPR Korea, Maldives, Sri Lanka and Timor-Leste – have eliminated endemic measles. Six countries – Bangladesh, Bhutan, Maldives, Nepal, Sri Lanka and Timor-Leste – have been verified as having controlled rubella and CRS. An estimated 75% reduction in mortality due to measles occurred in the Region by 2017 compared to 2000, with nearly 23% of the decline occurring during the period 2014–2017.

As of the end of 2018, all countries in the Region were administering two doses of measles-containing vaccine (MCV) under their RI programme and 10 countries had introduced rubella-containing vaccine (RCV) in their programme. DPR Korea, the only remaining country, has plans to introduce RCV before the end of 2019. The regional coverage of the first dose of measles-containing vaccine (MCV1) was 89% in 2018, compared to 63% in 2000, and six countries reported a coverage of more than 95% at the national level in 2018. The regional coverage of the second dose of measles-containing vaccine (MCV2) increased to 80% in 2018, compared to 59% in 2014. The coverage of RCV delivered through RI was 83% for the Region in 2018, compared to 13% in 2014. An estimated 400 million children in the Region are likely to be reached with an MR vaccine through supplementary immunization activities (SIAs) between 2017 and 2019. Of these, nearly 305 million children have already been reached in India and 60 million in Indonesia.

All countries in the Region are conducting laboratory-supported case-based surveillance for measles and rubella nationwide, except India and Indonesia where it is being conducted in some parts, with plans of expansion to all parts by end-2019. Seven out of 11 countries in the Region have achieved the desired target for the non-measles and non-rubella discard rate (as a proxy of the sensitivity of surveillance). CRS surveillance has been initiated in all 11 countries, either as sentinel surveillance

or as part of the case-based surveillance system. All countries in the Region have at least one proficient national laboratory to support case-based surveillance of measles and rubella. The MR laboratory network has expanded from 23 in 2013 to 50 in 2018, with 41 laboratories accredited as “proficient” for measles and rubella testing.

A mid-term review, conducted in 2017, of the Strategic Plan for Measles Elimination and Rubella and CRS Control in the South-East Asia Region (2014–2020) concluded that the goal of achieving the elimination of measles and control of rubella/CRS by 2020 is unlikely to be achieved due to suboptimal implementation of the strategies in some countries. Financial insufficiency makes it challenging to accelerate the implementation of activities for the elimination of measles and control of rubella/CRS and poses a hurdle in the way of achieving the 2020 target.

The Regional Office conducted a high-level consultation in March 2019 on the feasibility of adopting the goal of rubella elimination and harmonizing the goal of measles elimination with that of rubella elimination. A position paper on “Establishing a rubella elimination goal and aligning measles and rubella elimination goals in the WHO South-East Asia Region” was discussed during the consultation. Representatives from countries, technical experts and professional bodies proposed the revision of the goal of ‘rubella control by 2020’ to ‘rubella elimination by 2023’ and the harmonization of the goal of measles elimination with that of rubella elimination.

A draft Strategic Plan for Measles and Rubella Elimination: 2020–2024 has been developed for achieving and sustaining measles and rubella elimination in the Region. It has the following key elements.

- Strengthen immunization systems for increasing and sustaining a high level of population immunity against measles and rubella at both the national and subnational levels through well laid-out subnational plans and their optimal implementation.
- Enhance and ensure highly sensitive laboratory-supported case-based surveillance systems. This would ensure that high-quality epidemiological assessments of population susceptibility to measles and rubella are conducted to inform policy and improve the planning of strategies to increase population immunity levels uniformly at the national as well as subnational levels.
- Ensure preparedness for response activities for measles and rubella outbreaks through the development and effective implementation of outbreak preparedness and response plans.

- Develop national measles and rubella elimination policy strategies addressing subnational variations using evidence-based data in line with the Regional Strategic Plan.
- Mobilize political, societal and financial support to ensure interruption of transmission of indigenous measles and rubella virus by 2023.

Conclusions

The ITAG acknowledged the significant progress and momentum created towards the elimination of measles and control of rubella/CRS in the Region. However, it noted that the regional target of eliminating measles and controlling rubella would not be met by 2020.

The ITAG endorsed the recommendations of the high-level consultation (March 2019) on revising the current goal to “measles and rubella elimination by 2023”. It appreciated the efforts of WHO to present the revised goal, as well as the draft Strategy for Achieving and Sustaining Measles and Rubella Elimination: 2020–2024 in the Region, to the seventy-second session of the Regional Committee for South-East Asia for consideration by the Member States.

The ITAG also endorsed the conclusions and recommendations of the fourth meeting of the Regional Verification Commission for measles and rubella and congratulated:

- Sri Lanka for eliminating endemic measles
- Bhutan, DPR Korea, Maldives and Timor-Leste for sustaining the elimination of measles
- Bangladesh, Bhutan, Maldives, Nepal, Sri Lanka and Timor-Leste for sustaining the control of rubella.

The ITAG appreciated the efforts made by the Region to put together a laboratory quality management system (LQMS) for MR to ensure that the proficiency status of the MR laboratory network is sustained.

Recommendations

General recommendations

- (1) Countries should share specimens with laboratories so that genotyping can be undertaken, and data shared through the MeaNS and RubeNS databases. Countries that have eliminated or are close to achieving elimination status must also share specimens for genotyping on sporadic cases.
- (2) The MR laboratory network in the Region should develop a quality assurance plan that is aligned with the new Regional Strategy 2020–2024.
- (3) WHO Regional Office should:
 - (a) work closely with the MR SAGE working group to ensure that Regional priorities are included in the SAGE agenda;
 - (b) identify research priorities in the areas of measles and rubella and work with key partners and stakeholders for the implementation of priority research projects; and
 - (c) report back on the progress towards the implementation of the measles and rubella LQMS at the next ITAG meeting.

Recommendations for specific countries

Bangladesh

- (1) Keeping in mind the occurrence of measles cases in infants of less than nine months of age, a zero-dose of MR vaccine at six months of age should be considered based on an epidemiological review.
- (2) The MR SIA scheduled to be conducted in February 2020 should be planned well and implemented to achieve high coverage during the campaign. It should also be used as an opportunity to identify activities to improve and sustain coverage of RI and these activities should be presented at the next ITAG meeting.

Bhutan

- (1) MR vaccination should be considered for migrant workers.

- (2) District-level coverage of the second dose of the measles and rubella-containing vaccine (MRCV2) should be reviewed so that appropriate action can be taken to ensure high coverage.

DPR Korea

- (1) The SIA scheduled to be conducted in October 2019 should be planned well and implemented to achieve high coverage during the campaign. It should also be used as an opportunity to improve and sustain high coverage of RI.

India

- (1) The recommendations of the India Expert Advisory Group on Measles and Rubella should be fully implemented, and the progress shared at the next ITAG meeting.
- (2) Multi-antigen sero-surveys should be considered in a near-term time frame to help with:
 - (a) the identification of rubella immunity gaps among women of childbearing age
 - (b) decision-making and vaccine scheduling of Td booster doses
 - (c) monitoring the progress in achieving the goal of hepatitis B control.

Maldives

- (1) MR vaccination should be considered for migrant workers.
- (2) The post-elimination sustainability plan for measles should be revised, with a focus on strengthening surveillance for both measles and rubella.

Myanmar

- (1) The MR SIA scheduled to be conducted in November 2019 should be planned well and implemented to achieve high coverage during the campaign. It should also be used as an opportunity to improve and sustain high coverage of RI.

Nepal

- (1) The recommendations made by the recent review of the measles and rubella programme should be fully implemented and the progress reported at the next ITAG meeting.
- (2) The MR SIA scheduled to be conducted in early 2020 should be planned well and implemented to achieve high coverage. It should also be used as an opportunity to improve and sustain high coverage of RI.

Sri Lanka

- (1) A post-elimination sustainability plan for measles and rubella should be developed with a focus on:
 - closing the immunity gap in birth cohorts between 1994 and 1997
 - ensuring preparedness for and response to outbreaks.
- (2) An in-depth independent external review of the MR laboratory should be conducted to ensure continued high-quality laboratory support even after the elimination of measles is achieved.

Thailand

- (1) Measles outbreaks should be used to identify and improve areas where the performance of the immunization programme is suboptimal, as well as to advocate for programme resources.
- (2) The MR SIA scheduled to be conducted in November 2019 and early 2020 should be planned well and implemented to achieve high coverage. It should also be used as an opportunity to improve and sustain high coverage of RI.
- (3) The formulation of a policy for MR vaccination of high-risk occupational groups, like health-care workers, should be considered.

Timor-Leste

- (1) A detailed desk review should be conducted to identify activities to enhance the coverage of MRCV1 and MRCV2 and to reduce the dropout rate.

Goal 3. Polio-free status is maintained

Progress

The SEA Region, certified in 2014 as being polio-free, has maintained its status for the past eight years. However, the Region continues to be at risk of resurgence of polio due to the wild poliovirus (WPV) or the circulating vaccine-derived poliovirus (cVDPV).

In February 2019, a circulating vaccine-derived poliovirus type 1 (cVDPV1) was confirmed in the Papua province of Indonesia. There has been an aggressive response to the outbreak. This consists of an immediate district-level campaign with a bivalent oral poliovirus vaccine (bOPV), followed by two mass vaccination campaigns, in the provinces of Papua and Papua Barat. The campaign has targeted 1.5 million children of less than 15 years of age.

On 25 June 2019, Myanmar reported a VDPV1 case in Kayin state. A detailed investigation has been undertaken in response to the detection of the case. A rapid response vaccination campaign with bOPV was conducted on 7–9 July, targeting 300 000 children in 12 townships. Two additional large-scale vaccination campaigns are being planned before end-2019. As Kayin state shares a border with Thailand, cross-border synchronization of immunization activities is being planned by Myanmar and Thailand.

Acute flaccid paralysis and environmental surveillance

The overall non-polio acute flaccid paralysis (AFP) rate in the Region in 2018 was 6.55 (data as on 3 June 2019) per 100 000 population under 15 years of age, which exceeds the globally recommended operational target of 2 per 100 000. It was above 2 in seven countries, namely Bangladesh, Bhutan, India, Indonesia, Maldives, Myanmar and Nepal, and between 1 and 2 (which meets certification standards) in three countries, namely DPR Korea, Sri Lanka and Thailand. No AFP case was reported from Timor-Leste in 2018.

In 2018, two stool samples were collected at least 24 hours apart and within 14 days of onset from 85% of the reported AFP cases in the Region, as against the globally recommended target of at least 80%. The target was achieved by eight countries, namely Bangladesh, Bhutan, DPR Korea, India, Indonesia, Myanmar, Nepal and Sri

Lanka. For both performance indicators, there is considerable subnational variance in several countries.

In 2018, environmental surveillance (ES) was being conducted through 81 sites in six countries, namely Bangladesh, India, Indonesia, Myanmar, Nepal and Thailand. Indonesia initiated ES in the Papua province recently, following the detection of the cVDPV outbreak.

Population immunity

Eight countries in the Region - Bangladesh, Bhutan, DPR Korea, Maldives, Myanmar, Nepal, Sri Lanka and Thailand - reported above 90% coverage with the third dose of the oral polio vaccine (OPV3). In India, Indonesia and Timor-Leste, the coverage was 80–90% in 2018. To close immunity gaps against polio, SIAs with bOPV were conducted in India in 2018. All countries in the Region currently have access to supplies of inactivated poliovirus vaccine (IPV) for their RI programmes. A stock-out of IPV was reported in four countries during 2017 due to a global shortage. These were Bangladesh, Bhutan, DPR Korea and Nepal. IPV supplies were restored to these countries during 2018. Four countries – Bhutan, Maldives, Sri Lanka and Thailand – reported IPV coverage of above 90%. Two countries – Myanmar and Timor-Leste – have a coverage of 80–90% and three – Bangladesh, DPR Korea and Indonesia – have a coverage of 60–80%. In 2018, India reported 50% coverage with IPV and Nepal, 16%. Bhutan carried out a catch-up campaign to reach children missed during the IPV stock-out period.

Poliovirus laboratory containment

The countries of the Region are making progress in activities to contain type 2 polioviruses in facilities, under 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). Two poliovirus essential facilities (PEF) have been identified to store/handle type 2 polioviruses in two countries of the Region, namely India (research facility) and Indonesia (vaccine manufacturer). National authorities for containment (NAC) have been established in both countries. The Global Certification Commission (GCC) has endorsed the certificate of participation (CP) submitted by the vaccine manufacturer in Indonesia as a designated PEF through the Indonesia NAC. As of March 2019, only four CPs had been granted worldwide, making Indonesia a frontrunner in GAPIII the implementation and poliovirus facility

containment. India is expected to submit a CP in mid-2019 and future PEFs are expected to be identified among vaccine manufacturers.

The Regional Polio Laboratory Network has conducted several bio-risk management capacity-building activities and network laboratories are conducting self-assessments against GAPIII requirements. Updated GAPIII training on implementation for national containment task forces, PEFs, NACs and vaccine manufacturers was conducted in Bandung, Indonesia in February 2019. Advanced training for auditors and a mock audit exercise were conducted in Pune, India in March 2019.

All countries are completing new surveys of biomedical laboratories and facilities to meet the requirements outlined in GAPIII. While WPV type 2 (WPV2) and VDPV type 2 (VDPV2) inventories have been completed by all countries, inventories for Sabin2 potentially infectious materials are likely to have been completed in six countries and are in process in four; Indonesia has yet to start. One of the challenges in the implementation of GAPIII is the involvement of facilities that collect, handle and store clinical and environmental samples for purposes other than research on polio. To support such laboratories, WHO has developed the “Guidance for non-poliovirus facilities to minimize risk of sample collections potentially infectious for polioviruses (PIM)”. This was pilot tested in Bangladesh in December 2017 in a workshop with high-risk laboratories. All materials identified in Bangladesh can be stored outside a PEF, according to the PIM guidance. Work on poliovirus type 2 inventories provides a good platform for inventories for type 1 and type 3 polioviruses. WHO is supporting countries in the preparation of a national response framework for use in the event of a breach of poliovirus containment.

Certification of maintaining polio-free status

The Regional Certification Commission for Polio Eradication (RCCPE) and the National Certification Committees for Polio Eradication are functional in all 11 countries and continue to provide oversight and guidance for activities aimed at the eradication of polio. The 11th RCCPE meeting took place in November 2018 in Paro, Bhutan. The RCCPE reviewed progress in each country in the Region and concluded that the Region has remained polio-free. The RCCPE, however, was concerned about the continued transmission of WPV1 in Afghanistan and Pakistan and the ongoing and the new cVDPV outbreaks in many parts of the world.

Transition planning

The Global Polio Eradication Initiative (GPEI) has begun to ramp down its funding and will eventually cease its funding in the post-eradication era. However, certain critical functions, as mentioned in the polio Post-Certification Strategy, would still be required to be maintained after global certification.

Over the past two decades, polio-funded assets, which include the human workforce, infrastructure, equipment and systems, have been established in five countries of the Region, namely Bangladesh, India, Indonesia, Myanmar and Nepal. These assets have not only contributed to the elimination of polio and the implementation of the polio endgame strategies but have also been increasingly involved with other health activities in the Region, including but not limited to VPD surveillance and RI.

Polio transition efforts are being considered as a critical opportunity to strengthen immunization systems, strategies for the elimination of measles, VPD surveillance and capacity for the implementation of the International Health Regulations (IHR) (2005). The status of transition in priority countries of the Region is summarized below.

- The Government of Bangladesh has endorsed the national polio transition plan and is on track with its implementation in three phases, as planned.
- The recent endorsement of the national plan by the Government of India and the transfer of domestic resources to cover the gaps reflects its commitment to the priorities outlined in the plan.
- The Government of Indonesia has initiated actions to self-fund a large proportion of the surveillance, laboratory and immunization costs, previously funded by the GPEI.
- The national transition plan of Myanmar is under consideration for endorsement by the government.
- Due to ongoing federalization, there has been a delay in the endorsement of the national transition plan by the Government of Nepal.

Global Polio Endgame Strategy 2019–2023

The four objectives of “The Global Polio Eradication and Endgame Strategic Plan: 2013–2018” have proven effective around the world. However, to guide the

programme in its last mile towards eradication, the GPEI recently finalized the Global Polio Endgame Strategy 2019–2023. The key elements of the strategy are:

- (1) eradication
- (2) integration
- (3) certification and containment.

Conclusions

The ITAG commended the Region for remaining polio-free for over eight years but recognized that the risk of a resurgence of the poliovirus remained. The ITAG noted with concern the recent detection of cVDPV1 in Indonesia and a VDPV1 in Myanmar, in areas with pockets of low RI coverage with OPV and IPV.

While the ITAG noted that there had been progress in the implementation of GAPIII, it continued to be concerned about the complexity of the requirements for PEFs, as well as the identification and proper handling of potentially infectious materials.

Recommendations

General recommendations

- Outbreak response plans for the detection of any wild or VDPV should be updated according to the recent global guidelines.
- An outbreak response assessment should be conducted following response to all polio outbreaks due to WPV or cVDPV.
- Polio transition plans should be operationalized in five polio priority countries (Bangladesh, India, Indonesia, Myanmar and Nepal) and NITAGs should provide a progress report to the ITAG.

Recommendations for specific countries

Indonesia

AFP surveillance should be improved, and consideration given to the expansion of ES.

Myanmar

Appropriate measures should be taken in response to the recently detected VDPV1.

Goal 4. Elimination of maternal and neonatal tetanus is sustained

Progress

All countries follow the WHO recommendation on vaccinating pregnant women with tetanus toxoid-containing vaccine (TTCV). Five countries have reported that for several years, $\geq 90\%$ coverage has been achieved with two or more doses of TTCV among pregnant women (TT2+), as reported through the WHO/UNICEF Joint Reporting Form (JRF). However, lower coverage does not necessarily indicate that the programme's performance has been weak. After accumulating repeated vaccine doses during multiple pregnancies and SIAs, women of childbearing age eventually become non-eligible for further vaccination during pregnancy, while still contributing to the target denominator for the calculation of TT2+ coverage. Field surveys conducted during validation exercises have indicated much higher protection at birth than suggested by the reported TT2+ coverage.

Infant immunization against tetanus (DTP and Penta) rose from 56% in 2000 to 88% in 2017, according to the official reports of the countries in the JRF. Several countries give booster doses in early childhood or have integrated TTCV vaccination into their school health programmes. Five countries have six doses of TTCV in their national schedule. However, coverage rates are not available beyond the primary series. Five countries offer only short-term protection and continue to create protection gaps between early childhood and childbearing age for females, and after early childhood for males.

The number of reported neonatal tetanus (NT) cases declined to 252 in 2018 in six countries. None of the countries exceeded the "elimination" definition of < 1 NT case per 1000 live births in each district (3rd administrative level of a country). The total number of reported tetanus cases continued to increase but it is not known if this was due to better reporting. The analysis of tetanus cases reported in the JRF remains limited and no module is yet available for tetanus surveillance.

Conclusions

The ITAG noted that no country exceeded the "elimination" definition of < 1 NT case per 1000 live births in each district in 2018, although the quality of the surveillance data is limited. Further, TT2+ coverage remains $< 90\%$ in several countries and no

data are available on protection at birth data. However, the ITAG appreciated that countries have begun reporting subnational TT2+ data to the Regional Office.

The ITAG noted that TTCV booster doses are being provided in several countries and plans for its introduction exist in others. It also noted the planned post-validation assessments in Bangladesh and Indonesia.

Recommendations

General recommendations

- The NIPs should fully implement the recommendations of the 2017 WHO position paper on tetanus vaccines, as appropriate.
- The NIPs should review and implement the 2019 WHO guidelines “Protecting All Against Tetanus: Guide to sustaining maternal and neonatal tetanus elimination (MNTE) and broadening tetanus protection for all populations”.
- The Regional Office should review data on immunization, disease reporting at the subnational level and reporting systems for NT surveillance with the priority countries.

Goal 5. Control of JE is accelerated

Progress

Currently, JE is endemic in 10 of the 11 countries in the Region, the exception being Maldives. Vaccination is the most cost-effective strategy to prevent and control JE, and WHO recommends that JE vaccination be integrated into national immunization schedules in all areas where JE is recognized as a public health priority. Four countries - Myanmar, Nepal, Sri Lanka and Thailand - have introduced JE vaccination nationwide, while India has introduced JE vaccine in nationally defined high-risk areas and Indonesia in one province. The estimated coverage in 2018 were: India (69%), Myanmar (88%), Nepal (81%), Sri Lanka (99%) and Thailand (95%).

All JE endemic countries in the Region are conducting JE and acute encephalitis syndrome (AES) surveillance with varying levels of intensity: nationally in six countries (Bangladesh, Myanmar, Nepal, Sri Lanka, Thailand and Timor-Leste), in all high-risk areas in India and at sentinel sites in Bhutan, DPR Korea, and Indonesia.

JE/AES surveillance is supported by 14 laboratories in the Region and one regional reference laboratory (RRL) in Bangalore, India. In April 2019, a regional workshop to strengthen the capacity of the JE laboratory network in the Region was organized at RRL Bangalore, India. Some of the key observations and recommendations from the regional workshop, that were noted by the ITAG are as follows.

- Onsite training should be provided to the staff in the laboratories to share knowledge from the workshop.
- Laboratories that use the InBios JE IgM assay should follow the WHO version of the InBios algorithm revised in April 2019.
- Samples for confirmatory testing should be sent to the RRL annually or more frequently upon request of the Regional Laboratory Coordinator (RLC) or RRL. The laboratories should communicate with the RLC and RRL and confirm the timing of referrals and the number of samples to be referred.
- The revised WHO data form should be used for all future data reporting to WHO on a monthly basis.
- The JE test kit insert should be reviewed regularly. Changes should be noted, and SOPs modified accordingly. The assay limitations outlined in the insert should be considered carefully.
- The laboratories should plan to ship a proportion of tested samples for confirmation to the RRL.
- The laboratory staff should be encouraged to hold regular meetings with national surveillance officers to resolve case classification issues.
- The laboratories should perform internal audit by using the WHO accreditation checklist and submit the checklist report to the RLC annually.
- Annual onsite refresher training on laboratory safety should be provided by laboratory supervisors.

Due to the variability of the type of surveillance in the countries, there is a wide variation in the number of confirmed cases reported in each country. In 2018, around 22 000 cases of suspected JE were reported in the Region. Of these, India reported around 17 000 cases and Myanmar about 2000 cases. Around 338 cases were confirmed by laboratories in the Region. Of these, 126 were in Myanmar and 96 in Bangladesh. India did not report the number of cases confirmed by laboratory testing.

Conclusions

The ITAG noted that five countries are providing the JE vaccine nationally or in endemic subnational areas. It acknowledged that there are opportunities to improve protection against JE in countries that have already introduced the vaccine.

Recommendations

General recommendations

- An expert panel on JE should be convened at the regional level to address issues related to case definition of AES and the adequacy of the number and type of vaccine doses required for protection.
- Case-based surveillance for AES should be strengthened by:
 - (a) following up on the recommendations of the regional workshop on strengthening the capacity of the JE laboratory network;
 - (b) linking laboratory and surveillance data; and
 - (c) sharing case-based data with the Regional Office every month.

Recommendations for specific countries

Bangladesh

An analysis of the JE disease burden should be completed to consider the introduction of the JE vaccine with Gavi support.

India

The reasons for outbreaks in areas that have introduced JE vaccination should be identified and corrective actions taken.

Goal 6. Control of hepatitis B is accelerated

Progress

In 2018, all 11 countries in the Region continued to have hepatitis B vaccine (HepB) in their RI schedules as part of combination vaccines, and eight (Bhutan, DPR Korea,

India, Indonesia, Maldives, Myanmar, Thailand, Timor-Leste) had a universal HepB birth dose (HepB BD) (WHO Monitoring System 2018).

A South-East Asia Regional Expert Panel (SEA-REP) was formed in 2019 to make recommendations to the Regional Director on whether the target of reducing the prevalence of chronic hepatitis B to less than 1% among children who are at least five years old has been achieved. The Panel finalized draft “Guidelines for verification of achievement of hepatitis B control target through immunization in the WHO South-East Asia Region”. It reviewed the progress made by Bangladesh, Bhutan, Nepal and Thailand to verify if these countries have achieved the target of reducing the prevalence of chronic hepatitis B to less than 1% among children.

The overall coverage with three doses of HepB (HepB3) in the Region increased from 54% in 2010 to 89% in 2018. As per the draft WHO/UNICEF best estimates in 2018, the HepB3 coverage was reported to be >90% in eight countries (Bangladesh, Bhutan, DPR Korea, Maldives, Myanmar, Nepal, Sri Lanka, Thailand). India reported 89%, Indonesia 79% and Timor-Leste 83%. Among the eight countries that included HepB BD in their vaccination schedule, the coverage was >90% in four countries (Bhutan, DPR Korea, Maldives, Thailand) in 2018. India and Indonesia reported 54%, while Myanmar and Timor-Leste, where the HepB BD was introduced in 2016, reported 14% and 61%, respectively. Several countries have sustained a high coverage with HepB BD and HepB3 for at least five years and have likely achieved the target of reducing the prevalence of chronic hepatitis B to less than 1% among children.

Nationally representative serological surveys among children of at least 5 years of age are available in Bangladesh, Bhutan, Nepal and Thailand. They indicate that the post-vaccination infection rates among the surveyed cohorts are low. Maldives is planning a national school-based survey among Grade 1 children, while DPR Korea is planning to conduct a national household-based survey among children above the age of 5 years.

Conclusions

The ITAG appreciated the establishment of the SEA-REP and took note of the report of its first consultation. It endorsed the draft “Guidelines for verification of achievement of hepatitis B control target through immunization in the WHO South-East Asia Region”.

Recommendations

General recommendations

- The Regional Office should:
 - (a) distribute the final version of the Guidelines to all stakeholders; and
 - (b) convene a specific technical consultation on hepatitis B control through immunization and report on the outcomes at subsequent ITAG meetings.
- In countries that get verified to have achieved the control target, the NITAGs should assess whether the status of hepatitis B control has been maintained and report their conclusions at subsequent ITAG meetings.
- The NIPs should enhance dialogue and coordination with other relevant programmes, especially to increase birth dose coverage.

Recommendations for specific countries

DPR Korea

A seroprevalence survey should be conducted to support verification of the hepatitis B control goal.

Indonesia

The coverage of HepB BD should be improved, and monitoring strengthened.

Goal 7. Introduction of new vaccines and related technologies is accelerated

Progress

New vaccines have become available in the last decade for diseases that were previously not included in the NIPs. As a result, all countries in the Region have added two or more new vaccines to their national immunization schedule during the last decade and have strengthened their NIPs in the process. The SEAR-VAP 2016–2020 has identified the acceleration of the introduction of new vaccines as one of its goals. Each country is expected to introduce at least two new or underutilized vaccines

from 2016 to 2020. Table 1 highlights the progress in the introduction of new and underutilized vaccines in the Region since 2016.

Bhutan introduced the HPV vaccine nationally in 2011, while Sri Lanka and Thailand introduced it nationwide in 2017. Maldives introduced the HPV vaccine most recently (March 2019). In India, the HPV vaccine was introduced in the state of Sikkim in 2018, while in Indonesia, the vaccine was introduced in all districts of Jakarta province in 2016, in two districts of Jogjakarta in 2017 and in Surabaya city in 2018. Nepal (two districts) and Bangladesh (one district) have successfully completed demonstration projects with the HPV vaccine and are now planning to submit applications to Gavi for the national introduction of the vaccine. Myanmar has successfully submitted its application to Gavi for HPV vaccine and is planning to introduce the vaccine nationally in June 2020.

Table 1: Introduction of new and underutilized vaccines in the Region (2016–2019); planned introductions (2019–2020)

Country	National introduction	Subnational introduction	Planned introduction
Bangladesh		HPV vaccine (1 district)	Rotavirus vaccine (RVV) (2020)
Bhutan	MMR, PCV		Influenza vaccine
India	MR	RVV (11 states), PCV (6 states) HPV (2 states),	
Indonesia	IPV, MR	HPV (1 province and 4 districts), PCV (10 districts), JE (1 province)	
Maldives	MMR, HPV		
Myanmar	MR, PCV, JE, influenza		RVV (2020) HPV (2020)
Nepal		HPV (2 districts)	RVV (2020)
Sri Lanka	HPV		
Thailand	HPV, Hib	RV (1 province)	RVV nationally (2020)
Timor-Leste	IPV		RVV (2019), HPV (2020), PCV (2021)

A regional meeting on the elimination of cervical cancer was conducted in June 2019. The key observations and recommendations of the meeting with respect to HPV vaccination, that were noted by the ITAG, are as follows:

- The existing EPI infrastructure, the experience in supplementary immunization campaigns and school-based immunization in the Region should be leveraged to roll out multi-cohort and routine HPV vaccination.
- Countries should submit their applications for the HPV vaccine to Gavi early to avoid procurement delays.
- A multi-sectoral approach, which engages the Education Ministry, Finance Ministry, Information Ministry, the media, religious leaders and civil society organizations should be implemented to ensure that the vaccine is accepted and to mobilize the resources required.
- Cost-benefit and cost-effectiveness analyses should be carried out to generate information for advocacy with policy-makers in countries that are yet to introduce the HPV vaccine.
- Communication preparedness and implementation should be reinforced to respond to rumours and vaccine hesitancy, and to maintain the achievements in demand.
- Gavi, WHO and UNICEF should engage with companies manufacturing the HPV vaccine to ensure adequate supplies for annual requirements and to see to it that the vaccines are available at affordable prices.

India has initiated the phased introduction of an indigenous RVV and has already introduced the vaccine in 11 states. Bangladesh and Nepal are likely to introduce the RVV nationwide, with Gavi support, in 2019. Myanmar is likely to introduce the vaccine in 2020. Thailand has conducted a pilot project for the introduction of RVV in one province and plans to introduce it nationally in 2019. The non-availability of RVV is a challenge that may delay the introduction of the vaccine in the countries of the Region.

Bangladesh, Nepal, Myanmar, five states of India and, more recently, Bhutan, have introduced PCV, while Indonesia has introduced PCV in three districts and one city. Sentinel surveillance data from invasive bacterial disease surveillance sites in these countries have supported decision-making in favour of the introduction of

PCV, which has been supported by Gavi. Post-introduction evaluations conducted in Bangladesh and Nepal have confirmed that the coverage of PCV3 is now equivalent to that of DPT3. The vaccine is acceptable to the communities and there are no concerns related to its safety.

Conclusions

The ITAG noted that HPV had been introduced in four countries and PCV in one country since its last meeting.

It also noted that five countries planned to introduce RVV, two planned to introduce the HPV vaccine while another two planned to introduce the influenza vaccine among high-risk populations during the next two years.

The ITAG recognized that conducting a cost-effectiveness analysis of HPV vaccination would help with advocacy. It would make a case for securing internal and external financial resources and help in selecting the right mix of interventions to optimize the health-care budget.

Recommendations

General recommendations

- The NITAGs and NIPs should work together to prioritize the introduction of new and underutilized vaccines based on the country's context and SAGE recommendations.
- Pre-readiness assessments and post-introduction evaluations should be conducted when new vaccines are introduced to help identify and correct programmatic gaps.
- All countries should consider sharing their data with the Global Invasive Bacterial Surveillance Network (GIBSN) and the Global Rotavirus Surveillance Network (GRSN) through the Regional Office.
- All countries should consider implementing the recommendations for vaccination against HPV, as part of the elimination of cervical cancer, as recommended at the Regional Consultation (June 2019).

Recommendations for specific countries

Sri Lanka

All evidence (related to research, clinical data, sociodemographic factors, disease trend, disease burden, reduction of comorbidity/mortality) should be considered when deciding on the introduction of new vaccines.

Goal 8. Access to high-quality vaccines is ensured

Progress

Recognizing that access to affordable vaccines of assured quality is central to the performance of immunization programmes, the SEAR-VAP 2016–2020 has identified ensuring access to high-quality vaccines as one of its eight goals.

The National Vaccine Institute (NVI), Thailand, in collaboration with the Association of Southeast Asian Nations (ASEAN) Member States and the ASEAN secretariat, has identified key areas for regional collaboration and prioritization. These are the development of (i) a system for vaccine security, (ii) human resources, (iii) a price policy for vaccines and pooled procurement, and (iv) a communication and coordination plan. These four areas are expected to be incorporated into a regional strategic action plan, which is to be developed following the anticipated endorsement of an ASEAN Leaders Declaration on ASEAN Vaccine Security and Self Reliance (AVSSR) at the 3rd ASEAN Health Cluster Meeting and the 35th ASEAN Summit in 2019. The NVI will be hosting the Eastern Asian Sub-Regional Vaccine Procurement Exchange Forum (VPPEF), in partnership with UNICEF and the Learning Network for Countries in Transition (LNCT) in September 2019 in Yangon, Myanmar. The participating countries are Indonesia, Myanmar, Philippines, Papua New Guinea, Thailand, Timor-Leste, Mongolia and Vietnam.

In 2019, all countries in the Region reported to WHO's Vaccine Product, Price and Procurement (V3P) web-based platform through the WHO/UNICEF JRF. The Regional Office provided additional inputs collected through other monitoring activities to finalize the analysis with the WHO Market Information for Access to Vaccines (MI4A) team. It is estimated that the size of the vaccine market in the Region is 35% of the global market by volume, but about 8% by value.

The vaccine procurement policy in the Region is split between self-procurement in three of the 11 countries (27%); group procurement through UNICEF in six countries (55%); and mixed procurement in two countries (18%). Among the five countries self-procuring vaccines, three are ranked by the World Bank as lower-middle-income countries (LMIC), one is a low-income country (LIC) and one is an upper MIC. In 2019, no supply shortages have been reported in the primary series vaccines among the countries in the Region. MICs, however, have cited price as a major barrier to the introduction of RVV, HPV, PCV and MMR. The uncertainty about the availability of vaccines has also contributed to the delay in their introduction into the NIPs.

The situation regarding the supply of IPV has gradually improved since 2016, and no shortages of BCG and DPT vaccine have been reported. However, the global production of recently introduced vaccines, such as HPV, PCV and RVV, is below the current requirements.

WHO will conduct a workshop on Good Distribution Practices (GDP) for National Regulatory Authority (NRA) inspectors in countries of the Region and in other WHO regions. These trained regulators will collaborate with the national EPI managers and the MoH to enforce GDP standards within the cold chain system in the NIPs.

More than a billion doses of vaccine are administered annually in the Region, with the introduction of new vaccines and combinations of antigens growing steadily. In 2016–2018, the countries in the Region reported that 1.5 billion doses of bOPV had been administered, representing 57% of all antigens provided during this period. During the same period, half a billion individuals received the MR vaccine in RI and SIAs, representing 16% of all vaccine doses administered. Pentavalent is the third most administered vaccine, with more than 300 million doses (11%) being administered during 2016–2018.

Conclusions

The ITAG acknowledged the current regional initiatives on the procurement of vaccines and on price-sharing platforms for vaccines. It also took note of the proposed pooled procurement initiative of the AVSSR working group.

Recommendations

General recommendations

- The Regional Office should report to the ITAG on good practices for vaccine pool procurement.
- The Regional Office should review the existing initiatives on vaccine products and procurement, and on the exchange of information on prices to identify suitable mechanisms to share procurement experience and engage with manufacturers on vaccine supply.
- NIP managers should engage with the regulatory inspectors of NRAs to elaborate standards for benchmarking on good distribution practices.
- Countries should continue to meet regularly to review AEFI cases and publish vaccine safety data collected through the AEFI monitoring system, as reviewed by national AEFI causality committees.

5

Innovations to improve coverage and equity

All countries made poster presentations on the innovative approaches they had adopted to improve the coverage and equity of immunization. The summary of each country poster is presented below.

Bangladesh: Piloting online registration for vaccination

Bangladesh has initiated several innovations to improve the coverage of immunization to overcome gaps in immunization in low-coverage areas and populations. The country piloted online registration of children for vaccination in three city corporations and a rural area with the support of the government and city corporations. Online registration helps to track children for vaccination, defaulters and drop-outs. Messages are generated and sent to parents one day before the day of vaccination to serve them as a reminder. Reports are generated automatically, and vaccination certificates are generated and issued to the parents after the completion of full vaccination. Bangladesh has also initiated a GIS mapping tool to map all high-risk populations in city corporations and districts to reduce gaps in immunization. The information is used for better microplanning and to reschedule vaccination centres as necessary.

Bhutan: Initiative to improve coverage

Bhutan has a robust immunization system that is delivered through a network of a national referral hospital, district hospitals, basic health units, and outreach and satellite clinics. The immunization programme has maintained a high coverage (over 95%) for most vaccines consistently, for many years. Significant progress has been made and several VPDs have been eliminated. However, there are certain pockets, especially in the remote areas, where the coverage is lower than 90%. Also, there are challenges in providing immunization services to the nomadic population residing mostly in the difficult northern terrain of the Himalayas.

Annual review meetings are held to monitor the coverage and supply chain system, and to discuss the way forward for increasing coverage in areas that have less than 90% coverage. Catch-up vaccination campaigns are conducted to fill the gaps in coverage. As an example, a catch-up campaign with MR vaccine and OPV was conducted in five districts in 2018.

Riding on the good immunization system, Bhutan is striving to be at the forefront of the introduction of new vaccines. The country introduced PCV in the RI schedule in 2019 and is planning to introduce the influenza vaccine in October 2019 for key priority groups, as recommended by WHO.

DPR Korea: High coverage sustained

DPR Korea has sustained high coverage of RI during the past several years.

The government has a strong commitment to immunization in the country and has a sound policy for achieving it. Under the wise leadership of the government, universal and free health-care and immunization services are guaranteed under the Constitution, the law on bringing up children, as well as the public health law on the prevention of communicable diseases.

There is a well-organized health system from the central to the peripheral level. The quality of health-care and immunization services also contributes to the high coverage with vaccinations.

There are primary health-care (PHC) units all over the country, regardless of whether it is a mountainous or remote area. These PHC units are supported by a section doctor system, through which one household doctor takes care of 100–120 families.

The Central Hygiene and Anti-Epidemic Institute (CHAEI) conducts various activities to maintain the high coverage of vaccinations. It organizes routine technical training both on vaccination planning and practices under the guidance of the National Hygiene Control Board, Ministry of Public Health.

The national EPI team and NITAG continue to strengthen supportive supervision of the immunization programme activities. They also strengthen surveillance of diseases prevented by RI and other VPDs according to the Global Vaccine Action Plan of WHO.

Greater awareness among the community of the effectiveness of vaccines has also contributed to high coverage of vaccination. The household doctors conduct various information, education and communication (IEC) activities in their catchment areas to encourage voluntary participation in the RI programme.

India: Boosting and sustaining RI coverage through Mission Indradhanush

India's immunization programme (one of the largest in the world) caters to a birth cohort of around 26.7 million infants and 29 million pregnant women every year through 12 million sessions. Despite being operational for over 30 years, the coverage of immunization among children of 12–23 months of age increased at the slow pace of almost 1% each year (from 35% in 1992–93 to 62% in 2015–16). There was also a significant disparity in the coverage of immunization in urban areas, with only 6.3% improvement from NFHS 3 to NFHS 4, as compared to 22.7% in rural areas.

Given a commitment from the highest political level for an aggressive action plan to achieve 90% full immunization coverage in the country, the Ministry of Health and Family Welfare launched a massive campaign for the intensification of RI, called Mission Indradhanush (MI), in December 2014. This was further intensified under the Prime Minister's initiative and strengthened focus on 190 districts in the lowest quintile of identified fully immunized children (FIC) as Intensified Mission Indradhanush (IMI). MI / IMI was rolled out in phases through an approach of amplified generation of demand and communication. MI successfully reached 33.9 million children and 8.7 million pregnant women in 680 districts across the country.

To ensure that the gains made under MI are integrated into RI, a roadmap has been drawn to guide states to accelerate their efforts and ensure sustainability thereafter. Emphasis has been laid on adopting different actions for three categories of districts, based on their FIC status, as summarized below:

Category 1: Sustaining gains and incorporating MI areas in RI microplans

Category 2: Prioritizing and focusing on areas with poor performance and urban and tribal areas and improving RI plans

Category 3: Implementing MI in districts with less than 50% FIC

The categorization is based on the latest survey (2018) of 120 districts by UNDP and 70 districts by WHO, and NFHS-4 data for the remaining districts.

The roadmap is complemented by some key reforms. These are the introduction of new vaccines, greater investments in research and innovation to increase coverage (especially in urban and tribal areas), enhanced use of data, increased focus on adolescent immunization, and robust surveillance to detect and counter AEFIs.

Sustained high-level political support, advocacy and supervision are required for achieving the goal of achieving high RI coverage. Communication and counselling skills are to be tailored to deal with barriers relating to vaccination.

Indonesia: Strengthening RI in pockets of low-coverage areas

Indonesia has made several innovations to strengthen RI in pockets of low-coverage areas. These include the newly introduced defaulter tracking system, and the adoption of the “my village and my home” approach during immunization sessions. The empowerment of volunteers/kaders to follow a family-based approach to increase access to health services, follow-up of dropouts, sweeping immunization, sustained outreach sessions 3–4 times a year in hard-to-reach areas, utilization of a communication strategy using immunization and maternal and child health (MCH) flash cards, and technical assistance for RI training are some of the other measures taken.

The MoH had identified the EPI as one of the three national priority programmes and declared 2018 as the “immunization acceleration year”. Eighty districts are being targeted for the intensification of RI through various strategies, such as a sustained outreach strategy, follow-up of dropouts, as well as immunization sweeps. Five major urban areas with many immunization dropouts are being supported through a Rapid Pro programme. Remote islands and hard-to-reach areas have been identified and supported to improve the coverage of immunization. Additional operational costs and additional cold chain equipment were provided for these areas. Due to the challenges faced during the second phase of the MR immunization campaign, a communication strategy was developed involving religious leaders. Additional IEC materials, including messages from religious leaders in support of the immunization programme, were prepared and disseminated. The guidelines for health centres for tracking defaulters have been revised for better tracking of partially vaccinated children. Reporting by the

private sector is being intensified, and a web-based electronic routine reporting pilot is being developed. Meanwhile, a plan to improve the management of vaccines has been developed and implemented. The NITAG is independent and functioning well.

However, there are certain challenges that remain. These include VPD outbreaks, rapid urbanization, vaccine hesitancy due to religious issues, limited integration of the private sector, the lack of an effective province- or island-specific communication strategy, and non-implementation of the mandatory vaccination policy.

As a way forward, the programme has included indicators such as coverage with the second dose of MR and Pentavalent 4 vaccine, development of high-quality microplans, and implementation of the defaulter tracking tool. The programme has also included in its ambit additional technical assistance at the subnational level, advocacy to raise the level of political commitment and the development of a province- or island-specific communication plan that engages the local leaders.

Maldives: Initiatives to improve coverage

The Maldives spends 9.5% of its gross domestic product (GDP) on health and health care is free for all citizens. The EPI was officially launched in 1976. Since then, the country has maintained a high coverage with immunization for decades. Polio, neonatal tetanus and measles have been eliminated and rubella and CRS controlled. The MR, DPT booster and HPV vaccines have been introduced in the last two years. The national immunization policy was developed in 2018. VPDs are rare.

To improve the coverage of immunization, verification of the completion of immunization at school entry has been taking place for decades. Among the parties actively engaged in the programme are the Islamic Ministry, Ministry of Education, the private sector, academic institutions, telecommunications sector and NGOs. Mass vaccination campaigns, e.g. MR vaccination campaign and HPV campaign, have been conducted to bridge the gaps in immunity. Sermons related to immunization during the Friday prayers and the involvement of the Maldives Technical Advisory Group on Immunization in supportive supervision and monitoring trips are a part of the efforts to improve coverage. Panel discussions of experts in the mass media during the introduction of new vaccines or campaigns and reaching out to people through social media platforms to monitor and respond to queries and concerns, including vaccine hesitancy, have contributed to the achievement of high coverage.

The country maintains a vaccine refusal database to monitor, track and address issues of vaccine hesitancy. The development of a communication plan is under way to improve the acceptance of vaccines and tackle vaccine hesitancy.

Myanmar: Use of GIS in EPI microplanning and monitoring

RI in Myanmar is a building block of strong primary health care and universal health coverage as it provides a point of contact for health care at the beginning of life. The Ministry of Health and Sports is constantly identifying possible ways to improve the coverage of RI by reaching the unreached population of geographically and socially hard-to-reach areas through innovative approaches, such as hospital-based immunization clinics and an urban immunization strategy. Myanmar highlighted the need for the identification of a reliable target for the EPI. It is currently piloting GIS-based microplanning to strengthen the efficiency of the delivery of immunization services.

The GIS-based strategy is built on the development of a microplan based on information on the population in the catchment areas of health workers, and is mainly intended to identify missed villages through satellite imagery. This is to be followed by strengthened delivery of health services for geographically hard-to-reach areas.

The project encourages health workers to be accountable and supervisors to ensure that every eligible child is included in the plan and all efforts are made to reach them on time. It will allow health workers to review, edit and update the microplan electronically. The national roll-out of the project is planned for 2019–2020.

Nepal: Full immunization declaration initiative

In December 2012, Nepal started a unique initiative known as “Full Immunization Declaration (FID) Initiative”. With the aim of reaching every child through immunization services and reducing child morbidity and mortality associated with VPDs, the initiative’s slogan is “With local participation, ownership, and local resources mobilization; our commitment is to ensure full immunization”. The initiative is deeply grounded in the cultural-political ethos of Nepal, where local communities have traditionally taken ownership and continue to do so. The FID initiative is often integrated with other health and beyond-health initiatives, such as programmes addressing open defecation, full literacy, domestic smoke-free environment, nutrition, and menstrual taboos.

The objective of the initiative is to have all eligible children fully immunized with all vaccine doses, according to the national immunization programme. A rigorous method is followed, as laid out in the national FID guidelines. The local health workers first search and line list all eligible children by visiting every household and vaccinate any unvaccinated children found in their area. The health facility then invites the district to run a cross-check in its catchment area, based on a sample survey. If no unimmunized children are found, the health facility area is declared to have achieved full immunization, which is accompanied by a celebration of the local community. Once all health facility areas in a district are declared fully immunized, the district is declared FID.

This initiative addresses issues of inequities in immunization as the FID declaration is done in a bottom-up manner, starting at the lowest level. Further, within an administrative boundary, every child, regardless of socioeconomic, geographical or cultural facets, is to be fully immunized under this programme. To declare any administrative area fully immunized, all stakeholders should ensure that 100% of the eligible children in that area have received complete vaccination. They should also ensure sustainability, following the guidelines jointly endorsed by the Ministry of Health and Population and Ministry of Federal Affairs and Local Development.

Over the years, Nepal has witnessed the participation of all stakeholders at all levels to achieve full immunization. This has ensured ownership of the immunization programme not only by policy-makers and service providers, but also by the communities. As of June 2019, 56 out of 77 districts, and one out of seven provinces have been declared fully immunized.

Sri Lanka: Sustaining high coverage: addressing challenges

Sri Lanka has a strong public health infrastructure for the delivery of immunization services. It is coordinated through district-level regional epidemiologists and division-level medical officers of the MoH.

Immunization is provided at various stages of the life cycle. Each geographic division is divided into smaller areas, and each area is allocated to a public health midwife (PHM) and a public health inspector (PHI) This is to ensure ownership and accountability for immunization and the prevention of communicable diseases. Field-level public health staff routinely create demand for vaccination through regular home visits, which are well accepted. During home visits, appointments are given

for vaccination and missed children, as well as those who have just arrived in the area are identified for vaccination.

Immunization services are provided as an integrated service at the community level with other public health services by the same public health staff. As the same system exists throughout the country, there is no difference between the provision of urban and rural immunization services. Vaccination services are available on weekends (Saturdays) for the client's convenience and to provide missed children with an opportunity for vaccination. Further, missed opportunities for vaccination are well addressed during other service-seeking situations, such as when children visit institutions for curative care, or accompany their parents during antenatal, well-women clinic services and during school enrolment.

There is a good public-private partnership. The private sector provides free EPI vaccines and shares coverage data and AEFI data with the government. There are enabling factors leading to public trust in the provision of quality vaccines controlled through the NRA. A well-functioning AEFI system and the competency of staff in addressing AEFI emergencies have built public confidence. Regular supervision, regular reviews and feedback by national EPI staff have enabled the programme to identify gaps and to take measures for improvement. Sri Lanka plans to take further measures to sustain high coverage and establish a legal framework for immunization based on the national immunization policy.

Thailand: Improvement in coverage

Two techniques are used to estimate immunization coverage in the country. The first is a conventional MCH handbook used to record type and date of vaccination, as well as to make an appointment. The second is an electronic system which collects 43 categories of data (including demographic and vaccine-related data) from health-care facilities.

A national immunization coverage survey among children under 5 years of age and pregnant women used to be conducted annually from 1980 until 1999, when the survey results showed a high coverage. Since then the survey frequency was changed to every 3–5 years. School children were included in the survey in 2013 and survey sites were expanded to cover Bangkok and deep-south provinces in 2018.

The survey conducted in 2018 showed high overall coverage. However, coverage was low for all vaccines, except birth doses, in the deep-south provinces. The coverage among older children was below the target in Bangkok.

The way forward proposed after a gap analysis identified some measures that will be taken. In the deep-south, where vaccine hesitancy is causing low coverage, communication and social mobilization will be promoted to encourage parents to get their children vaccinated. Seeking extra resources to fund migrant vaccination will reduce some barriers to access vaccination services. Coordination with the private sector will be strengthened in urban areas. An immunization recording platform for gathering individual vaccination history from all health facilities is being planned.

Timor-Leste: Reaching the unreached

The government and partners in Timor-Leste have worked together to improve the immunization coverage and control of VPDs. The key activities conducted to reach un-immunized and partially immunized children were prioritizing districts for interventions; carrying out regular microplanning and following the plans to identify and map areas with low coverage; identifying partners' support, including assistance in meeting logistic and related needs; motivating community leaders and local authorities to fully participate in developing microplans, which will help in advocacy and encourage mothers to seek health services, including immunization.

National reviews were conducted with the local authorities to find ways of addressing the gaps. Reviews of the monthly coverage of immunization were conducted at the national level to identify low-coverage areas and the action taken to bridge the gap. Mothers' support groups were engaged to advocate for the immunization programme by using local media and local languages. To track and reach missed children, the RI programme was strengthened in all government health facilities and some private clinics through the provision of daily immunization services. The screening of health cards of mothers was intensified to identify the eligible age for different antigens and outreach. In addition, mobile clinics were conducted in areas with a low coverage.

An audit of the quality of EPI data was conducted in 2018 and the recommendations are under implementation. Timor-Leste has already implemented the district health information software 2 online platform to report EPI data integrated with data from other public health programmes. The country has implemented a unique information technology platform, "Saude na Familia", to capture all health-related information

including immunization. Plans are in place to develop an electronic national immunization register.

Dili municipality is the main urban centre, with 30% of the national population. Since 2015, a Stop Transmission of Polio (STOP) consultant has been assigned to the municipality for direct international technical assistance. Many strategies have been instituted to improve the coverage of immunization. These include involving the community /political leadership in advocacy; establishing cold chain and immunization services in all health posts and the private sector; strengthening immunization services in the National Hospital to minimize missed opportunities; involving the highest political leadership and NITAG chairperson and members in advocacy through TV and radio; conducting regular quarterly EPI and VPD reviews; and conducting in-service training with the support of the STOP consultant.

As a result of these efforts, DPT3 coverage has increased from 72% in 2010 to 83% in 2018, as per WHO and UNICEF estimates.

6

Best practices

Each country presented one theme to showcase a best practice in immunization. The following is a summary of the presentations.

Bangladesh: MR SIA planning and preparedness

Bangladesh is planning to conduct a MR follow-up campaign, targeting children of the age of 9 months to 9 years (34 million children). Gavi has agreed to help with the vaccine and operation costs for children up to five years. The vaccine and operation costs to cover children of 5–9 years of age will be funded by the government. Bangladesh has a high level of political commitment and would like to ensure that the campaign reaches at least 95% of children, especially those who were missed during previous campaigns and RI. The programme will employ innovative approaches, such as real-time data monitoring, flexible opening and closing hours, the use of supervision app, invitation cards and household stickers, and mapping of hard-to-reach areas using the GIS mapping tool.

Bangladesh is piloting selective vaccination in two districts: one high-performing and one poor-performing. In these districts, all children of eligible age will be line listed and their MR vaccination status recorded. A child already vaccinated with 2 doses of the MR vaccine, documented by card, will not receive vaccination during the campaign. The approach will be evaluated after the campaign.

Several pre-campaign readiness assessments will be conducted, both at the national and sub-national levels, using the WHO prescribed checklist.

Bhutan: Introduction of PCV 13: a cost–utility analysis

In September 2015, the National Committee on Immunization Practice (NCIP) made a recommendation to the MoH to introduce the PCV vaccine. With support from WHO and the Health Intervention and the Technology Assessment Programme (HITAP), a

cost–utility study was conducted in early 2017. This was presented to the MoH and a policy brief recommending the introduction of the vaccine was issued in July 2017.

The vaccine was launched on Her Majesty’s birthday on 4 June 2018 and was introduced into the routine EPI programme from January 2019.

The essential medicines and technology department (EMTD) conducted a cost–utility study comparing no vaccination to PCV10 and PCV13, looking at only the government perspective of the cost of vaccine. The Markov model with a one-year cycle was used and both the cost and outcomes were discounted at 3% per annum. The results were presented using an incremental cost-effectiveness ratio (ICER) in US\$ per quality-adjusted life year (QALY) gained. The disease incidence rates of meningitis, bacteraemia, pneumonia and acute otitis media were derived from the Annual Health Bulletin 2016. The incidence rates of pneumococcal bacteraemia and its sequelae were transferred from Thai studies as these data were not available in Bhutan. Mortality rates and the probability of developing sequelae were derived from literature reviews.

A cost-effectiveness threshold of 1xGDP per capita or US\$ 2708 per QALY gained was deemed to be appropriate for this study. With the indirect effects of vaccination, the ICERs of PCV10 and PCV13 were US\$ 36 and US\$ 40 per QALY gained, respectively. The ICER of PCV13 versus PCV10 was found to be US\$ 92 per QALY gained. Without the indirect effects of vaccine, the ICERs per QALY gained of PCV10 and PCV13 were US\$ 175 and US\$ 205, respectively, compared to no vaccination. PCV13 was found to prevent more episodes of illness and deaths than PCV10 both in the vaccinated and unvaccinated population.

The study also explored the impact on human resources in health. It was found that if the PCV vaccine were introduced into the RI programme, the work of the health assistant would increase by 2 full-time equivalent (FTE) per year, while there would be a decrease in the FTE of other health workers, particularly specialists (from 0.6 to 1.1 FTE) and nurses (from 1 to 1.6 FTE).

The findings of the study indicated that both PCV10 and PCV13 were cost-effective at the current price of US\$ 3.05 and US\$ 3.55 respectively. The study also showed that the maximum prices for these two vaccines to be cost-effective were US\$ 7.95 and US\$ 8.65 for PCV10 and PCV13 respectively. The budget impact analysis revealed that the total budgetary requirement would increase by approximately US\$ 3.77 million for PCV0 and US\$ 3.75 million for PCV13.

Limitations

- Data on sequelae and health-utility estimates were transferred from studies carried out in Thailand and the data on herd protection were adapted from studies in the USA.
- The incidence of outpatient department (OPD) visits was based on data collected between January and March and may not capture any existing seasonal variations.
- The direct non-medical costs borne by households, including the cost of travelling to seek care, and the loss of productivity of caregivers were not considered.

DPR Korea: EPI and VPD surveillance review - recommendations and follow-up actions

The programme has followed the recommendations of the EPI and VPD surveillance review and the key actions taken are as follows.

- A software for a logistics drug management inventory system was developed. The system has been established at the national and provincial levels.
- A plan for vaccine distribution and supervision of the implementation of the surveillance activities related to the EPI and VPD, according to the monthly immunization clinic plan in each province, was developed and is being implemented. An estimate has been made of the requirement for vehicles.
- Heating systems were installed in a few immunization clinics with support from Gavi and with the help of local funding to improve the quality of immunization services.
- The sessions schedule was reviewed, and different vaccination days were set for different immunization posts at the peripheral level within counties to improve the transport of immunization supplies and supportive supervision.
- A standardized checklist for supportive supervision and monitoring in the field was developed and is being used.
- The progress of the programme is being reviewed regularly by national committees.

- A plan has been developed for national cold chain equipment (CCE) deployment, repair and maintenance to further strengthen the cold chain.
- Plans on the response to outbreaks of polio and measles/rubella were developed.
- The VPD surveillance guidelines were updated in line with WHO regional guidelines.
- The number of anti-epidemic doctors at county hygiene and anti-epidemic stations (HAES) was increased and training on timely investigation of cases and collection of samples was planned.
- A software is being developed for the computerized management of the surveillance data at county/province/national HAES-level.
- According to the updated guidelines, all AEFI data with minimum core variables are analysed and detailed information is collected. A strengthened national AEFI committee is involved in assessing causality in the case of severe AEFIs.
- National/provincial joint supportive supervision and monitoring of HAES and sentinel hospitals are being strengthened, using a log system for supervisory notes.

India: Rotavirus introduction - key lessons learnt

India introduced the rotavirus vaccine (RVV) in phases, starting from 2016. Currently, there are four rotavirus vaccine products available in the Indian market: Rotavac®, Rotasiil®, Rotarix® and RotaTeq®. All four are technically interchangeable under the RI programme, but the handling, dose and administration of the vaccines differ. India has introduced two types of RVV - the oral liquid RVV (Rotavac®) and the oral lyophilized RVV (Rotasiil®). Separate training sessions were conducted, and a separate training package was developed for the two types of RVVs. Various innovations were tried during the training, including the station approach - a small group interactive session, online pre- and post-test, query process using sticky pads and a film on the administration of the vaccine for the participants.

Nearly 50 million doses of RVV have been administered since the introduction of the vaccine. Only three cases of intussusception have been confirmed and all of them recovered. The preliminary findings of the impact study being done at different

sentinel sites show a decrease in the rotavirus positivity rate in the post-vaccination period.

The key product-related challenges faced during the introduction of the two types of RVVs included the large cold chain and dry storage space required for Rotasiil®, logistic mismatch if bundling is not followed meticulously, and the increased time required for the reconstitution and administration of the vaccine in the case of Rotasiil®. During the introduction process, the key lessons learned were that the preparedness assessment for cold chain and dry storage space requirement and focused training of cold chain handlers on bundling ensure smooth logistic management after the introduction of the vaccine. Hands-on training at all levels is required for the smooth implementation of the programme. Strengthening AEFI surveillance is essential for the safety of immunization, and the interchangeability of the RVV products is important for decreasing dropouts and improving coverage.

Indonesia: Interrupting cVDPV1 transmission

On 12 February 2019, Indonesia reported an outbreak of cVDPV1 in Yahukimo district, Papua province. Laboratory data confirmed that VDPV1 was isolated from a 31-month-old male child, who developed paralysis on 27 November 2018. Evidence of the circulation of the virus was found when genetically related VDPV1 was detected in stool from two healthy children, living in the same district. Their samples were collected on 24 January 2019 and 13 February 2019. The cVDPV1 outbreak has been graded as emergency grade 1. The country has mounted an aggressive response to control the outbreak. The cVDPV1 case count remains one and localized to Yahukimo district. The salient features of the activities conducted in response to the outbreak are summarized as follows.

- Immunization response: Two mass-scale vaccination campaigns were conducted, using bOPV and targeting 1.26 million children under 15 years of age, in the provinces of Papua and Papua Barat.
- Coordination and partnership: Weekly coordination meetings were held among partners. Consultants were deployed to support the response activities. Emergency operations centres were established at the national and provincial levels for the coordination of the response activities.
- Surveillance: Actions were taken to enhance active surveillance through measures such as reviews of hospital records, the collection of stool specimens from community contacts and expansion of environmental surveillance.

- Risk communication and community engagement: Local religious leaders were engaged in the efforts, tools were revised to cater to populations with a low literacy level, and local communication channels were utilized.
- Managing vaccines and logistics: Adequate vaccine and marker pens were procured and provided to all teams in a timely manner, monitoring tools were simplified and new cold chain equipment was provided to the province.

Several priority actions were undertaken in all high-risk districts of the country. This included real-time monitoring; social and behavioural change communication, including the involvement of religious leaders; training in surveillance for the focal points in districts, hospitals and health centres in 12 high-risk provinces; and applying the lessons learnt from the Yahukimo special operation to access hard-to-reach children. An assessment of outbreak response will be undertaken to determine the end of the outbreak or any need for additional mass vaccination campaigns.

Maldives: Planning hepatitis B seroprevalence survey

Planning for hepatitis B seroprevalence survey started through a consultative process, involving the health protection agency (HPA), Maldives Technical Advisory Group on Immunization, WHO and UNICEF. The objectives of the survey are to measure the prevalence of hepatitis B surface antigen among Grade 1 schoolchildren; to collect data on immunization coverage data; and to calculate the effectiveness of the hepatitis B vaccine in preventing chronic infection. The survey population proposed for inclusion is children enrolled in Grade 1 (~ 6 years of age). The proposed sample size is 2121 students. A total of six schools in the Greater Male region, nine from atoll capital schools and 48 from other peripheral islands are proposed to be selected for the purpose. The training for and piloting of the survey is planned for September–October 2019. The implementation of the survey is expected to be completed by December 2019, while the report should be available in early 2020.

Myanmar: Post-introduction evaluation of JE vaccine

The JE vaccine was introduced into RI for children of 9 months of age in January 2018, following a nationwide catch-up campaign (age group 9 months–15 years). A post-introduction evaluation (PIE) was conducted with the main objectives of assessing the impact of the introduction of the JE vaccine on the EPI programme's performance; using the findings to correct the problems identified; and improving planning for the introduction of additional vaccines in the future.

The methodology included a desk review and adaptation of tools, and field assessments at different health administrative levels by assessment teams. The main findings of the PIE indicated that the coverage of the JE vaccination was high (>90% in most townships), and the reported AES- and JE-positive cases had declined significantly since the introduction of the JE vaccine in 2018.

The PIE identified the strengths and weaknesses in the areas of planning, cold chain and vaccine management and storage, logistics and AEFI management. It highlighted the need for improvement in areas such as the distribution of training materials, funds, availability of reporting forms, capacity-building of cold chain handlers, and adherence to the multi-dose vial policy to reduce vaccine wastage. It also dealt with the need for specific plans for AEFI crisis communication. On waste management, the PIE indicated that all health facilities use safety boxes, but incinerators are available only at a few hospitals. However, it took note of the unsafe waste disposal practices at some facilities and recommended the need for SOPs and further training on waste management.

Nepal: Concurrent RI monitoring - processes, outputs and challenges - Data triangulation to improve immunization programme performance

The goal of the NIP is to immunize every child with all the vaccines included in the NIP. Immunization is mandated as a right of every child in the National Immunization Act.

To operationalize this concept, the NIP needs real-time, reliable and actionable data to inform decisions. The health management information system (HMIS) is a nationwide passive aggregate data collection system with granularity down to the health facility level. Data from VPD surveillance systems, including the case-based laboratory-supported measles surveillance system (supported by a nationwide network of programme for immunization-preventable diseases at WHO also known as WHO-IPD) are also available. Measles cases and outbreak data could serve as the proverbial “canary in the coal mine” to identify areas with suboptimal immunization programme performance.

However, a system of granular data review which would identify actionable intervention points for the local programme manager at the health facility or municipality level was lacking. Further, information available from different sources was not triangulated systematically to inform programmatic decisions.

The NIP, in collaboration with the immunization partners (WHO and UNICEF), established an immunization programme core group (IPCG) to triangulate information from different sources to improve access and equity under the NIP. The IPCG holds periodic meetings with the immunization partners and other sections of the department of health services to solve problems promptly.

To make the granular data useful for actionable intervention, WHO-IPD spearheaded a system of concurrent routine immunization monitoring (with support from Gavi). The IPCG endorsed the methodology and standardized data collection tools. Under this system, specially trained independent monitors hired by WHO-IPD and surveillance medical officers (SMO) of WHO-IPD monitor the performance of the immunization programme at district, health facility, and immunization session levels. They also conduct quick immunization assessments in areas selected through purposive selection. The monitors share the data immediately at the local level so that corrective actions can be taken. In 2018, more than 5000 children were assessed in 460 communities across Nepal.

Information from measles surveillance has been used to vaccinate more than 10000 persons in different age groups with the MR vaccine as part of outbreak response immunization.

HMIS data is analysed at least every quarter and the WHO-IPD SMOs follow up with local health authorities for any gaps identified. The IPCG examines and triangulates all available information holistically to improve immunization coverage with an emphasis on access and equity.

Sri Lanka: HPV vaccine introduction and scale-up

In 2017, when the country decided to introduce the HPV vaccine, the estimated cohort for the vaccination (girls in Grade 6, above the age of 10 years) was 175 000. The NIP had experience of school-based vaccination for a Td booster in Grade 7 and rubella vaccination until 2012.

HPV vaccination was introduced by assessing country-specific HPV prevalence among healthy women, incidence of cervical cancers, genotype risk attribution for cervical cancer development and the cost incurred by the government for cervical cancer screening and management, including radiotherapy and chemotherapy. The cost implications were used for different case scenarios, such as costs on investing

in screening, in preventing country cervical cancer burden, for total case burden management and were then compared with costs required for vaccination.

An implementation feasibility study was conducted before the decision to introduce the HPV-quadrivalent vaccine all over the country through the existing public health infrastructure of the school medical inspection programme.

The government assured sustainable funding, with Gavi support, for the implementation of the programme and access to vaccines at Gavi price was assured. All partners (Gavi, UNICEF, WHO) supported the preparatory work, including advocacy and training conducted by the NIP. Consistency of advocacy messages was maintained for different categories (health staff, teachers, students, parents), which helped to achieve public trust and create demand. Resources were shared for refresher training on AEFI for health staff. This helped to build the confidence of the staff to handle anxiety-related issues in schools. These were the factors that contributed to the achievement of high coverage within a short period of time after the introduction of the HPV vaccine in October 2017.

The key lessons in the context of scaling up include the need for organizing carefully and delivering consistent messages on the benefit of a vaccine to gain the confidence of the target audience. Trainings should be targeted to build the confidence of the health-care staff to address emergency AEFI and anxiety-related issues. There should be a proper mechanism for follow-up with the second dose and for opportunistic screening to vaccinate missed children. Sri Lanka is practicing opportunistic screening of girls at school medical inspections of Grade 7 students and combines missed HPV doses with the aTd booster dose.

Thailand: Closing immunity gap for measles

Thailand started the measles elimination programme in 2012. Immunization, surveillance and laboratory strategies are being implemented. Measles cases declined during 2014–2015. However, a large outbreak occurred in 2018 with a high number of cases in the deep south, along the Thai-Myanmar border and in urban and industrial areas. The outbreak spread to other parts of the country.

Epidemiological data shows that most cases in the deep-south provinces were among children under 5 years and were caused due to vaccine hesitancy. In the rest of Thailand, the cases were mostly among people in the age group of 20–40 years and one-tenth of these were among migrants.

An MCV immunization campaign was conducted in the deep south to contain the outbreak in late 2018. Around 250 000 doses of vaccine were administered from the routine stockpile. Three population groups were classified as high-risk. These were children in the deep-south, migrant children and adults living in crowded conditions. Members of non-health sectors, such as religious leaders, community leaders, media and local administrative officers, were involved to encourage vaccination acceptance among hesitant parents. The number of cases started showing a decline in early 2019.

A national immunization campaign with MR vaccine is planned in September 2019. The target beneficiaries will be children between the ages of 1 and 12 years who have missed MCV, regardless of nationality. In 2020, an adult immunization campaign is proposed to raise immunity among adult risk groups, such as military personnel, prisoners, factory workers, tourism staff and health personnel, in the 10 highest-risk provinces and Bangkok.

Timor-Leste: Coverage evaluation survey: overcoming challenges of denominator

Timor-Leste, an island in the eastern end of the Indonesian archipelago, has an estimated population of 1.2 million. The population census (2010) projected a birth cohort of 40 351 for 2016. However, the cohort size was found to be 33 710 in 2016 on the basis of the population census conducted in 2015. This reduction in the birth cohort causes a sudden rise in the coverage estimates for the first two years of life, based on data reported routinely. Hence, a survey was planned to evaluate the coverage of vaccines according to the new guidance published by WHO in 2018. The objective was to estimate vaccine coverage in the first and second years of life, as per the national schedule.

Children in the age groups of 12–23 months and 24–35 months at the time of the survey were studied as separate cohorts for vaccination during the first and second year of life, respectively. The methodology used in the new survey on vaccine coverage was probability sampling.

The primary sampling unit was the census enumeration area. The assumed non-response rate and design effect were 5% and 1.45%, respectively. The final sample size was 301 per cohort. Three children were expected to be enrolled from each cluster per cohort and one eligible child was expected to be found in every 8th household

from the 26 selected per cluster. A nationally representative sample of 101 clusters was selected on the basis of probability proportional to the size of the population.

Data were collected using an interviewer-administered questionnaire. To find out the date of vaccinations, home-based records and health facility records were referred to.

The selected households were identified on the field, using paper maps and Global Positioning System (GPS) receivers. An independent group of external supervisors verified adherence to the survey protocol.

In the first-year-of-life cohort, the estimated highest crude dose coverage was 94.7% (95%CI,91.7–97.0) for BCG. The coverage of pentavalent 3 was 83.3% (95% CI 78–87). The lowest crude dose coverage was reported for hepatitis birth dose – 66.2% (95%CI,58.5–73.0). Among the infants, 4.8% (95%CI, 2.9–8.0) had never been vaccinated. The coverage of the 4th dose of DTP and 2nd dose of MR in the second-year-of-life cohort were also low, at 54.8% (95% CI, 46.5–63.0) and 54.4% (95% CI, 46.1–62.0), respectively. The estimated design effect was 1.74.

The new methodology is technically more robust and feasible. However, training of surveyors is challenging when compared to the 30x7 cluster survey practiced earlier. The calculation of the sample size depends on reliable data for the birth rate, infant mortality rate and average household size. Hence, the current methodology is relatively difficult to use in a country where the civil registration system is not functioning. Similarly, considerable resources need to be invested when the required maps and GPS are not readily available.

The estimates of immunization coverage derived from the EPI coverage survey were much lower than the over 100% administrative immunization coverage derived when using population estimates based on the 2015 census. This led the MoH to revisit the population estimates based on the 2015 census and adjust accordingly.

Informational session on two new vaccines

Dengue vaccine

CYD-TDV (Dengvaxia®) is a live attenuated, recombinant tetravalent vaccine that employs the attenuated yellow fever (YF) virus 17D strain as the replication backbone. Two large phase-3 trials involving over 30 000 participants in the age group of 2–16 years indicated that a 3-dose regimen of this vaccine was associated with a 65.6%, 93% and 81% reduction in virologically confirmed dengue, severe dengue and dengue hospitalizations, respectively over a 25-month period from the first dose, in the age group of 9–16 years. These data led to licensure of the vaccine with an indication of use in the age group of 9 to 45 years.

In April 2016, SAGE recommended the use of the dengue vaccine, while suggesting that the public health benefits of vaccination could be maximized if dengue seropositivity was high (70% or greater) in the targeted age group. SAGE noted that there was limited data on safety in seronegative populations and recommended further studies on safety, particularly among vaccinated seronegative persons.

Additional data that became available in 2017 showed that the vaccine performs differently in seropositive and seronegative individuals. The efficacy of the vaccine against virologically confirmed symptomatic dengue in the 25 months after the first vaccine dose was higher among those who were above 9 years of age and who were seropositive at baseline (76%; 95% CI: 63.9–84.0%), than among those seronegative at baseline (38.8%; –0.9–62.9%). Also, there was an increased risk of hospitalization due to dengue and severe dengue among seronegative individuals from the third year during the 66-month observation period. Thus, in high-prevalence settings, the vaccine provides a benefit to the overall population, but is associated with an increased risk for seronegative individuals.

In April 2018, SAGE considered these data and discussed two vaccination scenarios for countries considering the use of the dengue vaccine as part of their dengue control programme: (i) screening individuals for seropositivity prior to vaccination and vaccinating only those who were seropositive, and (ii) using the vaccine only in populations with high seroprevalence (>80%) in those of 9–45 years of age. It concluded that the former is the preferred option. This option requires a validated screening test with the highest specificity to identify persons who have had a previous dengue infection, to minimize inadvertent vaccination of seronegative persons. However, currently, point-of-care screening tests with high accuracy are not available. The alternative strategy of introducing the CYD-TDV vaccine in disease-endemic areas (e.g. those with frequent dengue outbreaks), based on the criterion of population seroprevalence rather than individual screening, requires the identification of areas with documented seroprevalence rates of at least 80% at the age of 9 years, using population sero-surveys at the district and subdistrict levels.

SAGE also emphasized that important questions concerning CYD-TDV research and implementation remain, in particular, the need to develop a highly sensitive and specific rapid diagnostic test to determine sero-status, simplified immunization schedules, and assessment of the need for booster doses.

An updated WHO position paper on CYD-TDV was published on September 2018 and is available online at <https://apps.who.int/iris/bitstream/handle/10665/274315/WER9336.pdf?ua=1>.

Malaria vaccine

The ITAG was provided an update on the RTS, S/AS01 malaria vaccine implementation programme (MVIP), a synopsis of the pathway to the development of the vaccine, the main results of the phase 3 clinical trial and the considerations that led to the WHO recommendation in 2016 for pilot-testing of RTS, S/AS01. The MVIP was established by WHO to coordinate and support national immunization programmes in Ghana, Kenya and Malawi in introducing the vaccine in selected areas. Another aim was to ensure rigorous evaluation of the feasibility of the programme, which entails administering the required four doses. The impact on mortality and the safety of the vaccine were also to be assessed. The main aim of the programme is to answer the questions identified in 2015 by SAGE and the Malaria Policy Advisory Committee (MPAC) as a basis for WHO recommendations on wider use of the vaccine.

Data management, quality and coverage estimations

Improving quality and use of data in the Region

A number of actions were identified and discussed with respect to improving the quality and use of data on surveillance and immunization in the Region. These are summarized as follows.

- Timely, complete and accurate data should be ensured through the WHO/UNICEF JRF and SEAR Annual EPI Reporting Form (AERF), as these documents are critical to tracking the progress of the SEAR-VAP and Global Vaccine Action Plan 2011–2020 (GVAP) indicators, monitoring the health situation and assessing health trends. In addition, they contribute to the WHO/UNICEF estimate for the coverage of national immunization.
- The mechanism for validating/estimating data on the coverage of immunization at the subnational level should be strengthened.
- Data should be used for action at the national and subnational levels.
- Methods to improve estimates of target populations for programmatic use should be explored. The methods should include a bottom-up strategy and the use of alternative sources of data.
- Inbuilt mechanisms for data validation should be developed to ensure the quality of data and provide regular feedback to subnational levels on core variable data omissions, inconsistencies or discrepancies.
- Communication between the laboratory and surveillance units should be strengthened for linking the laboratory and surveillance data.

- Periodic in-depth reviews/assessments of data (e.g. review of the quality of data) should be conducted and plans for improvement developed.
- The Regional Office should continue to provide feedback to the NIPs on the quality of surveillance data, and share data omissions, inconsistencies and errors.

WIISE-A new data management tool for improving data capture, analysis and dissemination

A brief overview of the WHO Immunization Information System (WIISE) was presented. WIISE is a collection of applications to collect, manage, analyse and disseminate data on immunization and VPD surveillance that is reported to WHO worldwide. WIISE is not a replacement for countries' information systems.

WHO uses data on immunization and surveillance to develop strategies and implement activities to reduce morbidity and mortality due to VPDs, and also to assess the impact of vaccines at the country level. Immunization is central to achieving several of the SDG goals and targets. The ability to collect and analyse accurate, up-to-date data is critical for the activities of WHO. For example, data on the coverage of immunization among children help identify gaps in national vaccination programmes and trigger information to ensure that every child is vaccinated, punctually and adequately, no matter where he or she lives.

WHO currently relies on fragmented data collection and analysis systems, in which the regional offices and headquarters have their own processes, workflows, and storage system to manage country-level and subnational data. These systems work in silos, may contain slightly different data, and have limited analytical capabilities. This prevents WHO from having a consolidated view of the information needed for decision-making and best supporting its Member States.

In order to mitigate these constraints, WHO is developing a common platform that will simplify and harmonize the management of immunization data, while ensuring the autonomy of the regional offices. WIISE will streamline processes and workflows and improve the overall governance of immunization data across WHO.

Estimating coverage using survey and reported data

Countries measure the coverage of immunization through administrative reports and coverage surveys. The two methods are complementary and can be used in combination to better interpret the time trends in data on coverage. A similar approach, which has been used by WHO and UNICEF to estimate the national coverage of immunization has been published and is available. It is important for immunization programmes get involved with household surveys measuring the coverage of immunization during an early stage to provide necessary information on vaccination schedules and recording practices. WHO recently published a white paper on harmonizing vaccination measures in household surveys https://www.who.int/immunization/monitoring_surveillance/Surveys_White_Paper_immunization_2019.pdf?ua=1 to ensure results are useful for immunization programmes.

In addition, it is essential to use data to facilitate action at all levels of the immunization programme, including at the level of service delivery. To better understand the performance of the programme and identify pockets with un- and under-vaccinated children, it is important to review data from different sources. These include vaccination histories from surveillance data, SIA post-campaign data, immunization session monitoring data and data on vaccine stock.

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Looking beyond 2020

The vision and strategy for the immunization programme in the SEA Region is guided by the SEAR-VAP, which describes the regional goals and targets for immunization and control of VPDs. While developing the SEAR-VAP, global strategic documents, such as the GVAP, WHO's Twelfth General Programme of Work 2014–2019 and the relevant United Nations SDGs, were taken into consideration.

With the SEAR-VAP coming to an end in 2020, the development of a new regional strategic document to guide the programme was identified as an immediate priority. To align the future strategies and direction for the Region with the global post-2020 vision, which is currently being documented in the "Immunization Agenda 2030", a regional consultation was held during the ITAG meeting. The meeting reviewed the global strategy of leaving no one behind, and considered a perspective based on priority needs and emerging challenges in the countries of the Region.

Much like the SEAR-VAP, the GVAP will also end in 2020 and a new global strategy will need to be formulated for 2021–2030. The strategy will need to engage and align stakeholders for immunization and beyond at all levels, addressing emerging issues. New solutions will have to be found to enhance the impact of vaccination programmes, while the importance of vaccinations in contributing to the broader health and development agendas will have to be reiterated. This strategy has been envisioned in the Immunization Agenda 2030 (IA 2030) through a wide consultation of stakeholders. The final IA 2030 will be presented to the SAGE in October 2019, then to the Executive Board in Q1 2020. Finally, it will go for endorsement to the World Health Assembly in May 2020.

IA 2030 is intended to inspire and align the plans and activities of country, regional and global audiences, including immunization, and health and development stakeholders. Achieving the IA 2030 vision will ensure that everyone everywhere has access to immunization. The benefits of immunization are currently spread unevenly, both between and within countries. IA 2030 will set the strategic priorities and

worldwide goals for the decade 2021–2030 and is expected to provide a dynamic way forward until 2030. Further, IA 2030 will be complemented by a living online resource, including technical guidance, implementation plans in regions and a monitoring and evaluation framework, which will evolve throughout the decade.

The regional review of the IA 2030 at the ITAG was conducted. Participants from countries of the Region and partners/stakeholders reviewed the strategic priorities of IA 2030 to provide feedback on the following.

- “Key focus areas” described for each strategic priority
- “Objectives” and “Core principles” for each strategic priority

(with specific focus on how the core principles – people-centred, country-owned, partnership and data-driven – could be applied to implement the strategic priority)

- “Goals and targets” set for each strategic priority

Any significant gaps, issues of regional and country relevance or irrelevance, key priorities and suggestions for modifications and/or improvement to the above three parameters were highlighted. The feedback from the review of the IA 2030 was sent to the secretariat of IA 2030 for incorporation into the final version of the document.

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Summary of ITAG recommendations

Name of country/agency	Recommendations
MoHs and NITAGs of all countries	<p data-bbox="407 592 485 614"><i>Overall</i></p> <ol data-bbox="407 630 1157 1056" style="list-style-type: none"><li data-bbox="407 630 1157 719">1. Continued monitoring of the implementation of ITAG recommendations at national and subnational levels by the NIPs and NITAGs.<li data-bbox="407 734 1157 795">2. The 2018 ITAG recommendations should be fully implemented and monitored by the NITAGs.<li data-bbox="407 811 1157 900">3. Coordinate with relevant partners for technical and financial support for monitoring the programme and meeting challenges at national level, and particularly at the subnational level.<li data-bbox="407 915 1157 1056">4. The NIPs and NITAGs should implement the recommendations of the “Regional meeting on Strengthening Capacity of NITAGs” (March 2019). This should include a review of the current ToRs, formalization of processes and declarations of interest, and capacity-building of NITAG members. <p data-bbox="407 1079 888 1110"><i>Goal 1 (RI systems and services strengthened)</i></p> <ol data-bbox="407 1125 1157 1540" style="list-style-type: none"><li data-bbox="407 1125 1157 1214">1. In-country financing for immunization should increase in countries that are currently not fully self-funding their immunization programmes.<li data-bbox="407 1229 1157 1290">2. The NITAG capacity should be strengthened and their engagement in monitoring NIPs intensified.<li data-bbox="407 1306 1157 1540">3. NIPs should continue to:<ol data-bbox="454 1334 1157 1540" style="list-style-type: none"><li data-bbox="454 1334 1157 1395">a. identify and prioritize districts for interventions to strengthen immunization services<li data-bbox="454 1410 1157 1471">b. identify gaps and the reasons why children are not fully vaccinated<li data-bbox="454 1487 1157 1517">c. improve micro-plans for immunization<li data-bbox="454 1532 1157 1540">d. track and reach missed children

Name of country/agency	Recommendations
	<ul style="list-style-type: none"> e. improve the quality of data on immunization and surveillance f. monitor progress and provide supportive supervision to the immunization programme g. strengthen laboratory-supported surveillance for VPDs. <p><i>Diphtheria</i></p> <p>The ITAG reiterated the following recommendations of the 2018 ITAG:</p> <ol style="list-style-type: none"> 1. Strengthening laboratory-supported case-based surveillance for diphtheria. 2. Achieve high coverage with DPT3 and minimize DPT1-DPT3 dropouts in all areas in all countries. 3. Ensuring three booster doses of diphtheria vaccination, at appropriate times of the life cycle, based on epidemiological evidence. 4. Implementing timely and appropriate response to outbreaks that includes immunization of close contacts and chemoprophylaxis, as specified in the Regional surveillance guidelines. <p><i>Demand generation</i></p> <ol style="list-style-type: none"> 1. Strategies should be developed, implemented and evaluated to improve the communication skills of immunization providers to better inform patients/parents/guardians about the benefits and safety of vaccines. 2. The NIP should work closely with the NRA and other stakeholders on the development of strategies for risk communication strategies in the case of AEFI or other events, to mitigate the risk of public loss of confidence in vaccinations. <p><i>Goal 2 (Measles is eliminated and rubella/CRS controlled)</i></p> <ol style="list-style-type: none"> 1. Countries should share specimens with laboratories so that genotyping can be undertaken, and data shared through the MeaNS and RubeNS database. Countries that have eliminated or are close to achieving elimination status must also share specimens for genotyping on sporadic cases. 2. The MR laboratory network in the Region should develop a quality assurance plan in line with the new Regional Strategy 2020–2024.

Name of country/agency	Recommendations
	<p><i>Goal 3 (Polio-free status is maintained)</i></p> <ol style="list-style-type: none"> 1. Outbreak response plans for the detection of WPV or VDPVs should be updated as per recent global guidelines. 2. An outbreak response assessment should be conducted following response to all polio outbreaks due to WPV or cVDPV. 3. Polio transition plans should be operationalized in five polio priority countries (Bangladesh, India, Indonesia, Myanmar and Nepal) and NITAGs should provide a progress report to the ITAG. <p><i>Goal 4 (Elimination of MNTN is sustained)</i></p> <ol style="list-style-type: none"> 1. NIPs should fully implement the recommendations of the 2017 WHO position paper on tetanus vaccines, as appropriate. 2. NIPs should review and implement the 2019 WHO guidelines “Protecting All Against Tetanus: Guide to sustaining MNTN and broadening tetanus protection for all populations”. <p><i>Goal 5 (Control of JE is accelerated)</i></p> <ol style="list-style-type: none"> 1. Case-based surveillance for AES should be strengthened by: <ol style="list-style-type: none"> a. following up on the recommendations of the regional workshop on strengthening the capacity of the JE laboratory network; b. linking laboratory and epidemiological surveillance data; and c. sharing case-based data with the Regional Office on a monthly basis. <p><i>Goal 6 (Control of hepatitis B is accelerated)</i></p> <ol style="list-style-type: none"> 1. In countries that get verified to have achieved the control target, the NITAGs should assess whether the hepatitis B control has been maintained and report their conclusions at subsequent ITAG meetings. 2. The NIPs should enhance dialogue and coordination with other relevant programmes, especially to increase birth dose coverage. <p><i>Goal 7 (New vaccine introductions accelerated)</i></p> <ol style="list-style-type: none"> 1. The NITAGs and NIPs should work together to prioritize the introduction of new and under-utilized vaccines, based on the country’s context and SAGE recommendations. 2. Pre-readiness assessments and post-introduction evaluations should be conducted when new vaccines are introduced to help identify and correct programmatic gaps.

Name of country/agency	Recommendations
	<ol style="list-style-type: none"> 3. All countries should consider sharing their data with the GIBSN and the GRSN through the Regional Office. 4. All countries should consider implementing the recommendations for vaccination against HPV, as part of the elimination of cervical cancer, as recommended at the Regional Consultation (June 2019). <p><i>Goal 8 (Ensuring access to high quality vaccines)</i></p> <ol style="list-style-type: none"> 1. NIP managers should engage with the regulatory inspectors of NRAs to elaborate standards for benchmarking on good distribution practices. <p>Countries should continue to meet regularly to review AEFI cases and publish vaccine safety data collected through the AEFI monitoring system, as reviewed by national AEFI causality committees.</p>
Bangladesh	<ol style="list-style-type: none"> 1. Adequate government funds should be allocated for the NIP and vacancies filled at the earliest. 2. The urban immunization strategy should be urgently implemented. 3. Keeping in mind the occurrence of measles cases in infants of less than 9 months of age, a zero-dose of MR vaccine at six months of age should be considered based on an epidemiological review. 4. The MR SIA scheduled to be conducted in February 2020 should be planned well and implemented to achieve high coverage during the campaign. It should also be used as an opportunity to identify activities to improve and sustain coverage of RI and these activities should be presented at the next ITAG meeting. 5. An analysis the JE disease burden should be completed to consider the introduction of JE vaccine with Gavi support.
Bhutan	<ol style="list-style-type: none"> 1. AEFI surveillance should be strengthened. 2. MR vaccination should be considered for migrant workers. 3. District-level coverage of MCV2 should be reviewed so that appropriate action can be taken to ensure high coverage.

Name of country/agency	Recommendations
DPR Korea	<ol style="list-style-type: none"> 1. The MR SIA scheduled to be conducted in October 2019 should be planned well and implemented to achieve high coverage during the campaign. It should also be used as an opportunity to improve and sustain high coverage of RI. 2. A seroprevalence survey should be conducted to support verification of the hepatitis B control goal.
India	<ol style="list-style-type: none"> 1. An evaluation of MI and Intensified MI should be conducted. The findings should be presented at the next ITAG meeting. 2. The lessons learned from urban immunization strengthening pilots and best practices in other urban settings should be identified and expanded. 3. The recommendations of the India Expert Advisory Group on measles and rubella should be fully implemented, and progress shared at the next ITAG meeting. 4. Multi-antigen sero-surveys should be considered in a near-term time frame to help with: <ol style="list-style-type: none"> a. the identification of rubella immunity gaps in women of childbearing age b. decision-making and vaccine scheduling of Td booster doses c. monitoring the progress in achieving the goal of hepatitis B control. 5. The reasons for outbreaks in areas that have introduced JE vaccination should be identified and corrective actions taken.
Indonesia	<ol style="list-style-type: none"> 1. Tailored subnational plans, supported by partners, should be developed, implemented and monitored to improve coverage and equity. 2. Sufficient subnational resources should be made available to address un- and under-immunized populations. 3. AFP surveillance should be improved, and consideration given to the expansion of environmental surveillance. 4. The coverage of Hepatitis B birth dose should be improved, and monitoring strengthened.
Maldives	<ol style="list-style-type: none"> 1. A clear policy and plan should be developed to recruit NIP staff. 2. MR vaccination should be considered for migrant workers. 3. The post-elimination sustainability plan for measles should be revised, with a focus on strengthening surveillance for both measles and rubella.

Name of country/agency	Recommendations
Myanmar	<ol style="list-style-type: none"> 1. Strategies should be developed and implemented to improve immunization in urban, hard-to-reach areas and migrant populations. 2. The MR SIA scheduled to be conducted in November 2019 should be planned well and implemented to achieve high coverage during the campaign. It should also be used as an opportunity to improve and sustain high coverage of RI. 3. Appropriate measures should be taken in response to the recently detected VDPV1.
Nepal	<ol style="list-style-type: none"> 1. The data available from different information systems, including VPD surveillance and RI monitoring, should be integrated and used to inform programmatic decisions to improve the coverage of immunization and equity. 2. Quality information systems should be built and used to provide real-time information on the performance of the immunization programme. The information should be disaggregated to the local level to guide programme actions. 3. Consideration should be given to appropriately relocating and/or constructing cold chain facilities following federalization. 4. The recommendations made by the recent review of the measles and rubella programme should be fully implemented and the progress reported at the next ITAG meeting. 5. The MR SIA scheduled to be conducted in early 2020 should be planned well and implemented to achieve high coverage during the campaign. It should also be used as an opportunity to improve and sustain high coverage of RI.
Sri Lanka	<ol style="list-style-type: none"> 1. A post-elimination sustainability plan for measles and rubella should be developed with a focus on: <ol style="list-style-type: none"> a. closing the immunity gap in birth cohorts between 1994–1997 b. ensuring preparedness for and response to outbreaks. 2. An in-depth independent external review of the MR laboratory should be conducted to ensure continued high-quality laboratory support after the elimination of measles is achieved. 3. All evidence (related to research, clinical data, socio-demographic factors, disease trend, disease burden, reduction of comorbidity/mortality) should be considered when deciding on the introduction of new vaccines.

Name of country/agency	Recommendations
Thailand	<ol style="list-style-type: none"> 1. The utility of the immunization registry should be improved to facilitate the accurate estimation of coverage, identification and reminder/recall of children who are due or late for immunization and targeting of public health interventions. 2. Plans should be developed to expand the immunization registry nationwide. 3. Operational research should be conducted to assess the impact of vaccines (particularly new vaccines) and other programme priorities. 4. Measles outbreaks should be used to identify and improve areas where the performance of the immunization programme is suboptimal, as well as to advocate for programme resources. 5. The MR SIA scheduled to be conducted in November 2019 and early 2020 should be planned well and implemented to achieve high coverage. It should also be used as an opportunity to improve and sustain high coverage of RI. 6. The formulation of a policy for MR vaccination of high-risk occupational groups, like health-care workers, should be considered.
Timor-Leste	<p>A detailed desk review should be conducted to identify activities to enhance the coverage of MRCV1 and MRCV2 and to reduce the dropout rate.</p>
UNICEF ROSA	<p>Practical guidance on demand generation for vaccines should be finalized on an urgent basis and shared with countries.</p>
WHO Regional Office	<ol style="list-style-type: none"> 1. An external evaluation of the NITAGs in the Region should be conducted. 2. Demand generation should be a standing item on the agenda of future ITAG meetings. 3. The Regional Office should: <ol style="list-style-type: none"> a. work closely with the MR SAGE working group to ensure that regional priorities are included in the SAGE agenda; b. identify research priorities in the areas of measles and rubella and work with key partners and stakeholders for the implementation of priority research projects; c. report back on the progress towards the implementation of the measles and rubella LQMS at the next ITAG meeting;

Name of country/agency	Recommendations
	<ul style="list-style-type: none"> d. review data on immunization, disease reporting at subnational level and reporting systems for NT surveillance with the priority countries; e. convene a JE expert panel at the regional level to address issues related to case definition of AES and the adequacy of the number and type of vaccine doses required for protection; f. distribute the final version of the “Guidelines for verification of achievement of hepatitis B control target through immunization in the WHO South-East Asia Region” to all stakeholders; g. convene a specific technical consultation on hepatitis B control through immunization and report on the outcomes at subsequent ITAG meetings; h. report to the ITAG on good practices for vaccine pool procurement; and i. review the existing initiatives on vaccine products and procurement, and on the exchange of information on prices to identify suitable mechanisms to share procurement experience and engage with manufacturers on vaccine supply.

Annex 1

Opening address by Regional Director

Technical experts, partners, ladies and gentlemen, Good morning and a very warm welcome.

This meeting of the Region's Immunization Technical Advisory Group provides an opportunity to take stock of progress and chart the path ahead.

Commendable progress has indeed been made, and reflects the vision outlined in our Regional Vaccine Action Plan.

In the past five years our Region has been certified as having eliminated polio.

It has been validated for eliminating maternal and neonatal tetanus.

The Region has maintained its status on both counts.

I am delighted to announce that Sri Lanka now joins the list of Member States that have eliminated indigenous measles.

Five have now achieved this feat, while six have been verified as having controlled rubella.

All Member States are working to achieve these outcomes, as per the Flagship Priority.

Since 2012, each Member State has introduced or renewed focus on two new or underutilized vaccines.

Ten have introduced three or more new vaccines.

All are moving towards achieving the target of controlling Hepatitis B through immunization.

To verify the achievement of this outcome, I have set-up a Regional Expert Panel. It is currently examining evidence submitted by four countries.

Importantly, the coverage of routine immunization in the Region is higher than ever.

All Member States have incorporated strategies to intensify immunization in their multi-year plans. They continue to implement country-specific actions, with a focus on increasing equity.

Our Region is the first and only region in which all Member States have established National Immunization Technical Advisory Groups that are fully functional. These national advisory bodies are proving vital to strategic guidance.

Indeed, we can be proud of the Region's many gains. I commend you for your contributions to them.

Moving forward, we must harness this momentum to sustain our achievements, accelerate progress and make the most of innovative technologies and interventions.

As you appreciate, vaccination is one of the most powerful ways our Region can help achieve the strategic priorities and goals at the center of WHO's 13th General Programme of Work.

It is also one of the best ways to work towards Sustainable Development Goal 3 – to ensure healthy lives and promote well-being for all at all ages.

And let us not forget the Region's own Flagship Priorities, several of which are related to, or reliant on, vaccination.

On that note, our Flagship Priority of measles elimination is a good indicator of the strength of immunization systems generally and, by extension, of the quality and reach of the primary health care system.

I note these wider imperatives to highlight the importance of achieving the Regional Vaccine Action Plan's goals and targets, and of ensuring that the Region's work is aligned with WHO's global vision and strategy.

That is precisely what we have gathered to do, with a focus on identifying priority actions to be implemented, both this year and next.

Distinguished participants,

Let us be candid. In acknowledging the Region's progress, there are also gaps that must be filled and opportunities that must be seized to make further gains.

Consider, for example, that of the 37 million children born in our Region every year, 11% are missing out on basic vaccines during their first year of life. The percentage of those missing vaccination during their second year of life is even higher.

Or look at recent resurgences of diphtheria and measles and reflect on what it says about gaps in vaccination coverage, the dangers of complacency and the need to maintain vigilance.

And contemplate the challenges of population growth, conflict, migration and environmental disruptions and how they will affect – or are already affecting – immunization targets.

As we review progress, identify priority actions and align the Region's work with the wider global agenda, we must be thorough.

To that end, at this agenda-setting meeting, I urge you to consider the following five key areas of our work.

First, how immunization can be better linked to primary health care and the pursuit of UHC.

Second, how vaccination can be expanded to all underserved populations.

Third, the ways in which sub-national data can be better harnessed to identify gaps in coverage and maximize reach.

Fourth, how more tailored, context-specific approaches can increase coverage and equity.

And fifth, the ways in which we can ensure people and communities are at the center of all interventions and strategies.

Alongside these technical points, I also urge you to consider how we can secure and increase investment in vaccination, especially as countries make the transition away from external support.

The economic argument is powerful. The return on investment is estimated to be around 44 times the cost. Moving forward, this has to be common knowledge, both among policymakers across sectors, as well as the general public.

Rights-based arguments are likewise formidable, especially in enhancing accountability and increasing demand. They are, in fact, at the center of the health sector's quest to leave no one behind. Wherever possible, we must make it known that vaccination is a core human right that must be respected, protected and fulfilled.

On that note, 'Protected Together, Vaccines work', is the theme of this year's World Immunization Week. In honoring it, we will continue to take the action needed to ensure the Region is protected from vaccine-preventable diseases.

Distinguished participants,

I trust you will give the many considerations I have laid out due diligence over the coming four days. Given the expertise gathered, I also trust that your conclusions and the path ahead will be based on sound technical judgement.

I look forward to being apprised of the outcomes.

I also take this opportunity to thank our many partners for their ongoing support. UNICEF, the US Centers for Disease Control and Prevention, GAVI – The Vaccine Alliance, Bill and Melinda Gates Foundation, PATH, Rotary International, professional bodies and a range of civil society organizations – your support is very much appreciated.

With Dr Gagandeep Kang as the distinguished Chair of our Regional Immunization Technical Advisory Group, your contributions to our work have been outstanding. We hope to continue to benefit from them.

I wish you all a productive and engaging meeting. Throughout its course, may you remember who it is we are serving, and why it is we serve.

I am certain the health and well-being of the Region's 1.8 billion people is in safe hands.

Thank you.

Annex 2

Agenda

Day-1

- Opening Session
- South-East Asia Regional Vaccine Action Plan (RVAP): Progress and challenges
- Global Vaccine Action Plan: Progress and Vision post-2020
- Review of progress in immunization programme performance in countries
 - Bangladesh
 - Bhutan
- RVAP Goal 1 overview: Routine immunization systems and services are strengthened
 - Regional perspective
 - Promoting vaccination demand: A Practical Guide for Immunization Programme Managers in South and South-East Asia
- Country posters ‘walk-through’: Initiatives to improve immunization coverage; innovations to overcome immunization gaps in low coverage areas/populations
- Review of progress in immunization programme performance in countries
 - DPR Korea
 - India
- ITAG closed-door session

Day-2

- RVAP Goal 2: Measles elimination and rubella/CRS control
 - Global update
 - Regional perspective

- RVAP Goal 3: Polio-free status maintained
 - Regional perspective
 - Global Polio End-Game Strategy 2019–2023
- Review of progress in immunization programme performance in countries
 - Indonesia
 - Maldives
- RVAP Goal 5: Control of Japanese encephalitis accelerated
 - Regional perspective
- Review of progress in immunization programme performance in countries
 - Myanmar
 - Nepal
- Poster presentation café
 - Bangladesh: Measles rubella SIA – planning & preparedness
 - DPR Korea: EPI/VPD surveillance review – recs & follow-up actions
 - Indonesia: Interrupting cVDPV transmission – actions taken & plans
 - Myanmar: Post-introduction of JE vaccine – key recs & follow-up
 - Nepal: Concurrent RI monitoring – processes, outputs & challenges
 - Thailand: Closing immunity gap for measles – actions taken & plans
- ITAG closed-door session

Day-3

- RVAP Goal 6: Control of hepatitis B accelerated
 - Regional perspective
- RVAP Goal 7: Introduction of new vaccines and technologies accelerated
 - Regional perspective
 - Cost-effectiveness study for new vaccine introduction
- RVAP Goal 8: Access to high-quality vaccines ensured
 - Regional perspective

- Review of progress in immunization programme performance in countries
 - Sri Lanka
 - Thailand
 - Timor-Leste
- Newer vaccines on the horizon – SAGE perspective
- Poster presentation café
 - Bhutan: Cost-effectiveness analysis of PCV introduction
 - India: Rotavirus introduction – key lessons learnt
 - Maldives: Planning hepatitis B seroprevalence survey
 - Sri Lanka: HPV introduction and scale-up – lessons learnt
 - Timor-Leste: Coverage evaluation survey – overcoming challenges of denominator
- Data quality and management
 - Data quality in the Region & introduction to WIISE
 - Measuring coverage & equity using survey findings
- ITAG closed-door session

Day-4

- Looking beyond 2020
 - Global vision and strategy for immunization post-2020; co-creating the Immunization Agenda 2030 with stakeholders in the Region – inputs from Region & countries
 - Aligning regional priorities, initiatives & goals to Immunization agenda 2030
- Closing session
 - Key conclusions and recommendations
 - Remarks by partners
- WHO South-East Asia Regional Working Group Meeting

Annex 3

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**Tenth Meeting of the WHO South-East Asia Regional Immunization Technical Advisory Group
(SEAR-ITAG), WHO-SEARO, New Delhi, India, 9-12 July 2019**

The Tenth Meeting of the World Health Organization's South-East Asia Regional Immunization Technical Advisory Group (SEAR-ITAG) was held from 9 to 12 July 2019 in New Delhi, India.

SEAR-ITAG is a technical group comprising experts from disciplines such as programme management, communicable diseases and vaccine preventable disease control, virology, epidemiology and immunization. SEAR-ITAG provides guidance on setting of regional priorities for immunization and technical support for strengthening routine immunization services to Member States. It meets annually with the participation of national Expanded Programme on Immunization (EPI) managers and surveillance focal points and partner agencies to review progress on increasing immunization coverage, improving surveillance performance, programme issues, and matters related to vaccine quality assurance. The SEAR-ITAG provides guidance on ways to improve and sustain overall high-quality performance in Member States.

This publication provides an overview of meeting proceedings, conclusions and recommendations from the tenth annual meeting of the SEAR-ITAG in 2019.

