WHO South-East Asia Regional Immunization Technical Advisory Group (SEAR-ITAG)

Report of the Ninth Meeting

New Delhi, India, 17–20 July 2018
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Contents

Acronyms ..........................................................................................................................v

1. Introduction .................................................................................................................... 1

2. Objectives ...................................................................................................................... 4

3. Organization of the meeting .......................................................................................... 5

3.1 Methodology for the review of NITAG country progress reports ......................... 5

4. Conclusions and recommendations ............................................................................ 7

4.1 Diphtheria in the SEA Region ................................................................................. 7

4.2 SEAR-VAP ................................................................................................................. 8

5. Informational sessions ................................................................................................. 41

5.1 Rabies vaccination ................................................................................................. 41

5.2 Cholera vaccination ............................................................................................... 41

5.3 Typhoid vaccination ............................................................................................... 42

5.4 Seasonal and pandemic influenza vaccination ....................................................... 43

6. Group work – immunization performance improvement using GRISP ................. 45

Annexes

1. Opening address by Regional Director ....................................................................... 46

2. Meeting Agenda of the ninth meeting of the WHO South-East Asia Regional Immunization Technical Advisory Group ................................................................. 50

3. List of reviewers of the NITAG reports ..................................................................... 57

4. List of participants ....................................................................................................... 58
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>AEFI</td>
<td>adverse event following immunization</td>
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<tr>
<td>AES</td>
<td>acute encephalitis syndrome</td>
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<td>AFP</td>
<td>acute flaccid paralysis</td>
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<td>AMP</td>
<td>assessment, mitigation and performance</td>
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<td>AMR</td>
<td>antimicrobial resistance</td>
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<td>ASEAN</td>
<td>Association of Southeast Asia Nations</td>
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<td>AVSSR</td>
<td>Association of Southeast Asia Nations Vaccine Security and Self-Reliance</td>
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<tr>
<td>bOPV</td>
<td>bivalent oral poliovirus vaccine</td>
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<tr>
<td>CCS</td>
<td>containment certification scheme</td>
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<td>CCEOP</td>
<td>cold chain equipment optimization platform</td>
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<td>CCEEVs</td>
<td>cell culture and embryonated egg-based rabies vaccines</td>
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<tr>
<td>CRS</td>
<td>congenital rubella syndrome</td>
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<tr>
<td>cVDPV</td>
<td>circulating vaccine-derived poliovirus</td>
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<tr>
<td>DTP</td>
<td>diphtheria-tetanus-pertussis vaccine</td>
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<tr>
<td>DTP1</td>
<td>first dose of diphtheria-tetanus-pertussis vaccine</td>
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<tr>
<td>DTP3</td>
<td>third dose of diphtheria-tetanus-pertussis vaccine</td>
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<tr>
<td>DHIS</td>
<td>district health information software</td>
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<tr>
<td>EAPRO</td>
<td>(UNICEF’s) East Asia and Pacific Regional Office</td>
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<td>EPI</td>
<td>Expanded Programme on Immunization</td>
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<td>ES</td>
<td>environmental surveillance</td>
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<td>FIC</td>
<td>fully-immunized child</td>
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<td>GAP</td>
<td>Global Action Plan</td>
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<td>GAPIII</td>
<td>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</td>
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<td>Gavi</td>
<td>Gavi, the Vaccine Alliance</td>
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<td>GDP</td>
<td>Good Distribution Practices</td>
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<td>GLO</td>
<td>Global Learning Opportunities</td>
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NIP  national immunization programme
NITAG national immunization technical advisory group
NRA  national regulatory authority
NT   neonatal tetanus
NVC  national verification committee (for the elimination of measles and rubella/CRS control)
OCV  oral cholera vaccine
OPV  oral poliovirus vaccine
OPV2 type 2 OPV
OPV3 third dose of oral poliovirus vaccine
PCS (polio) Post Certification Strategy
PCV  pneumococcal conjugate vaccine
PEF  poliovirus essential facilities
Penta pentavalent vaccine
PEP  post-exposure prophylaxis
PIE  post introduction evaluation
POCT point-of-care testing (for measles)
PQ (WHO) prequalified
PrEP  pre-exposure prophylaxis
QA  quality assurance
R&D  research and development
RCCPE Regional Commission for the Certification of Poliomyelitis Eradication
RCV  rubella containing vaccine
RI  routine immunization
RIG  rabies immunoglobulin
ROSA (UNICEF’s) Regional Office for South Asia
RPLN Regional Poliovirus Laboratory Network
RRL Regional Reference Laboratory
RV  rotavirus vaccine
SAGE (WHO’s) Strategic Advisory Group of Experts on Immunization
<table>
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<tr>
<th>Acronym</th>
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<tr>
<td>SEA</td>
<td>South-East Asia</td>
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<td>SEA-RCCPE</td>
<td>SEA Regional Certification Commission for Polio Eradication</td>
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<tr>
<td>SEAR-ITAG</td>
<td>South-East Asia Regional Immunization Technical Advisory Group</td>
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<td>SEARN</td>
<td>South-East Asia Regulatory Network</td>
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<td>SEAR-VAP</td>
<td>South-East Asia Regional Vaccine Action Plan</td>
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<tr>
<td>SIAs</td>
<td>supplementary immunization activities</td>
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<tr>
<td>TCV</td>
<td>typhoid conjugate vaccine</td>
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<tr>
<td>Td</td>
<td>tetanus-diphtheria vaccine</td>
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<tr>
<td>TT</td>
<td>tetanus toxoid</td>
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<tr>
<td>TT2+</td>
<td>more than two doses of tetanus toxoid containing vaccine among pregnant women</td>
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<tr>
<td>TTCV</td>
<td>tetanus-toxoid-containing vaccine</td>
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<tr>
<td>tOPV</td>
<td>trivalent oral poliovirus vaccine</td>
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<td>UN</td>
<td>United Nations</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<td>US CDC</td>
<td>United States Centers for Disease Control and Prevention</td>
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<tr>
<td>VAEIMS</td>
<td>Vaccine Adverse Events Information Management System</td>
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<tr>
<td>V3P</td>
<td>(WHO’s) Vaccine Product, Price and Procurement Web Platform</td>
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<tr>
<td>VPD</td>
<td>vaccine-preventable disease</td>
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<tr>
<td>WaSH</td>
<td>water, sanitation and hygiene</td>
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<tr>
<td>WCBA</td>
<td>women of childbearing age</td>
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<td>WHA</td>
<td>World Health Assembly</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<td>WPV</td>
<td>wild poliovirus</td>
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Introduction

The Ninth Meeting of the World Health Organization’s (WHO’s) South-East Asia Regional Immunization Technical Advisory Group (SEAR-ITAG) was held from 17 to 20 July 2018 in New Delhi, the Republic of India (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 vaccine-preventable-disease (VPD) prevention, control, elimination and eradication. 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 terms of reference of the ITAG are to:

- review Regional and Member State policies, strategies and plans for the control, elimination and/or eradication of VPDs, in particular polio eradication, measles elimination, rubella and congenital rubella syndrome (CRS) control, and the acceleration of Japanese encephalitis (JE) and hepatitis B control;
- provide guidance on the setting of Regional priorities for immunization and vaccines;
- make recommendations on the framework for development of national immunization policies as well as operational aspects of these policies’ implementation; 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 and recommend optimal strategies and provide technical guidance for the introduction of these vaccines and for the monitoring and impact
evaluation of new vaccines once they are introduced into national immunization programmes (NIPs);

- promote and provide technical guidance for the implementation of high-quality VPD surveillance, including high-quality laboratory networks to support VPD surveillance;
- advise Member States on regulatory requirements to ensure quality and safety of vaccines used in NIPs;
- provide guidance on public-private partnerships in immunization and vaccines; and
- identify and advise on appropriate implementation of research topics in immunization and vaccines and review the conduct and results of such research projects.

The meeting began with an opening address by Dr Poonam Khetrapal Singh, WHO Regional Director for South-East Asia, read, on her behalf, by Dr Pem Namgyal, Director, Programme Management, WHO South-East Asia Region (see Annex 1 for the address of the Regional Director). The meeting was chaired by Professor Gagandeep Kang. The other members of the ITAG include Professor Sanath Lamabadusuriya, Dr Robb Linkins, Dr Charung Muangchana, Dr Yasho Vardhan Pradhan, Dr Antonia Retno Tyas Utami, Professor Mohammad Shahidullah and Professor Saw Win.

The other meeting participants included:

- representatives from NITAGs from 11 countries of the South-East Asia (SEA) Region of WHO,
- representatives and technical experts from WHO headquarters and the WHO Regional Office for SEA,
- the chairperson and two members of WHO’s Strategic Advisory Group of Experts on Immunization (SAGE),
- the chairperson of the SEA Regional Certification Commission for Polio Eradication (SEA-RCCPE),
- national EPI managers and surveillance focal points from ministries of health of the 11 countries of WHO’s SEA Region,
- representatives and technical experts from the United Nations Children’s Fund (UNICEF) headquarters and from UNICEF’s Regional Office for South Asia (ROSA) and its East Asia and Pacific Regional Office (EAPRO),
representatives from the United States Centers for Disease Control and Prevention (US CDC),

immunization and VPD surveillance focal points from 11 WHO Country Offices in WHO’s SEA Region,

immunization focal points from UNICEF Country Offices, representatives of regional and global partners, donors and stakeholders in immunization and vaccines, including Gavi, the Vaccine Alliance (Gavi), PATH and Rotary International (see Annex 2 for the agenda of the meeting and Annex 4 for the full list of participants).
Objectives

The objectives of this meeting were to:

- review progress in performance of NIPs relative to the strategic goals outlined in the South-East Asia Regional Vaccine Action Plan (SEAR-VAP);
- review progress in implementation of the recommendations of the eighth SEAR-ITAG meeting held in June 2017; and
- identify priority actions for 2018 to 2019 to achieve the milestones and goals outlined in the SEAR-VAP.
Organization of the meeting

The meeting was organized over a period of four days and included four components:

- a review of country progress reports as submitted by NITAGs;
- an overview of the SEAR-VAP goals, goal by goal, with country examples for each;
- informational sessions on newer areas of work (e.g., rabies, cholera, typhoid, and influenza vaccines) as well as an update from the recent SAGE meeting;

3.1 Methodology for the review of NITAG country progress reports

Both in preparation for and during the meeting, significant time and effort were dedicated to developing methodology for the review of NITAG country progress reports, as these reviews were the major focus of the ITAG meeting.

Prior to the meeting:

- Eight weeks prior to the ninth ITAG meeting, a country-tailored template for annual reporting on progress in meeting SEAR-VAP goals was developed and shared with all NITAGs in the Region.

- The annual progress reports, based on the template mentioned above, were submitted to the SEAR-ITAG (through WHO’s Regional Office for SEA) by 10 NITAGs by the end of June 2018. India’s report was submitted one week after the ITAG meeting. WHO’s Regional Office for SEA and Country Offices provided secretarial support to NITAGs, as required.
For each country report, two ITAG members were assigned as reviewers (Annex 3). The ITAG members used a checklist to guide their review of countries’ progress in implementing the recommendations from the eighth 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.
- Each NITAG representative presented a progress report on the country which he or she represented, following the review template shared prior to the meeting.
- Comments on the progress report were provided by the ITAG members and partners.
4.1 Diphtheria in the SEA Region

The ITAG notes that the reported incidence of diphtheria in the Region has increased from 1.46 per million population in 2015 to 3.56 per million population in 2017 and that two large diphtheria outbreaks occurred in the Region in 2017 and 2018. There were 3608 probable cases and 241 laboratory-confirmed cases in the diphtheria outbreak that occurred among the migrants from the Republic of the Union of Myanmar (Myanmar) residing in the temporary settlements in Cox’s Bazar, the People’s Republic of Bangladesh (Bangladesh). Nearly 68% of these cases were under 15 years of age while only 25.9% had been vaccinated against diphtheria. Another diphtheria outbreak occurred in the Republic of Indonesia (Indonesia) with 954 clinically compatible cases and a case fatality rate of 3.9%. A total of 70% of the cases were under 15 years of age. India reported 5293 diphtheria cases in 2017. Of these, 1505 cases were from states that conduct case-based surveillance. Sixty-one percent of cases were aged less than 10 years and 67% of cases had not received any vaccination against diphtheria. The reported incidence of diphtheria in the Federal Democratic Republic of Nepal (Nepal) was 25.44 per million population in 2017. In addition to three doses of pentavalent (Penta)/diphtheria-tetanus-pertussis vaccine (DTP) given during infancy, the Kingdom of Bhutan (Bhutan), India, Indonesia, the Democratic Socialist Republic of Sri Lanka (Sri Lanka), the Kingdom of Thailand (Thailand) and the Democratic Republic of Timor-Leste (Timor-Leste) provide three to four booster doses against diphtheria.

The ITAG reviewed the diphtheria incidence and outbreaks in the Region and the number of doses included in the immunization schedules of the countries and notes that the increase in diphtheria cases in the Region is due to persistent immunity gaps as well as policy barriers preventing provision of an adequate number of booster doses. The ITAG appreciates the efforts being made by countries to control diphtheria transmission, especially in India, Indonesia and among migrants in Bangladesh.
The ITAG recommends that countries:

- should achieve high coverage with the third dose of DTP (DTP3) and minimize drop-out between the first dose of DTP (DTP1) and DTP3 at all subnational levels;
- introduce three booster doses of diphtheria-toxoid-containing vaccine as well as conducting catch-up vaccination for children and adults, as dictated by the country epidemiology, in accordance with the revised WHO position paper on diphtheria;
- switch from tetanus toxoid (TT) to tetanus-diphtheria (Td) vaccine as soon as possible, if still using TT;
- establish case-based surveillance for diphtheria and update national guidelines on diphtheria surveillance and outbreaks, in line with the Regional and global surveillance guidelines for VPDs;
- review national laboratory needs for diphtheria diagnostics based on diphtheria epidemiology in the country;
- conduct contact tracing and chemoprophylaxis of suspected and probable diphtheria cases as a mandatory part of clinical-case-management protocols, and outbreak investigations and management;

The SEAR ITAG also recommends that the SEA Regional Office should strengthen coordination with global mechanisms for supply of diphtheria antitoxin to countries in the Region.

### 4.2 SEAR-VAP

**General comments**

Based on the deliberations during the ninth meeting, the SEAR ITAG:

- is pleased with the overall progress made in the Region to achieve the goals of the SEAR-VAP;
- commends the ministries of health of all 11 countries of the Region for their commitment to implement strategies targeted to achieve the goals of the SEAR-VAP;
- recognizes the critical role of NITAGs in monitoring progress and guiding actions to overcome the various challenges that exist at national and subnational levels in each country, and to achieve the goals of the SEAR-VAP;
congratulates the partners for providing strategic support to countries of the Region; and

notes that challenges and risks remain and that concerted efforts will be required to overcome these if all goals outlined in the SEAR-VAP are to be met.

**NITAGs**

The SEAR-ITAG notes that all countries in the SEA Region have established NITAGs that provide technical support and monitoring oversight to the NIPs. It also notes that the NITAGs have begun monitoring progress towards the SEAR-VAP goals in most countries and are also providing appropriate guidance to NIPs. It is pleased at the quality of the annual reports prepared by the NITAGs of the 10 countries that have submitted their reports and at the role being played by the NITAGs in monitoring progress towards the immunization goals. The SEAR-ITAG recognizes and highlights that the role of NITAGs remains critical for further progress. The ITAG notes that India’s NITAG had yet to submit the country report and recommends that the report for 2017 be submitted by 31 July 2018. It also recommends that India should ensure that, in subsequent years, the country report be shared prior to the ITAG meeting to enable appropriate review and presentation at the meeting.

**Progress in meeting SEAR–VAP goals**

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

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

Following a detailed review of performance, the ITAG made its conclusions and provided recommendations for each of the eight goals of the SEAR-VAP.
The conclusions and recommendations of the ITAG for each goal are summarized below.

**Goal 1. RI systems and services are strengthened**

Strengthening the RI systems and services is the overarching goal of the SEAR-VAP 2016-2020. The key targets to achieve are that:

- by 2015 all countries have ≥90% national coverage and ≥80% coverage in every district or equivalent with DTP3;
- by 2020 all countries have ≥90% national coverage and ≥80% coverage in every district or equivalent for all vaccines in national programmes, unless otherwise recommended.

As per WHO/UNICEF estimates, Bangladesh, Bhutan, the Democratic People’s Republic of Korea (DPR Korea), the Republic of Maldives (Maldives), Nepal, Sri Lanka and Thailand have achieved 90% or more national coverage with DTP3 in 2017. Of these, Maldives and Sri Lanka have achieved 90% coverage for all vaccines given during infancy and the remaining five countries have achieved 90% coverage for all vaccines except inactivated poliovirus vaccine (IPV). Myanmar has achieved 89% DTP3 coverage while India has achieved 88%, Indonesia 79% and Timor-Leste 76% coverage for DTP3.

As per the 2017 national reports, all districts have achieved more than 80% DTP3 coverage in Bangladesh, Bhutan, DPR Korea, Maldives, Sri Lanka and Timor-Leste. From 2000 to 2017, DTP3 coverage in the SEA Region increased from 64% to 88%. However, an estimated 4.4 million children in the SEA Region do not receive DTP3. Of these, 3.1 million are in India and 1 million are in Indonesia.

All countries in the Region have committed to immunization through legislation or a legal framework that upholds immunization as a priority. All countries have developed a comprehensive national multiyear immunization plan and, in line with this, have developed microplans to improve immunization coverage in all districts or equivalent administrative levels.

Countries in the Region have followed up on the recommendations to improve immunization coverage in urban areas, implementing the recommendations of EPI and VPD surveillance reviews and coverage evaluation surveys and conducting data quality assessments and developing data quality improvement plans. With these efforts, urban
immunization coverage is maintained above 90% in Bhutan, DPR Korea, Maldives, Sri Lanka and Timor-Leste. However, evaluated urban coverage is less than 80% in many cities of Bangladesh, India, Indonesia, Myanmar and Nepal. Myanmar conducted a data quality assessment exercise in 2017 and a data quality implementation plan has been initiated in the country. Sri Lanka has an ongoing mechanism for data quality assessment through district-level EPI reviews and initiating actions to correct identified gaps. Bhutan, DPR Korea and Timor-Leste have data quality assessments planned in 2018 and 2019.

Countries have developed innovative approaches such as the Intensified Mission Indradhanush in India, Fully Immunized District Initiative in Nepal, community registration and additional outreach clinics in Timor-Leste, and the high-risk district approach in Indonesia. These approaches have not only strengthened RI services but have also increased the access of the general population to the health system.

**ITAG conclusions**

- The ITAG notes that, while four countries in the Region have achieved more than 90% DTP3 coverage in all districts, there are considerable gaps at national and subnational levels in the remaining seven countries, resulting in increased incidence of diphtheria, pertussis and measles.
- The ITAG observes that countries have initiated implementation of recommendations made in 2017 to improve urban immunization coverage.
- The ITAG is pleased that follow-up action on the recommendations of EPI and surveillance reviews and coverage evaluation surveys is being taken in Bangladesh, Bhutan, DPR Korea, Myanmar, Sri Lanka and Maldives.
- The ITAG notes that the EPI and VPD surveillance reviews and the joint appraisals coordinated by Gavi have been conducted back-to-back in some countries and that the findings of the EPI and VPD surveillance reviews and coverage surveys have been extensively discussed during the joint appraisals.
- The ITAG observes that the three components of the recommendations made during its meeting in 2017 (understanding subnational vaccine hesitancy, conducting subnational assessments and developing communication strategies) have been implemented variably in different countries.
- The ITAG notes that efforts have been made by some countries (for example, Myanmar and Sri Lanka) to improve quality of data, and that there is an urgent need to do the same in other countries.
ITAG recommendations

ITAG recommendations for all countries

- NIPs should review ongoing initiatives to improve immunization coverage and implement country-tailored approaches to improve immunization coverage in all districts using well-tested strategies (such as prioritization of districts for interventions; identification of gaps and reasons for children not being fully vaccinated; reviews of and efforts to improve microplans; tracking and reaching missed children; birth registries; data quality improvement; monitoring and supervision).

- Annual district-level immunization reviews should be conducted in priority districts, facilitated by the national programme manager and monitored by NITAG members.

- Strategies to overcome immunization gaps in low coverage areas and populations should be identified and implemented; these strategies should be reported to the SEAR ITAG through the NITAGs;

- NITAGs should monitor implementation of urban immunization coverage activities, especially in Bangladesh, India, Indonesia, Myanmar and Nepal.

- The ITAG reiterates the need for a meticulous follow-up of the recommendations made during the EPI and surveillance reviews and coverage evaluation surveys.

- The practice of conducting EPI review and Gavi joint appraisal back-to-back needs to be continued in forthcoming EPI reviews.

- The ITAG 2017 recommendation on demand generation and vaccine hesitancy needs to be fully implemented with support from UNICEF and WHO.

- Country-specific communication plans to improve confidence in vaccines and increase demand for vaccines, including crisis communication strategies, need to be developed. These plans should be shared with the SEAR ITAG, through NITAGs, during its next meeting.

- The ITAG reiterates the importance of conducting data quality assessments in countries that have not done so in the last three years. Based on the results of these assessments, data quality improvement plans should be developed and implemented; when these data quality assessments are conducted, countries should analyse both immunization and surveillance data for discordance.;
ITAG recommendations for specific countries

- Bangladesh: The ITAG recommends that the urban immunization plan be implemented urgently, and progress reported during the next meeting of the SEAR ITAG.

- DPR Korea: The ITAG recommends that the NITAG should monitor the full implementation of the recommendations of the recently conducted EPI and VPD surveillance review and a report of implementation be shared with the SEAR ITAG during its next meeting.

- India: The ITAG recommends that India’s NITAG annually review the impact of targeted measures to enhance RI coverage (such as Mission Indradhanush, Intensified Mission Indradhanush, and the urban health mission) and that the findings of these reviews be presented to the SEAR ITAG during its next meeting. It also recommends an emphasis on analysis of VPD surveillance data in conjunction with reported vaccination coverage.

- Indonesia: The ITAG expresses concerns regarding the ongoing diphtheria outbreaks in Indonesia, which are indicative of low DTP3 coverage. The ITAG recommends that the NITAG engage with the national programme to ensure an analysis of the reasons for persistently low RI coverage and to ensure that an RI strengthening plan be urgently developed and implemented. The NITAG should report back to the SEAR ITAG in 2019 on specific measures taken in this regard. The ITAG also notes with concern the surveillance performance for VPDs and recommends that the NIP works closely with the national surveillance programme to ensure that surveillance performance is enhanced to meet the standards set for the Region as per the Regional VPD surveillance guide.

- Nepal: The ITAG notes the policy regarding age of vaccination which results in children who have missed being vaccinated in accordance with the EPI schedule not receiving any vaccination if they report to any health facility after 23 months of age. The ITAG recommends that the NITAG works with the NIP to advocate removal of this barrier and ensure that all children receive routine vaccination at first contact after a missed scheduled vaccination. The NITAGs should report back, in 2019, on the policy barriers that have been overcome. The ITAG reiterates the ITAG 2017 recommendation of conducting a comprehensive evaluation of ‘fully-immunized districts’ strategy’ with a focus on districts with suboptimal coverage. The ITAG would appreciate a report on this in 2019.
Timor-Leste: The ITAG recommends that an analysis of the reasons for suboptimal RI coverage be conducted and a plan to strengthen RI be prepared urgently.

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

The WHO Regional Committee for the SEA Region, during its Sixty-sixth session in September 2013, adopted a resolution to eliminate measles and control rubella/CRS in the Region by 2020. Reaching the measles elimination and rubella/CRS control goal by 2020 requires all countries to:

- achieve and maintain at least 95% coverage with two doses of measles and rubella containing vaccine (MRCV) through routine and/or supplementary immunization;
- have well-performing case-based measles and rubella/CRS surveillance systems supported by a measles and rubella laboratory network certified as proficient by WHO; and
- strengthen support from and linkages with other health initiatives and efforts at health systems strengthening to achieve the strategic objectives.

Two countries – Bhutan and Maldives – have been verified as having eliminated endemic measles. No measles cases have been reported in Timor-Leste or DPR Korea for more than 24 months. The remaining countries in the Region are still endemic for measles, rubella and CRS. Measles deaths in the SEA Region have been estimated to have been reduced by 73% from 2000 to 2016. All countries in the Region have introduced two doses of measles containing vaccine (MCV) and eight countries have already introduced rubella containing vaccine (RCV) in their RI schedules.

The Regional coverage of first dose of measles-containing vaccine (MCV1) has stagnated between 84% and 87% for the last five years and five countries have reported coverage of more than 95% at national level. The Regional coverage of the second dose of measles containing vaccine (MCV2) has increased to 77% in 2017 compared to 59% in 2014. The coverage of RCV delivered through RI was reported at 21% for the Region in 2017 compared to 13% in 2014. All countries in the Region are conducting case-based surveillance for measles and rubella, with India and Indonesia still expanding their measles and rubella case-based surveillance systems. The measles and rubella surveillance performance indicators are gradually improving, with the non-measles non-rubella discard rate, a proxy for the sensitivity of surveillance, at 0.71 in
2017 as compared to 0.41 in 2016. This is much below the target of 2 per 100,000 population, indicating that the sensitivity of the surveillance system remains relatively poor. Five of 11 countries have achieved the target non-measles-non-rubella discard rate of 2 per 100,000 population in 2017 compared to three countries in 2016. CRS surveillance is conducted in all countries - in eight as sentinel site surveillance and in three as part of integrated disease surveillance.

A midterm review (MTR) of the progress in implementing the Strategic Plan for Measles Elimination and Rubella and Congenital Rubella Syndrome Control in the South-East Asia Region 2014-2020 was organized in 2017. The review concluded that the basic strategies articulated in the Strategic Plan are sound and that the programme has gathered momentum in the Region, with two countries verified as having eliminated measles and two rapidly progressing towards elimination. However, measles elimination and rubella/CRS control are not on track to achieve the ambitious goals set by the Region for 2020 and WHO and Member States will have to shift gears to achieve the Regional goals on time. The review also concluded that this will require capitalizing on the existing high degree of in-country political willingness and the enthusiasm of the programme managers. Major investments are necessary and quite some distance shall have to be covered in a relatively short time if Regional goals are to be met as per the declared timeline.

The review also made specific recommendations in the areas of surveillance and immunization for countries of the Region to accelerate progress towards the Regional goal of measles elimination and rubella/CRS control by 2020. Some of the specific recommendations drawn from the midterm review MTR¹ that were highly appreciated by the ITAG are as follows:

1. **Ensuring optimal case-based surveillance**: A top priority for achieving goals of the Strategic Plan is to enhance integrated case-based, laboratory-supported surveillance for measles and rubella.

   1.1 Enhance integrated case-based, laboratory-supported surveillance for measles and rubella in Member States. Member States should shift to fever-rash surveillance to increase the sensitivity.

   1.2 Continue monitoring the immunity gaps for both measles and rubella at national and subnational level including adult population.

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¹ Midterm review of the strategic plan for measles elimination and rubella/CRS control in WHO South-East Asia Region: 2014-2020 (under publication)
1.3 SEARO establishes fortnightly or monthly country support meetings at the regional office to review surveillance data to identify weakness, silent areas and interventions; 3-4 countries can be analyzed in depth during every meeting.

1.4 Release of Surveillance Guide for Vaccine-Preventable Diseases on integrated measles and rubella case-based surveillance, serum sample collection strategies to avoid overwhelming laboratories and prioritizing samples for genotypes.

1.5 Ensure coordination between field and laboratory with assignment of an EPID number to each suspected case for tracking and final classification.

1.6 Improve cases classification to determine cases attributable to program failure versus vaccine failure.

1.7 Initiate weekly review meetings within the Ministry of Health along with implementing partners using surveillance data for action at national/subnational levels.

2. Improving immunization coverage and reducing immunity gap: Augmented efforts are needed in the region and individual member countries to improve and maintain population immunity against measles and rubella.

2.1 There is a need to undertake multi-dimensional diagnostics of immunization systems within every Member State to assess the current state of health of the routine immunization services and undertake a tailored approach towards strengthening. This will accelerate the achievement of measles and rubella goals. To assess the current state of health of the routine immunization services:

- Regional office works with the countries for developing a tailored approach towards system strengthening
- Ensure high-quality SIAs: Readiness planning, high risk mapping, rapid coverage monitoring with special attention for high risk regions, districts with poor coverage, and urban poor

2.2 Encourage all member states to bring legislation regarding school entry/school level checks for immunization.

2.3 Use of 2nd year of child platform for catchup immunization including those who have missed MCV; ensure children who miss MCV-2 are immunized even beyond the expected time and age schedules.
2.4 MCV-2 should be adopted as a marker of mapping SDG progress, which is also expected to result in a healthy competition that will benefit the MR goals.

2.5 Adopt immunization status checking of at-risk population, healthcare workers, and teachers.

3. Ensuring a strong laboratory network to support the case-based surveillance and genotyping: Laboratory network activities needs to be optimized to support the MR surveillance and monitoring the eradication process.

3.1 WHO continues to have an important role in monitoring the External Quality Assurance (EQA) of Regional Reference (RRL) and National Laboratories (NLs).

3.2 Responsibility for coordination and maintenance of the quality of Subnational Laboratories (SNLs) should be with the National (reference) Laboratory in that country, with support and guidance of SEARO.

3.3 Regular MR genetic sequence information from the Region should be analysed and reported.

3.4 WHO HQ should conduct an updated IgM assay assessment to provide evidence for countries to make decisions on procurement of appropriate kits.

3.5 WHO should continue to provide kits for low-income countries.

3.6 The capacity of the SEAR LabNet is appropriate for the current/expected workload, however the full impact of Rash-Fever only surveillance is still unknown. Any Subnational LabNet expansion needs to be balanced with a careful analysis of all the factors and a cost-benefit analysis exercise.

3.7 Members States to ensure data harmonization between laboratory and surveillance and WHO should supervise and support.

3.8 Regular MR genetic sequence information from the region should be analysed and reported in the vaccine preventable disease (VPD) surveillance bulletin along with evidence of transmission patterns, both within the region and globally.

4. Strengthening the advocacy and communication strategies: Adoption of appropriate advocacy and communication strategy and tools needed for furthering the MR efforts and prevent the vaccine resistance and hesitance issues.
4.1 WHO includes review of measles eradication and rubella control program in the annual agenda of the Regional Committee Meetings to bring focus and accountability.

4.2 WHO advocates with Member States for greater ownership and investment in the MR immunization.

4.3 WHO incorporates rubella elimination along with measles in the regional goal.

4.4 National Verification Committees continue to play advocacy roles with their respective governments for achieving the MR goal.

4.5 WHO and Member States urgently develop a well-thought out media strategy for achieving quantum impact on the ongoing elimination efforts.

4.6 WHO and Member States develop country specific (tailoring for subnational needs) budgeted social mobilization and communication plan for both MR activities under routine immunization (RI) and supplementary immunization activity (SIA) campaigns.

4.7 WHO to support and facilitate systematic mapping of vaccine hesitancy and resistance and the Member States are encouraged to develop context specific debunking strategies.

Other recommendations made by the MTR team related to concerns around the polio transition and its potential impact on measles and rubella goals, addressing programming to offer measles rubella vaccine (MR) in emergency and conflict settings, and calling for increasing investment to implement the Regional measles and rubella strategic plan and to conduct operations and implementation research.

**ITAG conclusions**

The SEAR-ITAG commends the progress made towards measles elimination and rubella/CRS control in the Region despite challenges in big countries such as India and Indonesia.

The SEAR ITAG endorses the recommendations made by the MTR of the implementation of the SEAR strategic plan for measles elimination and rubella/CRS control.

The SEAR ITAG expects NITAGs of countries to work with national programmes and national verification committees (NVCs) to advocate, support and monitor implementation of the recommendations of the MTR and the SEAR ITAG.
The ITAG recommends that NITAGs follow-up and monitor activities taken to address recommendations from the 2017 ITAG meeting that are still ongoing and ensure that these activities are completed and reported on at the next ITAG.

**ITAG recommendations**

**ITAG recommendations for all countries**

- Recommendations made during 2017 meeting are followed-up and implemented fully.

**Immunization**

The ITAG reiterates the need to strengthen RI as the backbone of measles elimination and rubella/CRS control and recommends that:

- MCV2 be included in the definition of a fully-immunized child (FIC), MCV1 vs MCV2 drop-out be monitored;
- any policy and programmatic framework barriers to vaccination of children presenting to immunization centres beyond the regular age of scheduled vaccination be removed, and vaccination services be extended until the age of at least 5 years;
- considering that seven countries will be conducting MR supplementary immunization activities (SIAs) in the Region in 2018-2019, recommends:
  - pre-campaign readiness assessments should be conducted, as per the WHO guidelines, and an evaluation of campaign coverage should be an integral part of SIA planning and implementation;
  - MR SIAs should be used as a platform to strengthen RI and this should be documented, with a report to SEAR ITAG during its next meeting;
- the WHO Measles Subnational Programmatic Risk Assessment Tool be used to develop subnational plans to mitigate the risk of measles transmission;
- any outbreak response plan should include a root cause analysis to identify and address gaps in immunization system to prevent future VPD outbreaks.

**Surveillance**

With regard to measles, rubella and CRS surveillance, the ITAG recommends that:
countries that have yet to update surveillance guidelines to conform to elimination-standard surveillance should do so urgently;

- reporting of suspected measles cases be increased by ensuring expansion of the measles and rubella surveillance reporting system and ensuring fever-maculopapular rash surveillance in all countries;

- periodic data quality assurance for measles and rubella surveillance data and data triangulation be regularly conducted to ensure high-quality data, and that data be used for action; there be an update on the commercialization and evaluation of the programmatic feasibility of point-of-care testing (POCT) at the next ITAG meeting.

With regard to laboratory support:

The ITAG commends the Region for putting together a laboratory quality management system to ensure sustained proficiency of the measles rubella laboratory network and recommends that recommendations made during the 2017 meeting be followed up and implemented fully.

**ITAG recommendations for specific countries**

**India:**

- The country should move from aggregate reporting to nation-wide, case-based surveillance at the earliest.

- The ITAG notes the risk to the 2020 measles elimination goal due to challenges in implementation of measles elimination strategies in India and recommends a close monitoring of the implementation of strategies by the NITAG and the India Expert Advisory Group (IEAG) for measles elimination.

**Indonesia:**

- The ITAG recommends that Indonesia ensure a nationwide expansion of case-based surveillance for fever-maculopapular rash, involving the private sector as well, preferably before the end of 2018 to accelerate progress towards the 2020 goal.

- The ITAG recommends that the country considers facilitating fast-track customs clearance for proficiency-test sample transport, shipment related to quality assurance (QA) samples, test kits and laboratory supplies related to VPD surveillance.
Myanmar:
- The ITAG notes the low MCV1 and MCV2 coverage and the low sensitivity of surveillance for measles and rubella. The ITAG recommends that the NITAG works with NIP to develop strategies to accelerate progress in increasing MCV1 and MCV2 coverage and enhancing the sensitivity of surveillance.

Nepal:
- The ITAG recommends that the NITAG works with the NIP to review the reasons for low MCV2 coverage and implement strategies to accelerate the coverage of MCV2.

Sri Lanka:
- The ITAG encourages the country to do a further analysis of why the surveillance indicators of a non-measles non-rubella discard rate of 2 per 100,000 population and AFP rates of 2 per 100,000 children aged less than 15 years are not being met.

Thailand:
- The ITAG recommends aligning the measles rubella surveillance guide to elimination standards through an adaptation of Regional guidelines and building country capacity to implement the revised guidelines.
- The ITAG recommends that Thailand takes immediate measures to close the immunity gap for measles and rubella that has resulted in a number of measles outbreaks in the country and conduct a root cause analysis of the cause of the measles outbreaks in the country.

**Goal 3. Polio-free status is maintained**

The SEA Region has achieved the goal of polio eradication and maintained its polio-free status for the past seven years. However, the Region continues to be at risk of importation of wild poliovirus (WPV) from countries with current poliovirus transmission and any outbreak due to circulating vaccine-derived poliovirus (cVDPV).

To maintain its polio-free status, the Region continues to follow the Global Polio Eradication and Endgame Strategic Plan 2013-2018, which has the following four objectives:

1. detecting and interrupting poliovirus circulation,
2. withdrawal of oral poliovirus vaccine (OPV), beginning with the type 2 component, introduction of inactivated polio vaccine (IPV) and strengthening RI,
3. containment of polioviruses and certification,
4. transition planning.

**Acute flaccid paralysis (AFP) and environmental surveillance (ES)**

The overall non-polio AFP rate in the SEAR in 2017 was 7.10 (data as per week 24, 2018) per 100,000 population under 15 years of age, which exceeds the globally-recommended operational target of 2 per 100,000. The non-polio rate was above 2 in 2017 in seven SEA Region countries, namely Bangladesh, Bhutan, India, Indonesia, Maldives, Myanmar and Nepal, while it was between 1 and 2 (which meets certification standards) in three countries, namely DPR Korea, Sri Lanka and Thailand. The non-polio AFP rate of Timor-Leste was less than 1 per 100,000 population under 15 years of age. In 2017, two stool samples were collected at least 24 hours apart and within 14 days of onset from 86% of the reported AFP cases in the Region, as compared to the globally-recommended target of at least 80%. Nationally, the target was achieved in 2017 by eight countries, namely Bangladesh, Bhutan, DPR Korea, India, Indonesia, Myanmar, Nepal and Sri Lanka. However, for both performance indicators there is considerable subnational variance in several countries.

In 2017, ES activities in the Region were expanded to include additional sites in Indonesia and India and were initiated in Myanmar and Nepal. A total of 63 sites in 23 provinces of six countries, namely Bangladesh, India, Indonesia, Myanmar, Nepal and Thailand, are currently conducting ES. Bangladesh operates four temporary sites in Cox’s Bazaar. ES data provided important evidence for the disappearance of Sabin-like poliovirus type 2, following the switch from trivalent OPV (tOPV) to bivalent OPV (bOPV) during 2016.

No vaccine-derived polioviruses (VDPVs) were detected in AFP cases in 2017 or during the period January to May 2018. A type 2 VDPV was detected in sewage samples in India in 2017. A detailed risk analysis was conducted which concluded that the event was low risk, no evidence of circulation was found, and that the event had been adequately responded to in terms of surveillance and RI strengthening. Investigations to assess population immunity and surveillance quality are currently ongoing in the area in India where, in May 2018, a type 3 VDPV was isolated in a sewage sample. Response measures taken include strengthening AFP surveillance.
and improving routine coverage with bOPV and intradermal (ID) IPV in the sewage catchment area.

**Population immunity through RI and SIAs**

Six countries (Bangladesh, Bhutan, DPR Korea, Maldives, Sri Lanka, and Thailand) have reported coverage with the third dose of oral polio vaccine (OPV3) above 90%; India, Indonesia, Myanmar, and Nepal have coverage between 80% and 90% while Timor-Leste had coverage of 75% in 2017, based on the WHO and UNICEF July 2018 revision of estimates of national immunization coverage for 2017. To close immunity gaps against polio, SIAs with OPV were conducted in 2017 in Bangladesh, India, Myanmar and Nepal.

**IPV introduction, challenges and actions to mitigate the risks**

All countries in the Region introduced IPV between 2014 and 2016. In view of the global supply constraints and in the context of studies that demonstrate that two doses of intradermal IPV (one fifth of the full dose) are superior to one intramuscular dose of IPV, India and Sri Lanka have provided two ID doses of IPV to all infants since mid-2017. Stock-outs of IPV occurred in four countries (Bangladesh, Bhutan, DPR Korea, Nepal). Supplies have been restored to all four countries. Bangladesh has shifted to a two-ID-dose schedule, while preparations for the same are currently underway in Nepal and it is likely that the country will also introduce a two-dose-ID IPV schedule by August 2018. Bhutan and DPR Korea reintroduced IPV in 2018. Catch-up of missed cohorts with IPV is being planned in Bhutan in 2018, using ID IPV, and in DPR Korea in 2019, using intramuscular IPV.

**Poliovirus laboratory containment**

Activities to contain type 2 polioviruses in facilities are progressing in the Region. Poliovirus essential facilities (PEF) have been identified to store/handle type 2 polioviruses in two countries of the Region, namely India and Indonesia. National authorities for containment (NACs) have been established in both countries and processes to undertake certification of these facilities as per the global containment certification scheme (CCS) have commenced. All countries are implementing new surveys of biomedical laboratories to meet requirements outlined in 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)**. Special trainings on GAPIII requirements for national containment taskforces (NCTF), PEFs,
NACs and vaccine manufacturers were successively conducted by WHO in January, February and October 2016, followed by training for CCS auditors in January 2017 and a Regional review and planning meeting in April 2017. More capacity-building activities are planned in late 2018/early 2019. The Regional Poliovirus Laboratory Network (RPLN) has conducted several bio-risk management capacity building activities. Laboratories are expected to fully implement the assessment, mitigation and performance (AMP) model on top of the quality cycle (plan do check act) to ensure that their performances meet GAP III requirements. Countries are being supported with direct technical assistance to prepare their activity plans for containment of Sabin2/type 2 OPV (OPV2) materials. One of the challenges in GAPIII implementation is involvement of facilities that collect, handle and store clinical and environmental samples for purposes other than polio research. WHO has developed Guidance for non-poliovirus facilities to minimize risk of sample collections potentially infectious for polioviruses (PIM)’, this guidance was pilot tested in Bangladesh in December 2017 in a workshop with high-risk laboratories.

Certification of maintaining polio-free status

The Regional Certification Commission for Polio Eradication (RCCPE) and national certification committees for polio eradication (NCCPEs) in all 11 countries are functional and providing oversight and guidance to polio eradication activities. The tenth meeting of the SEA-RCCPE was successfully conducted in November 2017 in Nay Pyi Taw, Myanmar. The RCCPE reviewed progress in each country in the Region and concluded that the Region has remained polio-free.

Transition planning

Transition planning of polio assets that have been established in SEA Region is a critical part of preparing for the polio-free world. The Global Polio Eradication Initiative (GPEI) has begun to ramp down its funding and will eventually end in the post-eradication era. However, certain critical functions, as mentioned in the polio Post Certification Strategy (PCS) would still be required to be maintained after global certification. The five countries of the Region with substantial GPEI-funded polio infrastructure, namely Bangladesh, India, Indonesia, Myanmar and Nepal, have developed transition plans, which are at different stages of review by the respective governments. The transition plan of Bangladesh has been formally endorsed by the government. Fully mindful of the programmatic risks associated with the loss of polio networks, the transition plan development in countries of the SEA Region is focusing on mechanisms to transfer
the capacity to government (to the extent possible), exploring alternative financial support to make up for the loss of the GPEI funding, and building capacity of polio teams to support ‘new public health programmes’. Realizing that the involvement of governments is critical for the success of the transition process as well for longer-term financial sustainability, an active engagement of the government during the polio transition plan development is at the centre of transition planning.

**ITAG conclusions**

- The SEAR ITAG appreciates that the Region has remained polio-free for more than seven years but recognizes that the risk of poliovirus resurgence remains.
- The ITAG notes the challenge posed by the recent increase in the IPV price globally.
- The ITAG recognizes the risks associated with the ramp down of polio funding, especially regarding critical polio functions that need to be sustained for several years after global polio-free certification, as well as the adverse impact on immunization/other vaccine preventable disease surveillance programmes in countries with significant GPEI funded infrastructure.

**ITAG recommendations**

**ITAG recommendations for all countries**

- High-quality AFP surveillance must be maintained and high population immunity against polioviruses sustained during the post-eradication phase.
- A periodic risk assessment for polio should be conducted in close collaboration with the NCCPEs and plans to mitigate risks developed. Risk of containment breaches should be included in risk assessments and should be a part of national preparedness plans, as well as included in simulation exercises.
- Outbreak response capacity to respond to detection of any WPV or VDPV outbreaks should be updated in the countries, as per the most recent global guidelines.
- The ITAG recognizes the 2018 World Health Assembly (WHA) resolution on poliovirus facility containment and the challenges of GAPIII implementation, particularly in view of technical and managerial complexities and long-term commitment for the time of poliovirus use in vaccine production and research. While commending the progress made in the Region, the ITAG reiterates the
importance of GAPIII compliance in view of the polio reintroduction risk from facilities/laboratories.

- Recognizing the risks to polio and other immunization/surveillance programmes, the ITAG recommends that the draft polio transition plans in the four countries without finalized transition plans (India, Indonesia, Myanmar and Nepal) be urgently finalized and endorsed by the relevant ministries of health (MoHs). Continued commitment of MoHs with greater engagement of ministries of finance, as appropriate, will be critical for ensuring longer-term financial sustainability through allocation of domestic resources.

**ITAG recommendations for specific countries**

- Bangladesh: The ITAG urges the programme in Bangladesh to initiate reporting results of ES in the SEA Region’s standardized reporting form, to harmonize reporting of results.

**Goal 4. Elimination of maternal and neonatal tetanus is sustained**

All countries in the Region follow the WHO recommendation on vaccinating pregnant women with tetanus-toxoid-containing vaccine (TTCV). Over 80% coverage with two or more doses of TTCV in pregnant women (TT2+) has been reported by seven countries for several years, as reported through the WHO/UNICEF Joint Reporting Form (JRF). Regional TT2+ coverage improved from 64% in 2014 to 78% in 2015 and has been maintained at this level. However, lower coverage does not necessarily indicate weak programme performance. After accumulating repeated vaccine doses during multiple pregnancies and SIAs, women of childbearing age (WCBA) eventually become non-eligible for further vaccination during pregnancy while still contributing to the target denominator for calculation of TT2+ coverage. Field surveys conducted during validation exercises have indicated much higher protection at birth than reported TT2+ coverage suggested.

Infant immunization against tetanus (DTP and Penta) rose from 56% in 2000 to 88% in 2017 according to JRF country official estimates. Several countries give booster doses in early childhood or have integrated TTCV vaccination into their school health programmes. NIPs also provide a combination of tetanus and diphtheria toxoid as booster doses in late childhood and/or for pregnant women.

In 1988, countries in the Region reported almost 15 000 neonatal tetanus (NT) cases. However, this number was estimated to only represent 10% of the true number of cases, as the majority of NT cases were not reported. As a result of immunization
efforts and improved NT surveillance, often integrated with other VPD surveillance, 443 NT cases from six countries were reported in 2017. None of the countries exceeded the “elimination” definition of <1 NT case per 1,000 live births (LB) in each district, considered as the third administrative level of a country.

**ITAG conclusions**

- The SEAR ITAG acknowledges that the Region has maintained its status as having eliminated maternal and neonatal tetanus, however, there is no room for complacency and the Region needs to continue to work to achieve the targets for the various key strategies outlined for sustaining maternal and neonatal tetanus elimination (MNTE).

**ITAG recommendations**

**ITAG recommendations for all countries**

- National programmes should engage with NITAGs to review and optimize the TTCV schedule.
- NITAGs should engage with national programmes to regularly conduct national reviews of the status of indicators related to MNTE and recommend corrective actions as required.
- Appreciating the positive impact of the “post-elimination validation assessment” in Timor-Leste, the ITAG recommends that programmes in all countries should plan such exercises every three to four years, as per the global guidelines.

**Goal 5. Control of JE is accelerated**

Currently, 10 of 11 countries in the SEA Region are endemic for JE, with 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. Three countries, Nepal, Sri Lanka and Thailand, have introduced immunization against JE nationwide, while India has introduced it in high-risk areas. All countries (excluding Maldives) in the Region are conducting JE and acute encephalitis syndrome (AES) surveillance with varying levels of intensity: nationally in seven countries (Bangladesh, DPR Korea, Indonesia and India figures provisional
Myanmar, Nepal, Sri Lanka, Thailand and Timor-Leste), in all high-risk areas in India and sentinel sites in Bhutan, and Indonesia). JE/AES surveillance is supported by 14 laboratories in the Region (with 10 of them accredited by WHO as of 2017) for confirmation of suspected cases. Four laboratories are provisionally accredited.

In 2016 and 2017, about 2000 cases of AES were reported each year in Myanmar. Around 20% of these were confirmed as JE. The case fatality rate in different states and regions of the country varied from 10-35%. Following comprehensive analysis of data, Myanmar conducted a JE immunization campaign for children aged 9 months-15 years in November and December 2017. Of 13 605 174 children targeted, 92.5% were vaccinated. This campaign was followed by a nationwide introduction of JE vaccine in January 2018. The vaccine is now administered under routine immunization programme to infants at 9 months of age. Due to the successful campaign, only 37 laboratory-confirmed JE cases have been reported up to June 2018. The high coverage achieved during the campaign was due to meticulous preparations, careful monitoring and effective communication strategies.

Based on its disease burden, the Indonesian island of Bali conducted a JE vaccination campaign in March and April 2018 during which 964 011 children aged 9 months-15-years were vaccinated. Following the vaccination campaign, Bali has introduced JE vaccine into its routine immunization schedule.

With the administration of the JE vaccine (either nationwide or in selected high-risk areas) through SIAs followed by introduction of the vaccine into the routine infant immunization schedule, JE is under control in Nepal, Sri Lanka and Thailand. Discussions during the ITAG meeting revealed that, in Sri Lanka and Thailand, there have been a few laboratory-confirmed cases among children who had received a single dose of live attenuated JE vaccine. Nonetheless, most reported cases were among unvaccinated adults.

**ITAG conclusions**

- The ITAG appreciates the progress made towards the introduction of JE vaccine in the Region and the progress made towards control of JE.
- The ITAG compliments the programme in Myanmar for the successful implementation of one of the largest high-quality JE vaccination campaigns.
ITAG recommendations

**ITAG recommendations for all countries**

- NITAGs of potentially—JE-endemic countries, such as Bangladesh, Bhutan, DPR Korea, Indonesia, and Timor-Leste, should engage with national programmes to review disease burden and the potential benefit of JE vaccine introduction in RI, and report back to the ITAG at the next meeting.

- NITAGs should work with national programmes of countries where JE vaccine has been introduced in RI to ensure high coverage of JE vaccine nationally and sub-nationally.

- National programmes in all countries should ensure high-quality laboratory-supported JE surveillance in line with the recently-released Regional JE Surveillance Guide.

- The Regional Office for South-East Asia should coordinate studies and analysis of surveillance data to gather information on the protection provided by vaccines in immunization campaigns or when used in the RI system.

**ITAG recommendations for specific countries**

- **Bhutan:** The ITAG recommends that Bhutan considers the introduction of JE vaccine in the country.

**Goal 6. Control of Hepatitis B is accelerated**

In 2017, all 11 countries in SEAR had hepatitis B vaccine (HepB) in their RI schedules as part of combination vaccines, and eight countries (Bhutan, DPR Korea, India, Indonesia, Maldives, Myanmar, Thailand and Timor-Leste) had introduced a universal HepB birth dose (HepB-BD) (WHO Monitoring System 2017).

The overall coverage with the third dose of HepB (HepB3) in the Region increased from 53% in 2010 to 88% in 2017. Although HepB3 coverage is reported to be 90% or more in seven countries, it does not yet reach these levels in India (88%) and Indonesia (85%), which account for the largest births cohorts in the Region, or in Myanmar (89%) or Timor-Leste (81%). Among the eight countries that included HepB-BD in their vaccination schedule in 2017, coverage was above 90% in four (Bhutan, DPR Korea, Maldives and Thailand). India, which contributes 70% of the

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3 Source: calculated on country official estimates in JRF 2017
births annually in the Region, reported a timely HepB-BD coverage of 53%. Indonesia reported a total HepB-BD coverage of 86%. No relevant coverage figures were yet available for Myanmar due to the recent introduction of HepB-BD.

Nationally-representative serosurveys among children at least 5 years of age to estimate post-vaccination seroprevalence of hepatitis B surface antigen (HbsAg) are available in Bangladesh, Bhutan, Nepal and Thailand. In India, there are a number of studies, but they have all focused on one area or state. In Nepal, subnational studies have shown geographic variability in HbsAg prevalence. The DPR Korea is planning to conduct a national household-based survey among children aged more than 5 years and Maldives is planning a national school-based survey among children in Grade 1. Timor-Leste has no serosurvey data and the Immunization and Vaccine Development Unit of WHO’s Regional Office for South-East Asia (IVD SEARO) is assessing the feasibility of a combined lymphatic filariasis and hepatitis B serosurvey in the coming years.

Several countries have sustained high HepB-BD and HepB3 coverage for at least 5 years and have likely achieved the target of reducing chronic hepatitis B prevalence to less than 1% among children. IVD SEARO is currently developing the mechanism for verifying countries’ attainment of this target. The main evidence for verification would include both a nationally-representative serosurvey to measure, with adequate precision, the prevalence of chronic hepatitis B among children at least 5 years of age born after vaccine introduction, and high sustained HepB coverage. It is proposed that, upon countries’ request for verification, a committee composed of three independent experts, including one committee chair, would be appointed by the Regional Office for South-East Asia. The committee will review the evidence submitted by the country, request additional information or clarifications from the country as needed, and make a recommendation to the Regional Office as to whether the target has been achieved. IVD SEARO would support countries conducting serosurveys, assemble the documents and information needed for verification, and facilitate the verification process. Countries’ achievements of the target will be publicly recognized.

**ITAG conclusions**

- The SEAR-ITAG appreciates the progress made in the Region towards control of hepatitis B through vaccination.
ITAG recommendations

ITAG recommendations for all countries

While recommendations made at the 2017 meeting remain valid, the ITAG added the following:

- The proposed verification process should be finalized, and its implementation initiated prior to the next ITAG meeting.
- National programmes should prioritize achieving high coverage of HepB3 and ensure that children under five years of age are covered with catch-up or patch-up vaccination with HepB3.
- Countries should introduce HepB-BD and ensure timely delivery of the HepB-BD, where indicated by disease epidemiology.
- Encouraged by the methodology and results of the hepatitis B sero-survey in Bhutan, the ITAG recommends that WHO ensures adequate support for other countries planning to conduct nationally-representative hepatitis B serosurveys among children under 5 years of age.
- The ITAG encourages countries with a high percentage of home deliveries to explore the feasibility of introducing HepB using Uniject.

ITAG recommendations for specific countries

- Bangladesh: The ITAG recognizes the results of the 2011/2012 national seroprevalence survey indicating very low levels of HbsAg in children but recommends further study of the epidemiology of hepatitis B infection in the country in view of the fact that no birth dose is provided in the country.
- Myanmar: The ITAG recommends measures to improve coverage of HepB-BD urgently; the NITAG should monitor coverage and timeliness of HepB-BD.
- Timor-Leste: The ITAG recommends that HepB-BD coverage be increased, as well as coverage achieved with vaccinations offered during the 2nd year of life platform, with a focus on MCV2.

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

New and increasingly sophisticated vaccines have become available in the last decade for diseases that have not traditionally been targeted by NIPs. As a result, all countries
in the Region have added two or more new vaccines to the national immunization schedule during the last decade and have strengthened their NIPs in the process. In the process of a new vaccine introduction specific activities that are considered include integrating surveillance of the disease targeted by the new vaccine into the national disease surveillance system or establishing sentinel surveillance, analysing disease burden, decision-making by the NITAGs, conducting studies of the cost-effectiveness of introducing the vaccine, reviewing the sustainability of integrating the vaccine into the RI system, developing comprehensive plans for introduction based on the experiences with previous new vaccine introductions, monitoring for adverse events following immunization (AEFI) following vaccine introduction and conducting post-introduction evaluations.

The target under this goal of the SEAR-VAP is for each country to introduce at least two additional new or underutilized vaccines between 2016 and 2020. Table 1 highlights the progress in new and underutilized vaccine introduction in the Region.

**Table 1: Introduction of new and underutilized vaccines in the SEA Region, 2016–2018**

<table>
<thead>
<tr>
<th>Country</th>
<th>National</th>
<th>Subnational</th>
<th>Planned introductions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td></td>
<td>HPV vaccine (1 district)</td>
<td>Rotavirus vaccine (2018)</td>
</tr>
<tr>
<td>Bhutan</td>
<td>MMR</td>
<td></td>
<td></td>
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<tr>
<td>India</td>
<td>MR</td>
<td>Rotavirus vaccine</td>
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<td></td>
<td></td>
<td>(11 states), PCV</td>
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<tr>
<td></td>
<td></td>
<td>(5 states) HPV</td>
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Priority vaccines for consideration based on the disease burden of countries are pneumococcal conjugate vaccine (PCV), human papilloma virus (HPV) vaccine, JE vaccine and rotavirus vaccine (RV). In addition, cholera, mumps, seasonal influenza and typhoid vaccines could be considered for specific geographical areas and age groups.

A Regional meeting on prevention of cervical cancer through HPV vaccination was conducted in New Delhi, India from 5 to 7 June 2018 with the overall objective of strengthening the capacity of Member States for prevention of cervical cancer through HPV vaccination and other prevention strategies. Following were the key observations and follow-up actions of the meeting:

- All countries of the Region except DPR Korea and Timor-Leste have analysed the disease burden due to cervical cancer and have evidence that cervical cancer is a public health problem.
- Bhutan, Sri Lanka and Thailand are conducting school-based HPV vaccination. The percentage of girls who are attending school is high in these countries. A demonstration project in Bangladesh, showed that school-based HPV vaccination is acceptable to families, school management and communities. More than 90% coverage with HPV vaccine has been achieved among girls in these countries through school-based vaccination. The remaining girls could be covered through the RI centres. Hence, a joint approach of school-based immunization and vaccination through RI centres seems appropriate for most countries in the Region.
- To date there have been no reports of severe AEFI with HPV vaccine in the SEA Region. Mild adverse events have been reported from all countries; reporting of these events is an indicator of the sensitivity of AEFI surveillance. Globally, more than 250 million doses of HPV vaccine have been administered from 2006 to 2017. The WHO Global Advisory Committee on Vaccine Safety has stated that, since licensure of HPV vaccines, no new adverse events of concern based on many very large high-quality studies have been found.
- Even though the vaccine is relatively expensive, the overall costs to the health system diminish over time due to a reduction in the costs for treatment of cervical cancer. Research shows that the HPV vaccine is highly cost-efficient, particularly for low-income countries. Despite the existing disease burden and recommendations from the relevant NITAGs that the HPV vaccine be introduced, India and Indonesia have had challenges in allowing policy
makers to understand cost-benefit and cost-effectiveness of HPV vaccination. Bangladesh and Nepal are planning to conduct cost effectiveness studies.

- Conducting a cost effectiveness analysis of HPV vaccination will help with advocacy – making the case for securing internal and external financial resources, selecting the right mix of interventions to optimize the healthcare budget, and facilitating tender negotiations between purchasers and vaccine manufacturers.

- Gavi has supported HPV vaccination since 2013. Following the recommendation by SAGE to target multiple age cohorts instead of targeting a single age cohort, Gavi revised guidelines in 2016 to allow countries to target multiple age cohorts. Despite Gavi having approved proposals which will result in the vaccination of 25 million girls by 2020, realizing this vision will be difficult due to constraints in vaccine supply. To facilitate supply planning for this costly vaccine, countries are encouraged to submit applications for funding to Gavi immediately. Doing so will ensure that vaccine will be available 18-24 months after the application is approved.

- There are mature school health programmes and adolescent health programmes in the countries of the SEA Region. HPV vaccine can be integrated into these programmes. HPV vaccine introduction can be linked to augmenting cervical cancer screening programmes for women. However, a coordinated approach among different government departments as well as partner agencies is needed to introduce HPV vaccine and control cervical cancer.

A Regional consultation on rotavirus and RVs was conducted in 2017. Following were the key observations and follow-up actions.

- Countries that wish to obtain genotyping data may refer up to 60 rotavirus-positive specimens for genotyping to the regional reference laboratory (RRL) each year.

- If considered useful, countries may decide to investigate other causes of paediatric diarrhoea, especially after RV is introduced. Sentinel surveillance should be sustained for a minimum of two to three years after vaccine introduction to assess vaccine impact.

- Bhutan and Maldives need to be supported to initiate sentinel surveillance.

- All SEA Region countries should consider joining the Global Rotavirus Surveillance Network.
Intussusception is a rare event but monitoring for this event and communicating with providers and caregivers regarding its possibility is important. Hence awareness and capacity building is necessary for healthcare providers and immunization staff.

The risk of intussusception associated with RVs is best evaluated in countries with available background data or those with large birth cohorts. Where background data on intussusception is not available, initiation of intussusception surveillance should be planned with relevant partners before RV introduction.

Cost-effectiveness and cost-benefit analyses are valuable and should be used to enable informed decision-making regarding vaccine introduction by national authorities. These studies need to be conducted in collaboration with ministries of health to create ownership of data.

Regional networking to provide analytic support to smaller countries could be facilitated by the WHO Regional office.

When a decision to introduce RV is made, the choice of vaccine should be made early for procurement planning, appropriate training, and logistic arrangements. Given the different composition and presentations of available RVs, both technical specifications and programme implementation need to be considered in order to make adequate preparations.

Interchangeability of RVs within the programme should be avoided as the various vaccines differ with regard to dose volume, required buffer, presentation of doses, reconstitution requirements, temperature for transport and storage, shelf-life and vaccine vial monitors. Once introduced, a change in the vaccine preparation should be permitted only if there is a compelling reason. Such reasons may include significant differences in vaccine safety, performance or cost.

Countries may conduct a readiness assessment before introduction of the vaccine.

Post-introduction monitoring with systematic evaluation of data and post-introduction evaluation six to twelve months after vaccine introduction will help to identify programmatic gaps and address these.
ITAG Conclusions

- The SEAR ITAG notes that the Region had conducted a Regional consultation on rotavirus disease and RV as well as a Regional meeting on the control of cervical cancer through HPV vaccination and other public health interventions. These activities provided an opportunity to national programmes to understand the evaluation of disease burden, available vaccines and their impact, the operational needs associated with their introductions, cost effectiveness analysis and the available support for introduction of these vaccines from Gavi.

ITAG recommendations

**ITAG recommendations for all countries**

- NIPs should conduct disease burden analysis and, based on these data, make decisions around the introduction of new vaccines such as HPV vaccine, RV and PCV, as appropriate.
- National programmes should follow up on the recommendations of the Regional consultation on RV and the Regional meeting on the control of cervical cancer with HPV vaccination.
- Noting the outcomes of the post-introduction evaluations (PIEs), the ITAG reiterates the necessity of following up on the recommendations of these evaluations.
- National programmes and partner agencies should seek opportunities to link PIEs to EPI reviews or joint appraisals, as appropriate.
- NITAGs should discuss with national programmes the SAGE recommendations related to:
  - new vaccines (typhoid, cholera, rabies, seasonal influenza)
  - the impact of vaccines on broader issues such as antimicrobial resistance (AMR).

**ITAG recommendations for specific countries**

- DPR Korea: The ITAG recommends that VPD surveillance be strengthened to cover diseases prevented by existing vaccines as well as those by potential new vaccines.
- Maldives: The ITAG recommends that the country considers the introduction of new vaccines of public health importance into the RI programme.
- Sri Lanka: The ITAG recommends a review by the NITAG of the burden of pneumonia and diarrhea for consideration of relevant vaccine introductions in the context of broader public health value of vaccines, as advocated recently by SAGE.

**Goal 8. Access to high-quality vaccines is ensured**

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.

Vaccine development and production capacity in the Region is growing and playing an increasingly positive role, both at Regional and global levels. Three of the 11 countries of the SEA Region are WHO-prequalified (PQ) vaccine-producing nations, contributing significantly to lower-middle-income countries (LMICs) access to high-quality vaccines at affordable prices. Bangladesh has established vaccine manufacturing capacity and is currently positioned to manufacture cholera vaccine for the United Nations (UN), which could help address a global shortage. However, the national regulatory authority (NRA) in Bangladesh needs to be assessed for its functionality before the cholera vaccine produced in the country can be prequalified for use by the UN. At present, only Indonesia, India and Thailand have NRAs assessed as functional by WHO.

The key strategy to ensure access to high-quality vaccines is to enhance Regional cooperation through the expansion of centres of excellence (e.g., WHO Global Learning Opportunities (GLO)) to provide training and technical support to countries in the Region in the areas of vaccine regulation and immunization supply chain management. In April 2017, the WHO’s Regional Office for SEA supported the first South-East Asia Regulatory Network (SEARN) meeting in New Delhi to promote Regional collaboration in the areas of vaccine regulation. Similar collaboration to address access to high-quality vaccines is promoted in the Asia Pacific region with the Association of Southeast Asia Nations (ASEAN) Vaccine Security and Self-Reliance (AVSSR) working group established and endorsed by the ASEAN Health Cluster work plan for 2016-2020 as part of the ASEAN Post 2015 Health Development Agenda.

There is a strong need in the Region to invest in research, development and manufacturing techniques to identify the best ways to access appropriate technology and expertise, to manage intellectual property rights and to develop thermostable and suitable products as well as new bioprocessing and manufacturing technologies.
Governments can promote enabling environments for NRAs and manufacturers by communicating regularly and working in partnership with researchers, biotech companies and universities to develop new vaccines and technologies.

**ITAG conclusions**

- The SEAR-ITAG appreciates the AVSSR, a Regional cooperation mechanism to ensure access to assured quality vaccine and expects WHO to explore possibilities of extension of such initiatives to all countries in SEA Region.
- The ITAG appreciates the extensive use of web-based modern technology by Maldives to enhance the use of modern technologies (web-based applications and social media applications) to strengthen immunization systems and build confidence about vaccination and encourages countries to do the same.
- The ITAG notes the different challenges but also opportunities to supply vaccine for RI, for SIAs and to respond to outbreaks and/or the emergence or re-emergence of VPDs and new pathogens. However, the ITAG acknowledges that pharmaceutical industry prioritizes RI and encourages partners to invest in R&D for outbreak preparedness.
- The ITAG appreciates the increased investments in cold chain equipment in the SEA Region countries using both Gavi and domestic funding.
- The ITAG acknowledges the responsibility of the NRA for safety, quality and efficacy of vaccine down to the point of use.

**ITAG recommendations**

**ITAG recommendations for all countries**

- WHO should explore the possibilities of building on the AVSSR initiative in order to extend this to all SEA Region countries. The ITAG would like a report on the progress in implementing the AVSSR and other Regional mechanisms of co-operation for access to vaccines.
- The ITAG acknowledges the need to better understand vaccine market trends and notes that WHO’s Vaccine Product, Price and Procurement (V3P) Web Platform is a reliable source of information on vaccine price and procurement. This platform offers easy access to multiple types of analysis, which is very useful for making informed decisions regarding the selection of vaccine products, prices and procurement strategies. The ITAG would recommend to all SEA countries to upload data to V3P.
Progress has been reported by NRAs with regard to vaccine regulation. Regional collaboration and networking among institutions have helped to strengthen NRAs. Similar strategies to foster Regional collaboration are required to strengthen in-country immunization supply chain management (ISCM) and ensure all stakeholders are involved. This should include regulatory inspectors to enforce Good Distribution Practices (GDPs) of medicines (including vaccines).

Countries should use standardized WHO monitoring tools such as the Vaccine Adverse Events Information Management System (VAEIMS) to report AEFI through the existing district health information software (DHIS), as well as using algorithms to conduct causality assessments. These practices will enable countries to exchange vaccine safety information.

To sustain investment in cold chain equipment and make the best use of newly acquired equipment, the ITAG recommends that country investments in HR and infrastructure be increased to establish sustainable ISCM.

The EPI and NRA are encouraged to enhance collaboration to implement GDP and the development of indicators to monitor implementation of GDPs.

Several countries, i.e., Bangladesh, Nepal, and Myanmar, received Gavi cold chain equipment optimization platform (CCEOP) support to upgrade cold chain infrastructure. These funds were used to procure cold chain equipment, but less investment in infrastructure was reported. The ITAG encourages countries to write a multi-year plan aimed at ensuring the development of the vaccine cold chain infrastructure, as well as human resources (HR) capacity and in-service training to permit installation, maintenance and operation of newly acquired equipment.

The ITAG recognizes country capacity strengthening activities to establish regulatory functions in compliance with International/WHO standards to regulate vaccine safety, quality and efficacy. The ITAG encourages countries to continue implementing their Institutional Development Plans and establish a SEA NRA technical collaboration agreement whereby NRAs assessed as functional would provide technical support to NRAs with more limited capacity.

**ITAG recommendations for specific countries**

Bangladesh: The ITAG recognizes the role of Bangladesh as a vaccine-producing country and recommends that WHO facilitates the process of making the NRA functional.
- Bhutan: The ITAG recommends strengthening of AEFI surveillance in Bhutan.
- India: The ITAG acknowledges the very comprehensive national cold chain development plan that included a revamp of the existing cold chain system and the establishment of resource centre for technical and training support in India. The ITAG recommends exploring the possibility of expanding the activities of this resource centre to serve other countries in the SEA Region.
The presentations on four informational sessions conducted during the ITAG are summarized below:

5.1 Rabies vaccination

WHO published an updated position paper on rabies vaccines in February 2018 that focuses on programmatic feasibility, simplification of vaccination schedules and improved cost-effectiveness of the vaccine. The two main strategies for rabies immunization are post-exposure prophylaxis (PEP) and pre-exposure prophylaxis (PrEP) for both of which WHO recommends cell culture and embryonated egg-based rabies vaccines (CCEEVs). These vaccines are shown to be safe, highly immunogenic and well tolerated, and can be given through both intramuscular and ID routes. The ID route requires a smaller amount per dose. Randomized trials for rabies vaccine are not ethically possible, so assessment of vaccine efficacy depends on observational data and animal models. Most individuals who receive PEP achieve an adequate antibody titer of 0.5 IU/ml by 7-14 days following vaccination, irrespective of age or nutritional status. In addition to vaccine, administration of rabies immunoglobulin (RIG) is also recommended as passive prophylaxis in selected post-exposure settings.

The SAGE set up a working group on rabies in June 2016 and reviewed scientific evidence and country practices regarding the use of rabies vaccine in its meeting held in October 2017. The SAGE emphasized the implementation of these updated recommendations on ID use of vaccines and the prudent use of RIG and monoclonal antibodies, which should improve access to care and enhance the public health impact of these products.

5.2 Cholera vaccination

Cholera affects at least 47 countries across the globe, resulting in an estimated 2.9 million cases and 95,000 deaths per year worldwide. It continues to affect communities...
already made vulnerable by tragedies, natural calamities and conflicts. This is in addition to the burden of endemic cholera which has annual seasonal outbreaks. The SAGE Working Group on oral cholera vaccines (OCVs) considers that OCVs are safe for use among individuals aged more than 1 year, including pregnant women. A single dose is efficacious and effective for at least two years for individuals above 5 years of age. A two-dose schedule is efficacious and effective for at least three to five years among adults. Campaigns with OCV have been demonstrated to be feasible and acceptable in endemic, epidemic and humanitarian emergency settings. Modelling studies suggest that cholera vaccination has the potential to be a cost-effective intervention for cholera control in countries at high risk of cholera.

Since 2013, inactivated whole cell OCVs have been made available for deployment from a global OCV stockpile, which is intended for cholera control in outbreaks, humanitarian crises and in settings with endemic cholera. Emergency deployment of OCVs from the stockpile is coordinated by an International Coordinating Group (ICG) with WHO serving as the secretariat. During 2014-2018, Gavi funded US$115 million for vaccine provision and is also funding operational costs for OCV campaigns.

Bangladesh has conducted important studies on OCVs. These studies have led to a better understanding of the efficacy and effectiveness of the vaccine in high-risk populations. In one such study, it was shown that vaccine alone had similar effectiveness in protecting against cholera as vaccine integrated with water, sanitation and hygiene (WaSH). It has also been shown in Bangladesh that a single dose of the inactivated whole-cell OCV offers protection to older children and adults and that this protection is sustained for at least two years. Another study has shown that OCV maintains the safety and immunogenicity profile, even when stored at elevated temperatures.

5.3 Typhoid vaccination

Globally, there are 11-21 million cases of typhoid annually, causing from 128 000 to 161 000 deaths. The peak incidence is seen under 15 years of age and nearly 27% of all typhoid disease is seen in children under 5 years of age. Typhoid can be prevented and controlled by measures such as access to safe water, sanitation and hygiene, following food safety practices and vaccination. Two typhoid fever vaccines have been recommended since 2000, namely parenteral unconjugated purified Vi polysaccharide vaccine and oral live attenuated Ty21a vaccine. In 2008, WHO recommended programmatic use of typhoid vaccines against endemic and epidemic
typhoid, however, to date there has been limited routine use in high-risk populations in selected countries.

One typhoid conjugate vaccine (TCV) comprising Vi polysaccharide antigen linked to tetanus toxoid carrier protein was licensed in 2013 for use among individuals aged 6 months to 45 years. It was and prequalified by WHO in December 2017. WHO, in its 2018 position paper, recommends TCV as the preferred vaccine in view of its improved immunological properties, suitability for use in younger children and expected longer duration of protection. WHO also recommends primary vaccination with a single intramuscular dose for infants and children from 6 months of age and adults up to 45 years of age in typhoid-endemic regions. TCV can be used in the RI programme at 9 months of age, or in the second year of life, along with other routine vaccines. Catch-up vaccination is recommended up to 15 years of age when feasible and supported by epidemiology. The introduction of TCV should be prioritized in countries with the highest burden of typhoid disease or a high burden of antimicrobial-resistant Salmonella Typhi. Vaccination is recommended in response to confirmed outbreaks of typhoid fever. Countries experiencing typhoid outbreaks should consider introduction of TCV into or improving coverage with TCV administered through the RI programme.

5.4 Seasonal and pandemic influenza vaccination

Seasonal influenza is responsible for an estimated 290 000–650 000 respiratory deaths annually. The goal of the Global Action Plan (GAP) for Influenza Vaccines is to produce enough vaccine to immunize 70% of the global population with two doses within six months from the identification of the pandemic virus strain. The status of the three objectives of GAP are to:

- Increase evidence-based seasonal vaccine use. In 2014, 115 countries/territories reported having influenza vaccination policies (81 had these for pregnant women) compared with 74 countries/territories in 2006. There was an uptake of 486 million doses of influenza vaccine in 2015 against an uptake of 354 million doses in 2006. Vaccine dose distribution was used as a proxy for uptake of influenza vaccines.

- Expand vaccine production and regulatory capacity. Potential pandemic vaccine production has increased to 6.37 billion doses against 1.46 billion doses in 2006. Production capacity has been expanded to low- and middle-income countries (LMICs) and 10 GAP-supported LMICs have reached regulatory maturity for vaccines as opposed to four in 2006. Eleven GAP grantees are
developing influenza vaccine production capacity. The GAP grantees have cumulatively licensed six pre-pandemic vaccines (three prequalified) and three seasonal vaccines (one prequalified). An additional eight vaccines are in late-stage clinical development (three pre-pandemic and five seasonal vaccines).

- Further research and development (R&D) for better vaccines. Some novel vaccines including recombinant, live attenuated influenza vaccine (LAIV), quadrivalent, adjuvanted seasonal influenza vaccine for infants and high-dose influenza vaccine for the elderly have been licensed, but overall there has been limited progress in this area and a universal influenza vaccine is still distant.

Influenza surveillance is being carried out in the SEA Region with nine countries (Bangladesh, Bhutan, India, Indonesia, Maldives, Myanmar, Nepal, Sri Lanka and Thailand) routinely reporting to FluNet. Eight SEA Region countries, namely Bangladesh, DPR Korea, India, Indonesia, Myanmar, Nepal, Sri Lanka and Thailand have at least one National Influenza Centre. Three SEA Region countries (Maldives, Nepal and Thailand) have seasonal influenza included in their immunization schedule for at least one risk group.
Group work – immunization performance improvement using GRISP

The objectives of this session were for country groups to:

- conduct a self-assessment which would enable each group to identify the level of maturity in 2017 of the country’s immunization system in terms of the nine transformative investment areas identified in GRISP;
- propose a target maturity level of each immunization system in terms of the nine transformative investments by 2020;
- identify broader strategies and activities based on the current and proposed status in 2020 to ensure that the 2020 maturity levels for all nine transformative investments are achieved.

Each country team reviewed the nine transformative investment areas and the four levels of maturity for each of the nine areas, as provided. Following a discussion, each country team established a baseline by self-assessing the maturity level of the country’s immunization system in 2017 for each transformative change.

Using the immunization system strengthening grid provided, countries marked the level of maturity for each of the nine-transformative investments, plotted a graph for 2017 and set maturity targets to be achieved by 2020. The country teams also developed strategies to progress towards and achieve proposed targets for 2020, drawing upon GRISP as a resource.

Countries were expected to finalize the maturity indices that had been developed at the ninth ITAG meeting and share these indices with the WHO Regional Office for SEA. Large countries were also expected to conduct a similar exercise at subnational level.
Annex 1

Opening address by Regional Director

Ninth Meeting of the SEA Region Immunization Technical Advisory Group (SEAR-ITAG) 17–20 July 2018, New Delhi, India

Opening address delivered by DPM on behalf of Dr Poonam Khetrapal Singh, Regional Director, WHO South-East Asia Region

Members of the South-East Asia Region Immunization Technical Advisory Group, chairpersons of the National Immunization Technical Advisory Groups, SAGE members representing the Region, colleagues from WHO headquarters and countries of the South-East Asia Region, representatives of partner agencies, ladies and gentlemen,

A very warm welcome to New Delhi and to the ninth meeting of our Region’s Immunization Technical Advisory Group, or ITAG.

Although our Regional Director, Dr Poonam Khetrapal Singh, would have very much liked to attend this important meeting, she is unable to do so due to a prior commitment. I therefore take great pleasure in delivering this message on her behalf.

When the Regional Director spoke at last year’s meeting she emphasized the Region’s remarkable progress, both in strengthening NIPs and in eliminating specific diseases. It is to each of your credit – as well as to the credit of health workers across the Region – that we have maintained and built on these achievements.

To this day we remain polio-free. We have maintained the elimination of maternal and neonatal tetanus as a public health problem. Key vaccines have been introduced in a number of countries, including for pneumonia, diarrhoea and Japanese encephalitis among other vaccine preventable diseases. The control of hepatitis B – which accounts for the largest proportion of associated mortality – has meanwhile been accelerated, with a host of countries now poised to follow Bhutan and Maldives in eliminating endemic measles.

Dr Khetrapal Singh notes that across the Region, immunization managers and health workers are better trained while cold-chain structures are more reliable. That injection safety has been enhanced and vaccine management systems are more effective. And that we have laboratory networks with greater capacity and surveillance systems that are better equipped to meet the challenges we face.
She says we are, in short, moving towards a brighter and healthier future for all – one that is free of vaccine preventable diseases and the unnecessary death and suffering they cause.

The Regional Director emphasizes that it is your technical input and resolve, combined with the energy and determination of health workers from the grassroots up, that made these achievements possible. Indeed, she says, let us be candid: Your efforts have saved millions of lives and supported the health and wellbeing of whole communities and countries. That is an immensely powerful achievement, and one worth reflecting on as we begin this four-day meeting.

But let us also be candid about what is needed: immediate, accelerated and sustained progress. Of the 37 million children born in our Region every year, Dr Khetrapal Singh notes, more than 32 million receive three doses of the basic DTP-containing vaccine annually. That is a solid strike rate, but leaves just under 5 million children acutely vulnerable to these diseases. Identifying and reaching those children must, necessarily, be core to our mission.

Similarly, she says, a rise in diphtheria cases in areas once thought to be rid of the disease highlights that despite our gains, complacency and inaction can reverse them with rapid effect. Ensuring that momentum is maintained and high-level commitment secured is paramount. To that end, the Regional Director urges your continued advocacy and vigilance at all times and at all levels.

During the Seventy-first World Health Assembly, WHO Member States from across the world – including the South-East Asia Region – adopted the Thirteenth General Programme Of Work, or GPW13. That plan outlines a mission that is aligned with the Sustainable Development Agenda and which has three components: First, to promote health; second, to keep the world safe; and third to serve the vulnerable.

To achieve the first component, the Regional Director says, one billion more people must gain access to quality health services. That reflects and will accelerate the global drive towards universal health coverage. To achieve the second component, one billion more people must be protected from health emergencies. That is aligned with and reinforces WHO’s increased focus on emergency preparedness and response. And to achieve the third component, one billion more people must enjoy better health and wellbeing. That will be the outcome of promoting healthier populations and serving the vulnerable as a matter of priority.
As you appreciate, Dr Khetrapal Singh notes, our Region has the world’s largest birth cohort and accounts for more than a quarter of the world’s population. Achieving these commitments will therefore have life-changing impact here more than anywhere. Our success will be the world’s success; our struggle the world’s struggle. With regard to each of the GPW’s targets, as well as those of the Sustainable Development Goals, stronger NIPs – achieved via the full implementation of the Regional Vaccine Action Plan – will have substantial impact.

This is so for a number of reasons.

First, providing access to quality health services means providing access to strong routine immunization programmes. That is the primary goal of the Regional Vaccine Action Plan which, among other strategic objectives, urges Member States to establish and maintain high-level commitment to immunization; to ensure individuals and communities understand the value of vaccines and demand them as both a right and responsibility; and to guarantee access to predictable funding, quality supply and innovative technologies.

Second, the Regional Director says, protecting people during public health crises requires high base-levels of immunization coverage, as well as a skilled workforce able to provide immunization with rapid effect. As the Regional Plan emphasizes, the benefits of immunization must be extended equitably, including to marginalised or hard-to-reach populations – those who suffer acute events the most severely. The rapid, large-scale immunization campaigns carried out in recent months in Cox’s Bazar, Bangladesh, demonstrate that a strong immunization system backed by a sizeable, well-trained health workforce can protect hundreds of thousands of people when they need it most.

And finally, the Regional Director emphasizes, promoting healthier populations by serving the vulnerable requires us reaching the unreached and underserved with the benefits vaccines provide. By ensuring each and every child, adolescent and pregnant woman in the South-East Asia Region receives the vaccines they need to stay healthy and strong, greater confidence and buy-in to health systems more generally will be achieved. That will increase and promote the health and wellbeing of all, helping each and every individual take full advantage of the opportunities before them.

As you can see, the Regional Plan is well aligned with GPW13 and the targets it sets, as well as the Global Vaccine Action Plan and the Decade of Vaccines. It also reflects the theme of this year’s World Immunization Week, which we marked
in the last week of April. Needless to say, the Regional Director emphasizes, being ‘Protected Together’ means creating ‘a South-East Asia Region free of vaccine preventable diseases, where all countries provide equitable access to high-quality, safe, efficacious, affordable vaccines and immunization services throughout the life course’ – the Regional Plan’s vision statement. Our unity of purpose is indeed one of our greatest strengths.

As you know, last year’s ITAG meeting was documented in great detail, with key conclusions, recommendations and goals recorded and published. This meeting provides a critical opportunity to review progress and identify where impact can be enhanced. I trust you will be in a position to do so, thereby making full use of ITAG’s function and potential.

Importantly, this meeting also provides an opportunity to hone our focus on the Flagship Priority of eliminating measles and controlling rubella by 2020. As outlined earlier, though substantial progress has been made, parts of the Region require immediate and accelerated gains. By sharing experiences and engaging with and learning from one another we can achieve that outcome.

Indeed, Dr Khetrapal Singh remarks, your input over the coming days will prove immensely valuable. You have demonstrated what can be achieved when sound strategy is matched with effective implementation, and when partners work together to harness the full power of vaccines to prevent diseases that need not – and must not – persist. As deliberations commence, the Regional Director urges you to take stock of these truths, and to recognize your capacity to drive real progress across our Region, and with it the world.

On that note, the Regional Director wishes you fruitful deliberations and a very pleasant stay in New Delhi.

I echo that sentiment and wish you all the best over the coming days.
## Annex 2

### Programme

#### Day 1, Tuesday, 17 July 2018

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<th>Time</th>
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<tr>
<td>08:00-9:00</td>
<td>Registration</td>
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<td>09:00-09:45</td>
<td>Opening Session</td>
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<td>09:45-10:15</td>
<td>Group photograph, followed by Tea/Coffee break</td>
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<td>10.15-11:45</td>
<td>• Remarks by chair SEAR ITAG</td>
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<td>A Cravioto, Chair SAGE</td>
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<td>11:45-13:00</td>
<td>• Remarks by UNICEF, US CDC and Gavi</td>
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<td>11:45-13:00</td>
<td>• South-East Asia Regional Vaccine Action Plan – progress and challenges</td>
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<td>13:00-14:00</td>
<td>• Global Vaccine Action Plan – an update</td>
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<td>• Discussion (15 mins)</td>
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<td>• Immunization response to public health emergency in Cox’s Bazar</td>
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<td>• Managing diphtheria outbreak in Indonesia</td>
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<td>14:00-15:20</td>
<td>• Diphtheria – key immunization and surveillance issues</td>
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<td>SM Shamsuzzaman, MOH Bangladesh</td>
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<td>14:00-15:20</td>
<td>• Discussion (15 mins)</td>
</tr>
<tr>
<td></td>
<td>G Kang, Chair ITAG</td>
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</tbody>
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<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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</thead>
<tbody>
<tr>
<td>15:20-15:50</td>
<td>Tea/Coffee break</td>
</tr>
<tr>
<td>15:50-17:35</td>
<td>Routine immunization systems and services are strengthened (Goal 1 of RVAP)</td>
</tr>
<tr>
<td></td>
<td>- Progress and challenges in strengthening immunization systems and services: An overview (20 mins)</td>
</tr>
<tr>
<td></td>
<td>- Communication strategy to support immunization system strengthening: recent developments (20 mins)</td>
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<tr>
<td></td>
<td>- Health system and immunization strengthening: Gavi perspective (20 mins)</td>
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<tr>
<td></td>
<td>- Discussion (20 mins)</td>
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<td>- Life cycle approach to vaccination (15 mins)</td>
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<td></td>
<td>- Discussion (10 mins)</td>
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<tr>
<td>17:45-18:30</td>
<td>ITAG closed door</td>
</tr>
<tr>
<td>19:00-21:00</td>
<td>Dinner/Reception</td>
</tr>
</tbody>
</table>

**Day 2, Wednesday, 18 July 2018**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>08:30-10:00</td>
<td>Measles Elimination and Rubella/CRS Control (Goal 2 of RVAP)</td>
</tr>
<tr>
<td></td>
<td>- Progress and challenges in measles elimination and rubella/CRS control in SEAR: An overview (20 mins)</td>
</tr>
<tr>
<td></td>
<td>- Mid-term Review (MTR) of SEAR strategic plan for measles elimination and rubella/CRS control – key findings and recommendations (20 mins)</td>
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<tr>
<td></td>
<td>- Discussion (20 mins)</td>
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<tr>
<td>Time</td>
<td>Session</td>
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<tr>
<td>10.00-10:30</td>
<td>Tea/Coffee Break</td>
</tr>
<tr>
<td>10:30-11:40</td>
<td>Progress in immunization programme performance in SEAR countries (contd.)</td>
</tr>
<tr>
<td></td>
<td>• Sri Lanka – immunization progress report (20 mins)</td>
</tr>
<tr>
<td></td>
<td>• Nepal – immunization progress report (20 mins)</td>
</tr>
<tr>
<td></td>
<td>• Discussion on Sri Lanka and Nepal (30 mins)</td>
</tr>
<tr>
<td>11:40-12:50</td>
<td>Polio-free status is maintained (Goal 3 of RVAP)</td>
</tr>
<tr>
<td></td>
<td>• Global polio update – key challenges and priorities (15 min)</td>
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<tr>
<td></td>
<td>• Progress and challenges in maintaining polio-free status in SEAR: An overview (15 mins)</td>
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<td></td>
<td>• Poliovirus containment – progress and challenges in SEAR (15 mins)</td>
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<td>• Risk assessment oversight by certification bodies (10 mins)</td>
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<td>• Discussion (15 mins)</td>
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<tr>
<td>12:50-13:50</td>
<td>Lunch break</td>
</tr>
<tr>
<td>13:50-14:30</td>
<td>Managing polio transition - global strategic action plan and implications for SEAR countries (20 mins)</td>
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<tr>
<td>14:40-15:50</td>
<td>Discussion (20 mins)</td>
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<tr>
<td></td>
<td>Progress in immunization programme performance in SEAR countries (contd.)</td>
</tr>
<tr>
<td></td>
<td>• Myanmar – immunization progress report (20 mins)</td>
</tr>
</tbody>
</table>
- Maldives – immunization progress report (20 mins)  
  N Luthfee, NITAG Maldives
- Discussion on Myanmar and Maldives (30 mins)

<table>
<thead>
<tr>
<th>15:50-16:20</th>
<th>Tea/Coffee break</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:20-17:10</td>
<td>Elimination of maternal and neonatal tetanus is sustained (Goal 4 of RVAP)</td>
</tr>
</tbody>
</table>

- Progress and challenges in sustaining maternal and neonatal tetanus in SEAR – An overview (20 mins)  
  S Khanal and S Roesel WHO SEARO
- Post-validation assessment of MNTE (15 mins)  
  L Varela, MoH Timor-Leste
- Discussion (15 mins)

<table>
<thead>
<tr>
<th>17:10-17:45</th>
<th>Informational session:</th>
</tr>
</thead>
</table>
| 17:10-17:45 | Rabies vaccination (20 mins)  
  R Aggarwal, SAGE member |
| 17:10-17:45 | Discussion (15 mins) |

| 18:00-19:00 | ITAG closed door |

<table>
<thead>
<tr>
<th>Day 3, Thursday, 19 July 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30-09:15</td>
</tr>
</tbody>
</table>

- Progress and challenges in acceleration of JE in SEAR: An overview (15 mins)  
  J Liyanage, WHO SEARO
- JE campaign in Myanmar – lessons learnt (15 mins)  
  A Thar, MoH Myanmar
- Discussion (15 mins)

| 09:15-10:15 | Control of Hepatitis B is accelerated (Goal 6 of RVAP) |

- Progress and challenges in acceleration of Hepatitis B in SEAR (20 mins)  
  S Khanal and S Roesel WHO SEARO
- Hepatitis B sero-survey in Bhutan – key findings (20 mins)  
  S Wangchuk, MoH Bhutan
- Discussion (20 mins)

<p>| 10:15-10:45 | Tea/Coffee Break |</p>
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Presenters and Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45-11:55</td>
<td>Progress in immunization programme performance in SEAR countries (contd.)</td>
<td>• Indonesia – immunization progress report (20 mins)</td>
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<tr>
<td></td>
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<td>SR Hadinegoro, NITAG Indonesia</td>
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<td>• India – immunization progress report (20 mins)</td>
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<td>P Haldar, NITAG India</td>
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<td>• Discussion on Indonesia and India (30 mins)</td>
</tr>
<tr>
<td>11:55-13:10</td>
<td>Introduction of new vaccines and technologies is accelerated (Goal 7 of RVAP)</td>
<td>• Progress and challenges in NUVI and related technologies in SEAR: An overview (15 mins)</td>
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<td>J Liyanage, WHO SEARO</td>
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<td>• Planning for Rotavirus vaccine introduction in Nepal (15 mins)</td>
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<td>JS Gautam, MoH Nepal</td>
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<td>• Fractional IPV use in India – key findings from an evaluation study (15 mins)</td>
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<td>P Haldar, MoH India</td>
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<td>• Vaccine investment strategy – some opportunities (15 mins)</td>
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<td>D Patel, Gavi - the Vaccine Alliance</td>
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<tr>
<td></td>
<td></td>
<td>• Discussion (15 mins)</td>
</tr>
<tr>
<td>13:10-14:10</td>
<td>Lunch break</td>
<td></td>
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<tr>
<td>14:10-15:20</td>
<td>Progress in immunization programme performance in SEAR countries (contd.)</td>
<td>• DPR Korea – immunization progress report (20 mins)</td>
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<tr>
<td></td>
<td></td>
<td>PM Su and P Sim, NITAG DPR Korea</td>
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<tr>
<td></td>
<td></td>
<td>• Bhutan – immunization progress report (20 mins)</td>
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<td></td>
<td></td>
<td>S Wangchuk, NITAG Bhutan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Discussion on DPR Korea and Bhutan (30 mins)</td>
</tr>
<tr>
<td>15:20-15:45</td>
<td>Tea/Coffee break</td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>Activity</td>
<td>Speaker</td>
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<tr>
<td>15:45-16:45</td>
<td><strong>Informational sessions:</strong></td>
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<tr>
<td></td>
<td>• Cholera vaccination (20 mins)</td>
<td>F Quadri, SAGE member</td>
</tr>
<tr>
<td></td>
<td>• Typhoid vaccination (20 mins)</td>
<td>AD Bentsi-Enchill, WHO HQ</td>
</tr>
<tr>
<td></td>
<td>• Discussion (20 mins)</td>
<td></td>
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<tr>
<td>17:00-18:00</td>
<td><strong>ITAG closed door</strong></td>
<td></td>
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</tbody>
</table>

**Day 4, Friday, 20 July 2018**

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Speaker</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:30-09:30</td>
<td><strong>Access to high quality vaccines is ensured (Goal 8 of RVAP)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Progress and challenges in ensuring access to quality vaccines in SEAR: An overview (15 mins)</td>
<td>S Guichard, WHO SEARO</td>
</tr>
<tr>
<td></td>
<td>• ASEAN vaccine security and self-reliance – lessons learnt (15 mins)</td>
<td>S Chunsuttiwat</td>
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<tr>
<td></td>
<td>• EVM assessment using modern technology (15 mins)</td>
<td>N Gafoor, MoH Maldives</td>
</tr>
<tr>
<td></td>
<td>• Discussion (15 mins)</td>
<td></td>
</tr>
<tr>
<td>09:30-10:05</td>
<td><strong>Progress in immunization programme performance in SEAR countries (contd.)</strong></td>
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<tr>
<td></td>
<td>• Bangladesh – immunization progress report (20 mins)</td>
<td>SM Shamsuzzaman NITAG Bangladesh</td>
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<tr>
<td></td>
<td>• Discussion on Bangladesh (15 mins)</td>
<td></td>
</tr>
<tr>
<td>10:05-11:00</td>
<td><strong>Informational session: Seasonal Influenza vaccination</strong></td>
<td>S Goldin/ C Nannei, WHO HQ</td>
</tr>
<tr>
<td>11:00-11:30</td>
<td><strong>Tea/Coffee Break</strong></td>
<td></td>
</tr>
<tr>
<td>11:30-14:00</td>
<td><strong>Immunization performance improvement using GRISP pillars: Strengthening maturity index – Group work (ITAG closed door meeting in parallel)</strong></td>
<td>Facilitated by WHO, UNICEF, Gavi, The Vaccine Alliance, US- CDC</td>
</tr>
<tr>
<td>13:00-14:00</td>
<td><strong>Working lunch</strong></td>
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</tr>
<tr>
<td>Time</td>
<td>Activity</td>
<td>Presenter</td>
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</tr>
<tr>
<td>14:00-15:00</td>
<td>Country presentations on maturity index for immunization system strengthening</td>
<td>Selected countries</td>
</tr>
<tr>
<td>15:00-15:30</td>
<td>Tea/Coffee Break</td>
<td></td>
</tr>
<tr>
<td>15:30-17:00</td>
<td>Closing Session</td>
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</tr>
<tr>
<td></td>
<td>• ITAG conclusions &amp; recommendations</td>
<td>G Kang, Chair ITAG</td>
</tr>
<tr>
<td></td>
<td>• Remarks by partners</td>
<td>WHO/UNICEF/CDC/Gavi/others</td>
</tr>
<tr>
<td></td>
<td>• Closing remarks</td>
<td>Chair ITAG and WHO-SEARO</td>
</tr>
</tbody>
</table>
## Annex 3

### List of reviewers of the NITAG reports

<table>
<thead>
<tr>
<th>Country</th>
<th>Reviewers (SEAR-ITAG Members)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>Dr Antonia Retno Tyas Utami Dr Robb Linkins</td>
</tr>
<tr>
<td>Bhutan</td>
<td>Dr Charung Muangchana Professor Sanath Lamabadusuriya</td>
</tr>
<tr>
<td>DPR Korea</td>
<td>Professor Saw Win Professor Shahidullah</td>
</tr>
<tr>
<td>India</td>
<td>Dr Robb Linkins Dr Yasho Vardhan Pradhan</td>
</tr>
<tr>
<td>Indonesia</td>
<td>Dr Gagandeep Kang Dr Charung Muangchana</td>
</tr>
<tr>
<td>Maldives</td>
<td>Dr Yasho Vardhan Pradhan Dr Antonia Retno Tyas Utami</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Professor Mohammad Shahidullah Dr Gagandeep Kang</td>
</tr>
<tr>
<td>Nepal</td>
<td>Professor Sanath Lamabadusuriya Professor Saw Win</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>Dr Antonia Retno Tyas Utami Dr Robb Linkins</td>
</tr>
<tr>
<td>Thailand</td>
<td>Professor Sanath Lamabadusuriya Professor Mohammad Shahidullah</td>
</tr>
<tr>
<td>Timor-Leste</td>
<td>Dr Charung Muangchana Dr Yasho Vardhan Pradhan</td>
</tr>
</tbody>
</table>
## Annex 4

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The Ninth Meeting of the World Health Organization's South-East Asia Regional Immunization Technical Advisory Group (SEAR-ITAG) was held from 17 to 20 July 2018 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 2018 annual meeting of the SEAR-ITAG expert group.