Global Vaccine Action Plan

Regional reports on progress towards GVAP-RVAP goals

Annex to the GVAP Secretariat Annual Report 2017

Suggested citation. Global Vaccine Action Plan Regional Reports on Progress towards GVAP-RVAP Goals. Annex to the GVAP Secretariat Annual Report 2017. Geneva: World Health Organization; 2017 Licence: CC BY-NC-SA 3.0 IGO.

Cataloguing-in-Publication (CIP) data. CIP data are available at http://apps.who.int/iris.

Design and layout by Paprika

Cover photo by Christine McNab, WHO

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Introduction

In its Global Vaccine Action Plan (GVAP) Assessment Report 2016, the Strategic Group of Experts on Immunization (SAGE) made the recommendation that *"WHO Regional Directors should make sure the progress towards the Global and Regional Vaccine Actions Plans is reviewed annually at Regional Committee meetings as requested in the WHA resolution WHA65.17. Reports prepared at the country level to review and discuss the progress made should be the basis of the discussion."*

As part of this process, WHO Regional Offices provide annually a report on the progress made towards the achievement of the GVAP and the Regional Vaccine Actions Plans goals [1]. The reports summarize the main issues, challenges, successes and opportunities for countries in each respective region in 2016.

The six regional progress reports are published in this annex.

[1] http://www.who.int/immunization/global_vaccine_action_plan/en/

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BillMelindaGatesFoundation - Jiro Ose

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Progress Report for the African Region

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Background

2017 began with a historic pledge – at the 28th African Union (AU) Summit, Heads of State from across Africa endorsed the Addis Declaration on Immunization (ADI), thereby committing to advance universal access to immunization across Africa. The ADI was initially drafted and signed by ministers and other high-level representatives at the Ministerial Conference on Immunization in Africa (MCIA) in February 2016. The ADI includes 10 commitments to achieve universal and equitable access to immunization in Africa. An ADI roadmap was finalized in June 2017 to assist Member States achieve the 10 ADI commitments.

The AU Declaration on universal access to immunization paves the way for accelerated implementation of the ADI roadmap to ensure that everyone in Africa, no matter who they are or where they live, can access the vaccines they need to survive and thrive.

This commitment from the highest level of government comes as a catalyst to immunization efforts in the African Region. Despite tremendous immunization gains across many parts of Africa, progress has stagnated and barriers in vaccine and healthcare delivery systems persist, especially in the poorest and most marginalized communities. One in five African children still lack access to all life-saving vaccines – a threat not only to the health of African families, but also to the strength of African economies and equity in African societies.

This progress report highlights the achievements made in expanding access to vaccines in the WHO African Region and discusses some of the remaining challenges to achieving universal access to immunization within the Region. The timing of this progress report coincides with the halfway point of the implementation of the ***Africa Regional Strategic Plan on Immunization (RSPI) 2014-2020***, a 7-year vision of the Africa regional health community to expand access to vaccines and immunization services to all by 2020.

WHO Country Office Ghana

Africa Regional Strategic Plan on Immunization 2014-2020 Objectives & Targets

In September 2014, the 64th session of the WHO Regional Committee for Africa adopted the RSPI 2014-2020, which was developed in line with the Global Vaccine Action Plan (GVAP). The RSPI aims to achieve universal immunization coverage within the WHO African Region by the end of 2020.The objectives/targets of the RSPI are as follows:

Objective 1: Improve immunization coverage beyond the current levels

- DPT3 vaccine coverage to reach 90% region-wide by end-2020;
- All countries to introduce PCV by end-2020;
- At least 37 countries to introduce the rotavirus vaccine by 2020;
- At least 35 countries to introduce HPV by end-2020;
- At least 25 countries to introduce a birth dose of hepatitis B vaccine by end-2020;
- All countries to regularly report adverse events following immunization by end-2020.
- No country will be reporting any stock out of vaccines or supplies lasting more than one week
- All countries will have a NITAG and 35 countries will have a functioning NRA by 2020

Objective 2: Complete interruption of poliovirus transmission and ensure virus containment

- All countries to interrupt transmission of wild poliovirus by 2014;
- All OPV-using countries to introduce at least one dose of inactivated polio vaccine by 2015;
- All polioviruses to be laboratory contained and the Region certified polio free by end-2018; and
- A regional polio legacy plan to be finalized by end-2015.

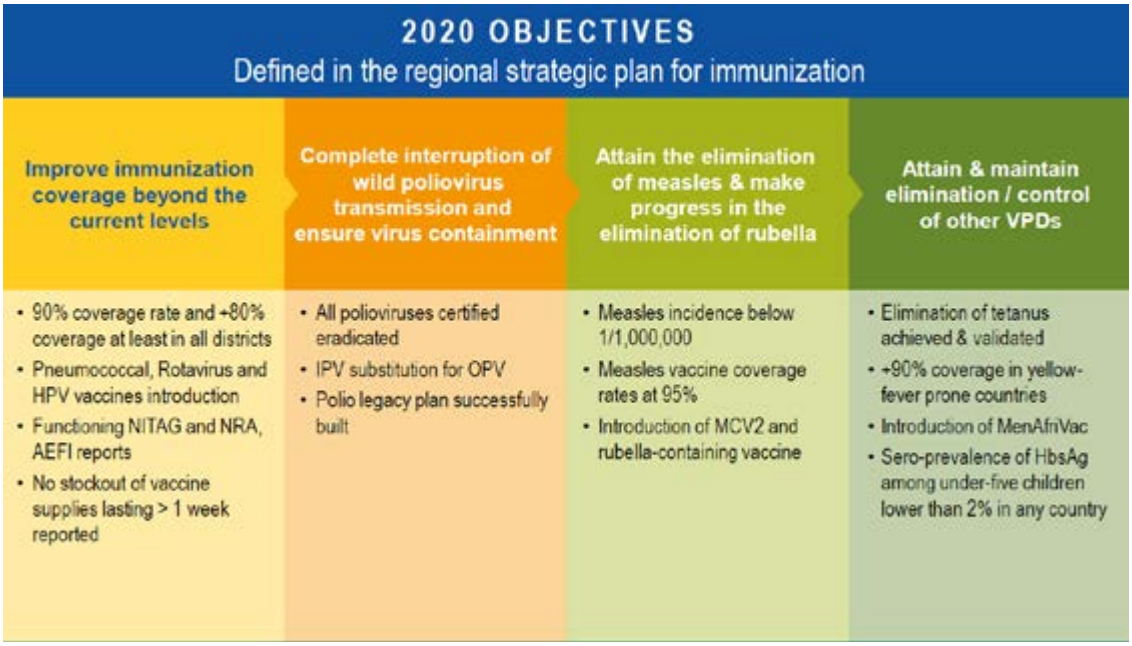
Objective 3: Attain the elimination of measles & make progress in the elimination of rubella & congenital rubella syndrome

- All countries to achieve an incidence of confirmed measles of less than 1 case per million population by 2020;
- MCV1 coverage to be at least 95% at the national and district levels and SIA coverage to be 95% or higher by 2020;
- At least 25 countries to introduce rubella-containing vaccine by 2020.

Objective 4: Attain and maintain elimination/control of other VPDs

- All countries to attain and validate elimination of maternal and neonatal tetanus by 2020;
- All high-risk countries to attain yellow fever immunization coverage of 90% or higher by 2020;
- All countries within the meningitis belt to introduce MenAfriVac through campaigns, and 15 of them to have the vaccine in routine immunization by 2020;
- Seroprevalence of HbsAg among children younger than 5 years to be less than 2% by 2020.

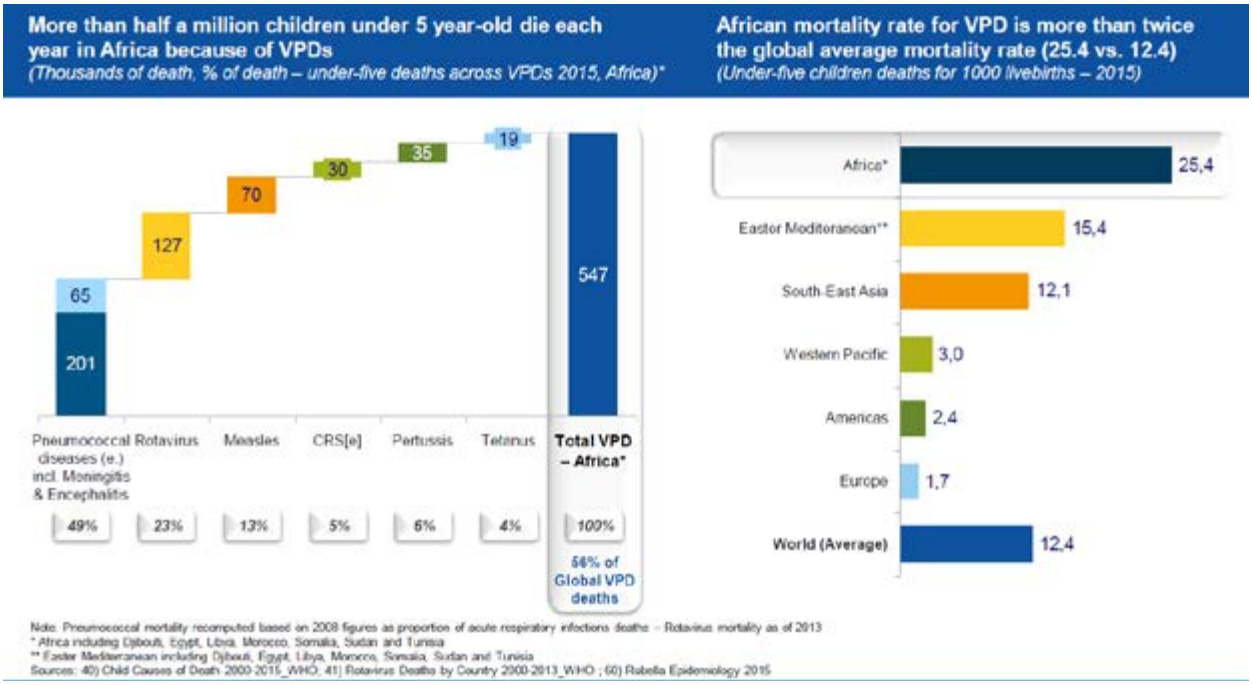
Figure 1: Summary of RSPI Objectives/Goals



Objective 1: To improve immunization coverage beyond the current levels

As is noted in Figure, 2, vaccine-preventable diseases (VPDs) kill more than half a million children under five years of age every year in Africa – representing approximately 56% of global deaths. The African mortality rate for VPDs is more than twice the global average mortality rate (25.4 verses 12.4).

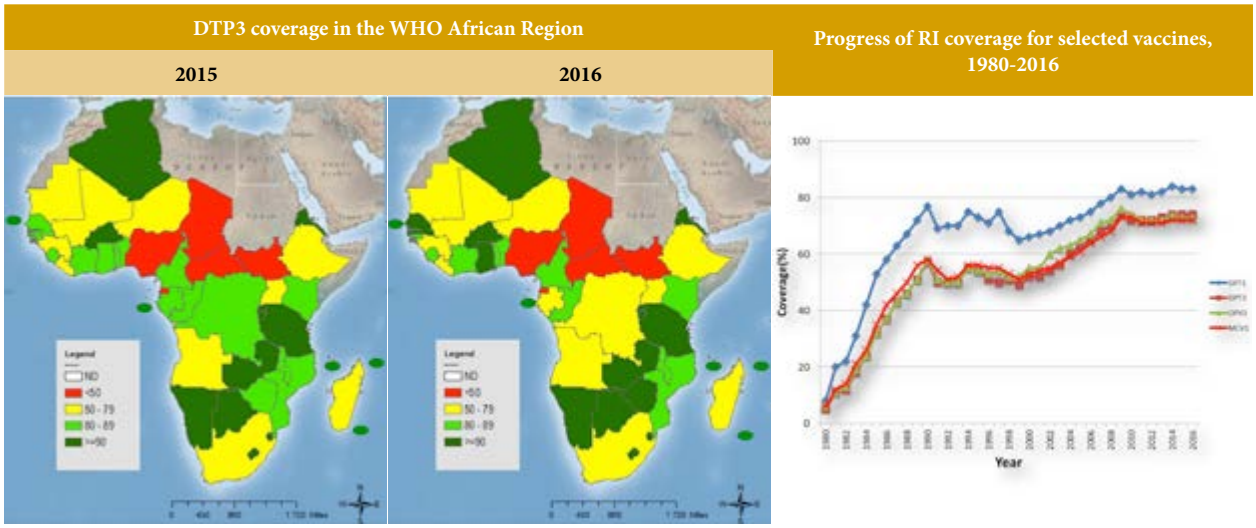
Figure 2: VPDs still claim too many lives in Africa



The most recent WHO/UNICEF estimates of national immunization coverage released in July 2017 indicate that regional immunization coverage with three doses of Diphtheria-Tetanus-Pertussis containing vaccine (DTP3) was maintained at 74% in 2016, and similarly for coverage with measles containing vaccine dose 1 (MCV1) at 72%[1]. However, this remains below the expected coverage target of at least 90% according to the GVAP and RSPI.

Twenty countries[2] in 2016 attained the RSPI coverage target of >90% for DTP3 vaccine, compared to 17 countries[3] in 2015 and 17 countries[4] achieved an MCV1 coverage of at least 90%, compared to 13 countries[5] in 2015 (Figure 1). The Regional coverage with the third dose of pneumococcal conjugate vaccine (PCV3) also increased from 59% in 2015 to 65% in 2016.

Figure 3: DTP3 coverage in the WHO African Region, 2016 verses 2015 and Progress of RI coverage for selected vaccines, 1980-2016



Source: WHO/UNICEF estimates of National Immunization Coverage (WUENIC) 2016 (released in July 2017)

Significant progress was made in the introduction of new vaccines during the last three years. All countries had introduced hepatitis B vaccine and *Haemophilus influenzae* type b vaccine as of December 2016.
The introduction of other new vaccines have also been accelerated, pneumococcal conjugate vaccines (PCV) and rotavirus vaccines were introduced by 38[6] and 31[7] countries respectively while human papilloma virus (HPV) vaccine has been introduced nationally in six countries[8].
To minimize the risk of vaccine-derived polioviruses, especially for type 2, boost population immunity and accelerate the eradication of polio, all countries successfully switched from trivalent to bivalent oral polio vaccine and introduced inactivated polio vaccine, meeting the set timelines for the global switch.

Seven countries[9] have demonstrated substantial declines in all-cause and rotavirus-related morbidity and mortality following rotavirus vaccination provided as part of integrated interventions including improvements in water quality, sanitation, and hygiene practices.

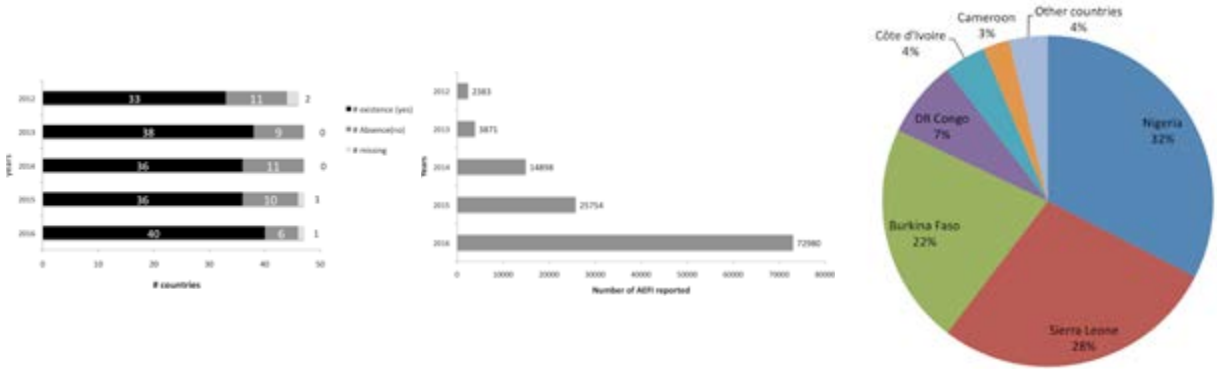
Sentinel surveillance systems in the 47 Member States have been established, in line with the Integrated Disease Surveillance and Response Strategy and the International Health Regulations 2005 to generate evidence of disease burden of vaccine preventable diseases targeted by new vaccines. These platforms are being used to monitor the impact of new vaccines such PCV and rotavirus vaccines on the reduction of targeted diseases.

Efforts to improve Adverse events following immunization (AEFI) surveillance continued and 40 countries reported having a system to monitor adverse events following immunization with actually 37[10] that reported them in 2016. A total of 22 countries[11] reported a minimum of 10 AEFI per 100 000 surviving infants in 2016. Five countries (Burkina Faso, Cameroon, Côte d'Ivoire, Democratic Republic of the Congo, Nigeria and Sierra Leone) reported 96% of AEFI cases.

1 WHO & UNICEF estimates of National Immunization Coverage - 2016 released in July 2017
2 Algeria, Botswana, Burkina Faso, Burundi, Cabo Verde, Comoros, Eritrea, Gambia, Ghana, Lesotho, Mauritius, Namibia, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Swaziland, Tanzania, Zambia and Zimbabwe
3 Algeria, Botswana, Burkina Faso, Burundi, Cabo Verde, Comoros, Eritrea, Gambia, Lesotho, Mauritius, Namibia, Rwanda, Sao Tome and Principe, Seychelles, Swaziland, Tanzania and Zambia
4 Algeria, Botswana, Burundi, Cabo Verde, Comoros, Eritrea, Gambia, Lesotho, Mauritius, Mozambique, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Tanzania, Zambia and Zimbabwe
5 Burundi, Botswana, Comoros, Cabo Verde, Algeria, Gambia, Lesotho, Mauritius, Rwanda, Sao Tome & Principe, Seychelles, Tanzania and Zambia
6 All countries except Algeria, Cabo Verde, Chad, Comoros, Equatorial Guinea, Gabon, Guinea, Seychelles and South Sudan
7 All countries except Algeria, Benin, Cabo Verde, Central African Republic, Chad, Comoros, Côte d'Ivoire, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Guinea, Lesotho, Nigeria, Seychelles, South Sudan and Uganda
8 Botswana, Lesotho, Rwanda, Seychelles, South Africa and Uganda
9 Botswana, Ghana, Malawi, Zambia, South Africa, Rwanda, Togo; Clinical Infectious Diseases (CID), Vol 62, Suppl 2, May 2016
10 All except Angola, Benin, Burundi, Cabo Verde, Chad, Congo, Equatorial Guinea, Gabon, Mozambique and South Sudan
11 Algeria, Botswana, Burkina Faso, Cameroon, Central African Republic, Comoros, Côte d'Ivoire, Democratic Republic of the Congo, Eritrea, Gambia, Ghana, Guinea-Bissau, Namibia, Nigeria, Rwanda, Sao Tome and Principe, Senegal, Sierra Leone, South Africa, Swaziland, Togo and Tanzania

Figure 4: Reported cases of AEFI in the WHO AFR 2012-2016

Progress in number of countries with established AEFI reporting system 2012-2016	Progress in number AEFI reported in AFR, 2012-2016	% of reporting AEFI by country, 2016



Source: Reported country administrative data in the 2016 Joint Reporting Form (JRF)

Ongoing efforts to ensure sustained availability of vaccine at operational level have been sustained. Vaccine stock out of more than 1 week was reported for one or more vaccine at national level in 24 countries[12]. This resulted into interruption of vaccination session in few countries, e.g. for BCG in 6[13] countries, for DTP- HepB- Hib in Central African Republic, Mauritius & South Africa, and for Measles in Central African Republic, Swaziland and Tanzania. The main reason of stock out was funding delays followed by global shortage, while a minor reason was forecast not respected.

Figure 5: In depth stock out analysis for selected vaccines

Vaccine	# countries with vaccine stock out at national level	Duration	# countries with vaccine stock out at district level	# countries where district stock out is linked to national stock out	# countries with vaccination session interruption due to stock out of vaccine
BCG	9	1-5 months	11	7	6
DTP_HepB_Hib	3	1 month	8	3	3
MCV	4	1 week to 3 months	6	2	3

Source: Reported country administrative data in the 2016 Joint Reporting Form (JRF)

The number of countries with functional National Regulatory Authorities (NRA) was set as an indicator in the RSPI. However not all the regulatory functions are critically important for the countries of the region. Most countries depend on WHO prequalified vaccines, and Senegal and South Africa are the only manufacturing countries. The most important function which is being tracked is the number of NRAs which review and authorize clinical trials. In 2016, the NRA of 24 countries[14] have authorized clinical trials of vaccines and provided oversight. For evidence based decision making, 23/47 countries[15] have a NITAG among which 13* meeting the 6 criteria's of functionality as defined by WHO[16].

[12] Algeria, Botswana, Burundi, Cabo Verde, Comoros, Eritrea, Gambia, Lesotho, Mauritius, Mozambique, Rwanda, Sao Tome and Principe, Senegal, Seychelles, Tanzania, Zambia and Zimbabwe

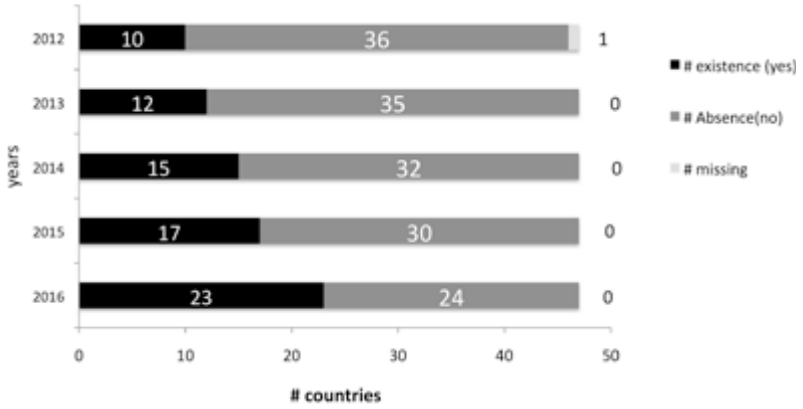
[13] Angola, Central Afircan Reoublic, DRC, Kenya, Swaziland, Zimbabwe

[14] Algeria ,Botswana, Burkina Faso , Cameroon, DRC, Côte d'Ivoire, Ethiopia, Gambia, Ghana, Gabon, Guinea Conakry, Kenya, Liberia, Malawi, Mozambique, Niger, Nigeria, Senegal, Sierra Leone, South Africa, Uganda, Tanzania, Zimbabwe, Zambia

[15] Algeria*, Benin*, Burkina Faso, Cameroon, Cote d'Ivoire*, DRC, Eritrea, Ethiopia*, Kenya*, Malawi, Mali, Mozambique*, Niger, Nigeria*, Senegal*, South Africa*, South Sudan, Swaziland, Tanzania*, Togo, Uganda*, Zambia*, Zimbabwe*.

[16] Formal written terms of reference, legislative or administrative basis, core membership with at least 5 main expertise areas represented among members , committee meeting at least once a year , agenda and background materials distributed ahead of meetings , Declaration of interests by members

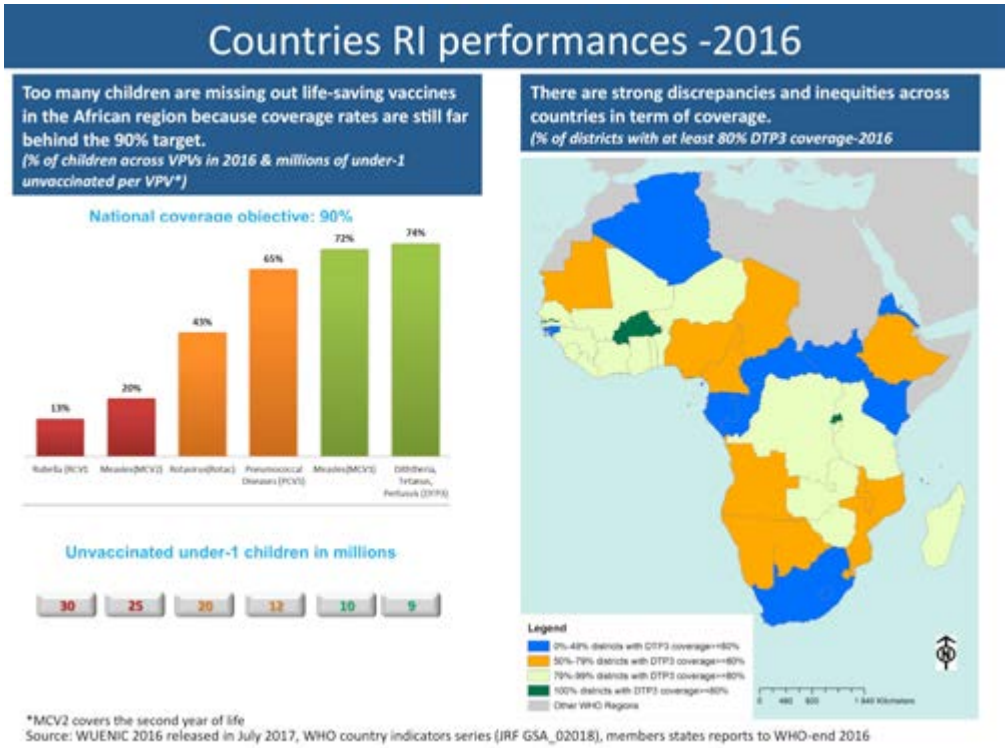
Figure 6: Progress in the establishment of NITAG in AFR countries, 2012-2016



Source: Reported country administrative data in the 2016 Joint Reporting Form (JRF)

Only 11 African countries[17] fund more than 50% of their national immunization programmes. As Africa nears polio eradication, critical funding for immunization through the polio eradication program is expected to decrease. Additionally, countries approaching middle-income status will transition away from Gavi support for immunization in the coming years. Yet, with the significant success listed above, too many children are missing out on life-saving vaccines in Africa because coverage rates are still far behind the 90% target.

Figure 7: Children miss out on life-saving vaccines



To further improve the immunization coverage, WHO supported advocacy and community mobilization which play an important role in driving the demand for immunization services. In 2016, countries took advantage of the African Vaccination Week (24- 30 April) to implement the largest ever synchronized switch from trivalent Oral Polio Vaccine to bivalent Oral Polio Vaccine in routine immunization. The region was among the first to successfully switch. The celebration of the African Vaccination Week was also an opportunity to catch up missed children with immunization and other interventions. As a result, an estimated 3,8 Million

[17] Algeria, Botswana, Côte d'Ivoire, Equatorial Guinea, Mauritius, Sao Tome & Principe, Seychelles, South Africa, Swaziland, Tanzania and Zambia

doses of vaccines of all antigens, 11 million tablets of Vitamin A and 13 million of deworming tablets were administered during that week as well as 2.5 million children screened for malnutrition.

To generate more reliable data from periodic surveys to supplement performance monitoring and action, WHO trained data specialists and focal points from 16 priority countries[18] on the Expanded Programme on Immunization (EPI) and Health Information System to use the revised EPI survey methodology. In addition, WHO and partners developed a process for integrating immunization data systems with the overall health information system.

In March 2017, 46[19] Member States completed their 2016 Ministry/WHO and UNICEF Immunization Joint Reporting Form (JRF) and generated their 2016 data quality desk review report for immunization. The JRF includes key immunization and surveillance indicators used to track the progress of the GVAP and RSPI indicators.

To address the remaining challenges and attain the regional immunization targets by 2020, the following actions will be undertaken:

a. Ensure that sufficient domestic funding is allocated to immunization each year and create mechanisms to monitor and efficiently manage funds at all levels.
b. Enact laws that guarantee equitable access to immunization, establish National Immunization Technical Advisory Groups (NITAGs) or equivalent groups.
c. Identify and implement priority interventions, including human resource development, and improved quality and use of data.
d. Develop new platforms to reach people during the second-year-of-life, childhood, adolescence, pregnancy, and into later adulthood.
e. Accelerate the implementation of the ADI roadmap and ensuring that immunization programmes are fully integrated into national health systems.

Objective 2: Complete interruption of poliovirus transmission and ensure virus containment

The WHO African Region has made tremendous progress towards eradication of poliomyelitis. In 2012, the African Region reported 128 wild poliovirus (WPV) cases, which were more than half of the global burden, to four cases in 2016. The interventions included improving the quality of polio supplemental immunization activities, strengthening acute flaccid paralysis (AFP) surveillance, timely response to polio outbreaks and strengthening routine immunization, including introduction of inactivated polio vaccine (IPV).

In May 2015, the 68th World Health Assembly adopted a resolution[20] to ensure interruption of WPV transmission; achieve and maintain certification standard surveillance; introduce IPV before the global withdrawal of the type -2 component of the trivalent oral polio vaccine (tOPV) in April 2016. Efforts have been made to ensure that polio assets, lessons learnt and knowledge acquired are used to support other national health priorities.

By May 2017, no WPV had been confirmed in the African Region since the last case in Nigeria with onset on 21 August 2016. More than six months have passed since the latest case of confirmed circulating vaccine derived poliovirus type 2 (cVDPV2), also in Nigeria, with onset on 28 October 2016.

By May 2017, environmental surveillance to complement AFP surveillance for polioviruses detection had been expanded to 7 additional countries[21] in the Region. Ten out of the thirteen[22] confirmed vaccine derived polioviruses (VDPVs) in the African Region in 2017 were detected from environmental surveillance sewage sites revealing the importance of this technology in augmenting polio surveillance.

There has been a successful withdrawal of the type 2 oral polio vaccine in May 2016 in all countries in the African Region. Thirty-one countries[23] have introduced IPV in their routine immunization programmes.

By April 2017, the Africa Regional Certification Commission for Polio Eradication (ARCC) had accepted polio-free status documentation of 38 out 47 countries. The ARCC has finalized a plan for certification of the remaining nine countries[24] by end of 2019.

The African Region has implemented the reduction of polio funded staff in countries as per the projected country human resource budget ceilings for 2017. In April 2017, the WHO in the African region contributed to the World Health Assembly 2017 position paper[25] on the projected impact of the polio transitional planning on other public health interventions.

The best practices of the polio eradication initiative were systematically documented and shared widely

[18] Benin, Cameroon, Central Africa Republic, Chad, Cote d'Ivoire, DRC, Ethiopia, Ghana, Liberia, Mali, Nigeria, Senegal, Sierra Leone, Tanzania, Uganda and Zimbabwe
[19] All except Mozambique
[20] World Health assembly, Document A68/21/ Add1 – 15 May 2015
[21] Ethiopia, Gabon, Equatorial Guinea, Democratic Republic of Congo, South Sudan, Uganda, Mozambique
[22] Ten VDPVs type in Nigeria isolated from environmental surveillance, two in Democratic Republic of Congo from AFP cases and one in Mozambique from an AFP case
[23] WHO/IVD database on IPV introduction, November 2016
[24] Cameroon, Central African Republic, Ethiopia, Equatorial Guinea, Gabon, Guinea Bissau, Madagascar, Nigeria and South Sudan
[25] WHO Report on Transitional Planning to Member States, Geneva, 28 April 2017

through the publication of a special edition of the journal Vaccine in October 2016[26]. Countries are already using these best practices to improve on key areas such as micro planning for routine immunization service delivery, new vaccines introduction, disease surveillance and impact assessment of vaccines.

Despite the progress made, a number of challenges still exist. These include the insecurity affecting implementation of planned polio activities, emergence of VDPV2 and global IPV shortage. The planned reduction of polio-funded personnel[27] in 2018-2019 poses programmatic risks towards achieving certification of polio eradication and support to other public health interventions.

In terms of next steps, the following actions will be undertaken:

a. Strengthen AFP and environmental surveillance for timely detection of any poliovirus transmission or importation from endemic countries and further improve the quality of outbreak response.
b. Conduct and document laboratory bio-containment and destruction of type 2 component of OPV.
c. Strengthen national polio committees for documenting and evaluating progress towards polio eradication
d. Strengthen routine immunization to increase population immunity and stop emergence of VDPVs.
e. Finalize preparation of polio transitional plans with Government leadership and ownership of the processes.
f. Mobilize adequate domestic and international resources to fully implement polio eradication activities till global certification of eradication.

Objective 3: Attain the elimination of measles & make progress in the elimination of rubella & congenital rubella syndrome

Member States in the WHO African Region have been implementing strategies for measles elimination since 2001, when the mortality reduction goals were first launched. These strategies include activities to increase routine measles vaccination coverage, provision of measles vaccine through Supplemental Immunization Activities (SIAs); monitoring measles incidence through case based surveillance and improving case management.

In 2011, the WHO African Region adopted a strategy and a resolution for the elimination of measles in the Region by 2020[28]. The targets adopted for 2020 are measles incidence of less than 1 case per million population, maintaining 95% measles immunization coverage at national level and in all districts, attaining 95% coverage in all scheduled measles SIAs, and in response to outbreaks and maintaining the targets for the two main surveillance performance indicators.

The Region passed resolution AFR/RC64/R4 endorsing the Regional Strategic Plan for Immunization 2014–2020[29]. It calls on Member States to attain the elimination of measles and make progress towards the elimination of rubella and congenital rubella syndrome by 2020. An independent mid-term review of the implementation of the measles elimination strategies was conducted in September 2016.

At the regional level, the coverage with first dose of measles containing vaccine (MCV1) increased from 72% in 2011 to 74% in 2015[30]. Seven Member States[31] had attained 95% MCV1 coverage in 2015. As of December 2016, twenty five Member States[32] had introduced the second dose of measles vaccine (MCV2) in the routine immunization schedule. In 2015, the regional coverage with MCV2 was 18%. A total of 392.8 million children were vaccinated in 43 Member States[33] through SIAs between 2012 and 2016. These SIAs provided a platform to deliver other high-impact child survival interventions, including oral polio vaccine, anti-helminthics and vitamin A supplementation.

In 2016, forty four Member States[34] were implementing case based surveillance for measles and rubella with laboratory confirmation. A total of 28,823 measles cases were confirmed from across the Region. The regional incidence of measles was 29.1 cases per million population, with 11 Member States[35] having incidence of less than 1 per million. Twenty countries[36] attained

[26] Special Issue: Polio Eradication Initiative Best Practices in the WHO African Region. Vaccine 2016 34(43), Eds J Okeibuno, BD Akanmori, R Mihigo and P Mkanda
[27] WHO Executive Board 2013, Polio Human Resources
[28] AFR/RC61/R1. Resolution. Measles elimination by 2020: a strategy for the African Region.
[29] WHO Regional Office for Africa. 2015. Regional Strategic Plan for Immunization 2014-2020. Brazzaville, Congo. (Document AFR/RC64/5)
[30] WHO-UNICEF Estimates of National Immunisation Coverage accessed last from the web on 22 January 2017. http://apps.who.int/immunization_monitoring/globalsummary/timeseries/tscoveragebcg.html
[31] Mauritius, Tanzania, Seychelles, Algeria, Botswana, Gambia, Rwanda
[32] Algeria, Angola, Botswana, Burkina Faso, Burundi, Cabo Verde, Eritrea, Ghana, Gambia, Kenya, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Sao Tome and Principe, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe,
[33] All countries in the African Region except Algeria, Equatorial Guinea, Mauritius and Seychelles.
[34] All Member States in the African Region except, Mauritius, Sao Tome and Principe, and Seychelles.
[35] Cabo Verde, Guinea Bissau, Botswana, Comoros, Madagascar, Malawi, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe
[36] Cameroon, Chad, Congo, Gabon, Ghana, Guinea, Mali, Senegal, Sierra Leone, Togo, Botswana, Kenya, Lesotho, Madagascar, Mozambique, Rwanda, South Africa, Swaziland, Uganda, Zimbabwe.

the targets for the two main surveillance performance indicators[37]: (i) the non-measles febrile rash illness rate was 2.5 per 100,000, and (ii) 82% of the districts investigated measles cases.

In summary, by the end of 2016, nineteen Member States[38] were on track, while fifteen[39] were at risk and thirteen[40] were significantly off track for measles elimination by 2020. Some of the major factors hindering the Regional progress include failure to improve routine immunisation coverage levels; llimited funding for surveillance and laboratory activities; iinsecurity in some Member States; ddelays in partner and local funding for SIAs; failure to achieve the ttargeted SIAs coverage at national level and/ or subnational levels; inaccurate population denominators.

In order to attain the Regional measles elimination goals by 2020, the independent mid-term review panel recommended renewed commitment to reinforce national ownership; mobilisation of resources from partners and national sources, engaging local partners and community organisations to increase demand for vaccination.

To address the remaining challenges, and attain measles elimination by 2020, the following actions will be undertaken:

a. Reinforce national ownership and leadership,
b. Mobilize adequate financial and technical resources,
c. Develop updated national plans for measles outbreak preparedness and response,
d. Conduct operational research to identify the specific reasons for stagnation in vaccination coverage,
e. Scale up and tailor the implementation of strategies according to the country contexts,
f. Establish regional and national committees for the verification of measles elimination.

Objective 4: Attain and maintain elimination/control of other VPDs

Group A meningococcus was one of the most common causes of meningitis in Africa, causing severe seasonal outbreaks of meningitis that killed thousands and disabled many more in sub-Saharan Africa (known as the meningitis belt). Through a unique global partnership, an affordable and effective group A meningococcal conjugate vaccine was developed specifically for use in Africa. The vaccine was licensed in 2010 and is now used in preventive campaigns in the meningitis belt. To tackle epidemic meningitis A outbreaks, intermittent mass immunization campaigns have been conducted. In 2017, an additional 7,141,530 people were vaccinated in Uganda, totalling over 49 million more people in six countries[41] vaccinated with Men A conjugate vaccine. Only one case of meningitis due to N meningitides type A was reported in 2016/2017. Eleven countries[42] reported confirmed measles incidence levels of less than 1 per million.

By January 2017, 37 countries[43] had validated maternal and neonatal tetanus elimination nationwide. WHO continues to support countries to maintain the status of elimination, and for the remaining countries to provide tetanus toxoid vaccine to all women of child bearing age, using various service delivery platforms.

Low routine immunization coverage of yellow fever vaccines contributed to the 2016 yellow fever outbreaks experienced in the African Region and poses a significant risk for future epidemics. Despite adequate supplies of yellow fever vaccine for routine immunization programmes being available, of the 34 at-risk countries,12 countries have low immunization coverage (<70%), six countries have moderate coverage (70-80%) and there is no yellow fever vaccine in routine immunization in 11 at risk countries. This situation will lead to a growing cohort of unvaccinated children. As yellow fever vaccines are offered on the same schedule as measles vaccine, it is unclear why coverage is lower than measles in some countries.

[37] The two main surveillance performance indicators are; Non-measles febrile rash illness rate (target of at least 2 per 100 000 population) and the proportion of districts that have investigated at least one suspected case of measles with blood specimen per year (target of 80% or more per year).
[38] Seychelles, Mauritius, Sao Tome and Principe, Cabo Verde, Algeria, Rwanda, Botswana, Ghana, Zimbabwe, Tanzania, Zambia, Burkina Faso, Malawi, Lesotho, Burundi, Swaziland, Eritrea, Senegal, Gambia
[39] Mozambique, Namibia, Togo, Uganda, Kenya, Benin, South Africa, Sierra Leone, Mali, Cameroon, Congo, Comoros, Niger, Cote d'Ivoire, Mauritania
[40] South Sudan, Nigeria, Democratic Republic of Congo, Angola, Ethiopia, Central African Republic, Chad, Equatorial Guinea, Gabon, Guinea, Madagascar, Liberia, Guinea Bissau
[41] Democratic Republic of the Congo, Ethiopia, Guinea, Guinea-Bissau, Uganda, and South-Sudan
[42] Cape Verde, Guinea Bissau, Botswana, Comoros, Madagascar, Malawi, South Africa, Swaziland, Tanzania, Zambia, Zimbabwe
[43] Algeria, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape verde, Comoros, Congo, Cote d'Ivoire, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea-Bissau, Lesotho, Liberia, Madagascar, Malawi, Mauritania, Mauritius, Mozambique, Namibia, Niger, Rwanda, Sao Tome & Principe, Senegal, Seychelles, Sierra Leone, South Africa, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe

Moving Forward

Tremendous progress has been made to improve immunization coverage and introduce new vaccines in the WHO African Region. While many challenges remain, including the emergence of new infections, there are reasons to be optimistic. Political will and government funding for immunization are growing. Communities and civil society are increasingly recognized for their critical role in shaping immunization systems and improving vaccine coverage by increasing demand and holding governments accountable.

In addition, new vaccines are on the horizon, including vaccines for malaria (RTS,S) and Ebola. While children are typically the focus of routine immunization systems, vaccines have the potential to benefit individuals throughout life. Introducing vaccines intended for adolescents and adults could help reduce the burden of cancer and other major causes of deaths.

The RSPI provides a strong framework for overcoming challenges toward achieving immunization in the WHO African Region. Furthermore, with the launch of the recent ADI Roadmap, it outlines how countries across Africa can move towards universal access to immunization through three areas of focus: generating and sustaining political commitment and funding; strengthening technical capacity and overcoming barriers to access; and closely monitoring progress. Momentum around increasing access to immunization is at an all-time high. Governments and communities are embracing immunization as a cornerstone of global development efforts, including the Sustainable Development Goals.

WHO Country Office Sao Tome

Annex

Countries RI performances (WUENIC)

Countries with at least 90% RI coverage					
	Country Name	**MCV1**		**Country Name**	**DPTCV3**
1	Algeria	94	1	Algeria	91
2	Botswana	97	2	Botswana	95
3	Burundi	93	3	Burkina Faso	91
4	Cabo Verde	92	4	Burundi	94
5	Comoros	99	5	Cabo Verde	96
6	Eritrea	93	6	Comoros	91
7	Gambia	97	7	Eritrea	95
8	Lesotho	90	8	Gambia	95
9	Mauritius	92	9	Ghana	93
10	Mozambique	91	10	Lesotho	93
11	Rwanda	95	11	Mauritius	96
12	Sao Tome and Principe	93	12	Namibia	92
13	Senegal	93	13	Rwanda	98
14	Seychelles	97	14	Sao Tome and Principe	96
15	Tanzania	90	15	Senegal	93
16	Zambia	93	16	Seychelles	96
17	Zimbabwe	95	17	Swaziland	90
			18	Tanzania	97
			19	Zambia	91
			20	Zimbabwe	90

Countries with <50% coverage		
	Country Name	**MCV1**
1	Angola	49
2	Central African Rep	49
3	Equatorial Guinea	30
4	South Sudan	20

	Country Name	**DPTCV3**
1	Central African Rep	47
2	Equatorial Guinea	19
3	Nigeria	49
4	South Sudan	26
5	Chad	46

Immunization financing

Indicators :	Percentage of total expenditure on routine immunization financed by government funds					Percentage of total expenditure on vaccines financed by government funds				
	2016	2015	2014	2013	2012	2016	2015	2014	2013	2012
Algeria	100	100	100	100		100	100	100	100	100
Angola				88	90	35	64	64	55	100
Benin	2	69	33	33	76	2	31	32	32	17
Botswana	98	100	97	100		100	100	100	100	
Burkina Faso		15	9	22			12	11	22	39
Burundi	6	6	8	5		5	6	7	5	7
Cabo Verde			100	100	100	100		100	100	
Cameroon	33	10	21	16	13	33	10	15	12	13
Central African Republic (the)	2	1	18	5	1	4	2	4	2	2
Chad	38	38	54	35	43	16	35	98	41	24
Comoros (the)	12	21	8		30	8	8	8	0	8
Congo (the)	38	39	40	24	28	78	55	34	15	11
Côte d'Ivoire	46	63	10	83		54	25	16	60	
Democratic Republic of tge Congo	4	3	5	7	8	6	4	4	7	11
Equatorial Guinea	64	100	100	80	100	100	100	100	100	100
Eritrea	26	21	22	30	26	13	8	6	4	3
Ethiopia	41	39	33		8	15	14	12		8
Gabon	86	0	98	95	94	100	68	100	100	100
Gambia (the)	28	33	35		31	39	41	34		16
Ghana	40	24	19	16	13	36	28	12	15	11
Guinea		31			0	16	0		41	0
Guinea-Bissau	40	6				67	6		0	
Kenya			14	15		23	10	15	15	
Lesotho	92	31	99	54		54	30	1	54	
Liberia	14		6	28		6	0	5	5	8
Madagascar	4	36		6	7	4	55	2	6	4
Malawi	5		10	53		5		7	7	
Mali	41	36	17	0	7	14	22	24	14	12
Mauritania	24	28	41	2	46	12	6	11	16	15
Mauritius	100	100			100		100	100	100	100
Mozambique		20		23	34		22		20	30
Namibia	94					100		50	100	45
Niger (the)	15	14				16	12	44		

Indicators :	Percentage of total expenditure on routine immunization financed by government funds					Percentage of total expenditure on vaccines financed by government funds				
Nigeria	29	40	24			28	50	41	55	
Rwanda	9.79	20	11	16	50	11	15	10	13	8
Sao Tome and Principe	65	75	77	89	75	10	10	8	6	8
Senegal	67	11	8	15	30	13	14	8	27	27
Seychelles	43	79	97		60	100	100	100	47	60
Sierra Leone	4	25	22	9		7	0	7	6	
South Africa	100	100	100	100	100	100	100	100	100	100
South Sudan	0	11			1	0	7	50		0
Swaziland	93	92	97	97	50	95	91	100	86	100
Togo	42	49	25	55	51	9	11	30	42	25
Uganda	16		49	24		6		15	16	
United Republic of Tanzania	24	56	21	8	22	17	11	6	7	25
Zambia	19	89	33	69		13	21	13	29	
Zimbabwe	35	41	30	36	14	72	4	6	5	
# supporting 100%	3	5	4	4	4	8	6	9	8	7
# supporting >=50<100%	8	7	7	10	8	6	6	4	5	1
# supporting <50%	30	28	27	22	19	30	31	31	30	26
# missing data	6	7	9	11	16	3	4	3	4	13
Total	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**	**47**

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WHO AMRO

II

Progress Report for the Region of the Americas

Contents

F. PLAN OF ACTION ON IMMUNIZATION: MIDTERM REVIEW

Introduction

1. During the 54th Directing Council of the Pan American Health Organization (PAHO) in September 2015, Member States approved a resolution to adopt the Plan of Action on Immunization (Document CD54/7, Rev. 2) as the guiding framework for immunization in the Americas *(1)*. The Plan aims to continue progress, as well as identify and overcome immunization challenges currently faced by countries in the Americas, and is aligned with the WHO's Global Vaccine Action Plan *(2)*. This report summarizes the Region's mid-term progress towards achievement of the objectives of the Plan in 2015 and 2016. It also highlights the challenges that will need to be overcome in the next two years in order to meet the goals set forth by the Plan. The sources consulted to compile this report include: *a)* reports by the countries' ministries of health; *b)* PAHO-WHO/UNICEF's Joint Reporting Form on immunization (JRF *(3)*; and *c)* the compilation of research and other available resources. The report will be reviewed by the PAHO Technical Advisory Group on Vaccine-preventable Diseases (TAG) and shared with Member States for their knowledge and action.

Update on the Progress Achieved

2. The Plan established the road map to achieving equitable access to immunization for all populations in the Americas. Countries are working to leverage the commitment towards achieving universal health coverage in order to obtain better immunization coverage and strengthen health systems as a vehicle to increase immunization coverage.

3. The Plan established 13 objectives (7 general and 6 specific) and 29 indicators. At the time of the preparation of this mid-term review, as shown in the table below, the situation in the Region is as follows: 16 indicators are on track; 3 are in progress; and 10 of the indicators are off track and will require a concerted effort and urgent action to achieve the stated targets.

General (GO) and Strategic Objectives (SO)	Indicator	Status
GO 1.1 Maintain the Region's status as polio-free	**GO 1.1.1** Number of countries and territories reporting cases of paralysis due to wild poliovirus or the circulation of vaccine-derived poliovirus (cVDPV) in the last year Baseline: 0 in 2013 Goal: 0 in 2020	As of 2016, 0/51 countries or territories in the Region reported cases of paralysis due to wild poliovirus or cVDPV.
GO 1.2 Maintain elimination of measles, rubella, and CRS	**GO 1.2.1** Number of countries and territories in which endemic transmission of measles or rubella virus has been reestablished Baseline: 0 in 2013; 1 in 2015 Goal: 0 in 2020	As of 2016, 0/51 countries or territories in the Region reported endemic cases of the measles or rubella virus.
GO 1.3 Maintain achievements reached in vaccine-preventable disease control	**GO 1.3.1** Number of countries and territories that meet the indicators for monitoring the quality of epidemiological surveillance of acute flaccid paralysis (AFP) cases Baseline: 2 in 2013 Goal: 13 in 2020	As of 2016, two countries in the Region have improved the epidemiological surveillance of polio. This indicator is off track. Countries should focus efforts on strengthening the capacity to detect suspected cases (i.e., suspected case rates).
	GO 1.3.2 Number of countries and territories that meet the indicators for monitoring the quality of epidemiological surveillance of suspect measles, rubella and congenital rubella syndrome cases Baseline: 9 in 2013 Goal: 18 in 2020	As of 2016, there are 17 countries that have met the epidemiological surveillance indicators.
	GO 1.3.3 Number of countries and territories that administer hepatitis B vaccine to newborns during the first 24 hours Baseline: 18 in 2013 Goal: 25 in 2020	As of 2016, 22 countries and territories have adopted the universal birth dose vaccination policy and 14 countries and territories only vaccinate newborns born to hepatitis B-positive mothers as part of their efforts to control hepatitis B virus perinatal transmission.

General (GO) and Strategic Objectives (SO)	Indicator	Status
SO 1.1 All countries make a commitment to vaccination as a priority for health and development	**SO 1.1.1** Number of countries and territories that have a legislative or regulatory basis for their immunization programme Baseline: 28 in 2013, 26 approved legislation and 2 pending approval Goal: 32 in 2020	As of 2016, no additional countries have approved legislations for their immunization programmes. This indicator is off track.
	SO 1.1.2 Number of countries and territories having an immunization technical advisory committee that meets WHO's criteria for good operation Baseline: 15 in 2013 Goal: 18 in 2020	As of 2016, there is no additional country in the Region that reports having the support of a well-functioning National Immunization Technical Advisory Group (NITAG). Of importance, Haiti was the most recent country to establish a NITAG in March 2017. This indicator is off track.
	SO 1.1.3 Number of countries and territories that have a current annual immunization plan of action that includes operational and financial plans Baseline: 25 in 2013 Goal: 35 in 2020	As of 2016, 41 countries have an up-to-date annual immunization plan.
SO 1.2 Individuals and communities understand the value of the vaccines	**SO 1.2.1** Number of countries and territories that report having monitored public satisfaction with vaccination during Vaccination Week in the Americas or other activities Baseline: 0 in 2013 Goal: 15 in 2020	As of 2016, six countries and territories have reported using Vaccination Week as a platform to monitor public awareness, acceptance, and satisfaction with vaccination during Vaccination Week in the Americas in 2016.

General (GO) and Strategic Objectives (SO)	Indicator	Status
GO 2.1 Eliminate neonatal tetanus as a public health problem in all countries	**GO 2.1.1** Number of countries and territories with municipalities reporting rates of neonatal tetanus (NTT) above 1/1,000 live births Baseline: 1 in 2013 Goal: 0 in 2020	In 2017, Haiti will evaluate the plan of action implemented in 2015 for NTT elimination.
GO 2.2 Meet DPT vaccination coverage targets at all levels	**GO 2.2.1** Number of countries and territories reporting national average coverage of at least 95% with three doses of DPT vaccine in children under 1 year Baseline: 19 in 2013 Goal: 35 in 2020	As of 2015, 20 countries have reached 95% coverage with DPT3. This indicator is off track in the Region.
	GO 2.2.2 Number of countries and territories reporting coverage of at least 80% in each district or equivalent with three doses of DPT vaccine in children under 1 year Baseline: 12 in 2013 Goal: 35 in 2020	As of 2015, 13 countries report DPT3 coverage of at least 80% in each district. This indicator is off track. Countries and the Pan American Sanitary Bureau have been working on focusing efforts in those geographic areas with low immunization rates.

General (GO) and Strategic Objectives (SO)	Indicator	Status
SO 2.1 Immunization benefits extend equitably to all people and social groups	**SO 2.1.1** Number of countries and territories reporting coverage by income quintile or other subgroups that make it possible to monitor vaccination equity Baseline: 0 in 2013 Goal: 15 in 2020	As of 2016, there is no country in the Region reporting coverage by income. Although this indicator is off track, there have been two workshops to train 21 countries in the methodology to measure inequities.

General (GO) and Strategic Objectives (SO)	Indicator	Status
GO 3.1 Introduce vaccines in accordance with technical and programmatic criteria	**GO 3.1.1** Number of countries and territories that have introduced one or more new vaccines into their national vaccination schedules Baseline: 32 in 2013 Goal: 40 in 2020	As of 2016, 33 countries and territories have introduced new vaccines in their national schedules.
SO 3.1 Decision-making is evidence-based and impact assessments ensure that policies are adopted to maximize the benefits of vaccination	**SO 3.1.1** Number of countries and territories that have conducted studies prior to the introduction of a vaccine (e.g., cost-effectiveness analysis) Baseline: 14 in 2013 Goal: 20 in 2020	As of 2016, 16 countries have conducted studies prior to the introduction of new vaccines.
	SO 3.1.2 Number of countries and territories that have conducted studies after the introduction of a vaccine (e.g., impact assessments, operational review, etc.) Baseline: 9 in 2013 Goal: 15 in 2020	As of 2016, 12 countries have conducted studies after the introduction of new vaccines.

General (GO) and Strategic Objectives (SO)	Indicator	Status
GO 4.1 Achieve the expected results proposed by the Post-2015 Development Agenda for reductions in infant mortality and maternal mortality	**GO 4.1.1** Number of countries and territories whose immunization schedules include vaccination of pregnant women against influenza and/or with tetanus-diphtheria vaccine, as tracers of maternal vaccination Baseline: 27 in 2013 Goal: 35 in 2020	As of 2016, influenza vaccination is indicated for pregnant women in 31 countries in Latin America and the Caribbean (LAC). The pertussis-containing vaccine is indicated for pregnant women in 18 countries (all of them included in the 31 countries that have influenza vaccination).
	GO 4.1.2 Number of countries and territories that offer other preventive interventions integrated with vaccination Baseline: 4 in 2013 Goal: 20 in 2020	As of 2016, six countries offer preventive interventions integrated with vaccination (i.e., deworming).

General (GO) and Strategic Objectives (SO)	Indicator	Status
SO 4.1 Supplies are available for the immunization programme on a sustainable basis with national resources	**SO 4.1.1** Number of countries and territories that finance more than 90% of their immunization programmes with national resources Baseline: 27 in 2013 Goal: 35 in 2020	As of 2015, 34 countries in the Americas are able to fund their own programmes with domestic resources.
	SO 4.1.2 Percentage of birth cohort in Latin America and the Caribbean that has access to an adequate vaccine supply of quality vaccines Baseline: 100 in 2013 Goal: 100 in 2020	As of 2016, 100% of the cohort has access to an adequate vaccine supply of quality vaccines.
	SO 4.1.3 Number of countries and territories that procure vaccines through the Revolving Fund that meet the criteria for accuracy of demand for vaccines and supply Baseline: 10 in 2013 Goal: 30 in 2020	As of 2016, only four countries and territories procured vaccines through the RF and met the criteria for accuracy of demand for vaccines and supply. This indicator is off track. Increased national financial burden, the introduction of IPV and switch of polio trivalent to bivalent are some of the reasons why countries had to update planned quantities. PAHO's technical assistance included updating authorities on vaccine markets, resolving supply issues and facilitating actions to improve demand planning and financial performance.

General (GO) and Strategic Objectives (SO)	Indicator	Status
SO 4.2 Strengthened immunization services are part of comprehensive, well-run health services	**SO 4.2.1** Number of countries and territories that have dropout rates below 5% between the first and the third dose of DPT vaccine Baseline: 11 in 2013 Goal: 35 in 2020	As of 2015, 26 countries have the DPT1-3 dropout rate under 5%. The performance of this indicator shows that countries should work harder to improve the quality of immunization services being provided and can spark measures to correct the problems and improve DPT3 coverage within the current infrastructure.
	SO 4.2.2 Number of countries and territories with coverage above 95% for third dose of DPT vaccine sustained for three or more consecutive years Baseline: 13 in 2013 Goal: 35 in 2020	As of 2015, ten countries and territories have maintained DPT3 coverage above 95% for three or more consecutive years. This indicator is off track. There is a need to continue strengthening national health systems as countries add vaccines to their national programmes, so that coverage with all vaccines reaches and is sustained at the target of 95% or more.
	SO 4.2.3 Number of countries and territories that have conducted exercises to identify and correct barriers to reaching the unvaccinated or under-vaccinated populations Baseline: 22 in 2013 Goal: 35 in 2020	As of 2016, 23 countries and territories have implemented vaccination activities targeting distant populations in an effort to reduce the number of susceptible. This indicator is off track. The Region continues to prioritize the implementation of strategies to reach under/unvaccinated populations, including close collaboration with countries to define needs and follow-up actions.
	SO 4.2.4 Number of countries and territories that have held activities to improve the quality of their coverage data and that include these activities in their annual action plans Baseline: 12 in 2013 Goal: 25 in 2020	As of 2016, 14 countries and territories have held activities to improve the quality of their immunization data.

General (GO) and Strategic Objectives (SO)	Indicator	Status
	SO 4.2.5 Number of countries and territories that have a national system for computerized nominal immunization registry Baseline: 3 in 2013 Goal: 10 in 2020	As of 2016, five countries currently use EIR systems at the national level
	SO 4.2.6 Number of countries and territories that report having had a stock-out of a vaccine or related supplies for one full month or more at any level (local, subnational, or national) Baseline: 11 in 2013 Goal: 0 in 2020	As of 2015, 21 countries have reported stock-out, mainly for shortage of vaccine at global level. This indicator is off track. Countries should review the vaccine supply chain system to optimize the steps in the process and accommodate the strategies to maximize effectiveness and efficiency.

General (GO) and Strategic Objectives (SO)	Indicator	Status
	SO 4.2.7 Number of countries and territories that have strengthened post-marketing surveillance of vaccines in the Expanded Programme on Immunization (EPI) Baseline: 4 in 2013 Goal: 10 in 2020	As of 2016, 28 countries and territories have strengthened post-marketing surveillance of vaccines in the Expanded Programme on Immunization.
	SO 4.2.8 Number of countries and territories that hold vaccination activities geared to health workers Baseline: 19 in 2013 Goal: 25 in 2020	As of 2016, 25 countries in the Region have been working to improve the knowledge and skill of their health workers.

Challenges and actions needed to improve immunization in the Region

4. Immunization is among the most cost-effective health interventions implemented historically *(4)*. In order to reach its full potential, as well as make greater progress with the objectives of the Plan, countries should reinforce the following areas of work taking their own reality into consideration:
   a. *Enhance legal frameworks.* Countries should establish or reinforce vaccine legislation in order to protect the financial sustainability of the programme
   b. *Ensure that the benefits of immunization are equally shared by all.* With the objective of increased coverage at all levels, immunization programmes should work with health systems in order to extend the services to people currently not covered and take advantage of the integrated approaches with other interventions at the primary care level *(5-6)*.
   c. *Maintain and strengthen national commitment to immunization programmes.* Although countries have invested in purchasing new and more expensive vaccines, financial resources are needed to support and improve programmatic activities such as supervision, training, and technical assistance *(7)*. One challenge is the economic situation faced by many middle income countries in the Region with competing health priorities. The investment should be linked to a measurable evaluation framework.
   d. *Increase disease surveillance.* Suspected case-based surveillance of polio, measles and rubella is the most powerful tool to maintain gains and avoid re-establishment of the circulation of these viruses in the Region *(8-9)*. Countries should enhance the performance of integrated epidemiological and laboratory surveillance of vaccine-preventable diseases (VPDs), take advantage of this network, and include other VPDs, as well as boost sentinel surveillance.
   e. *Invigorate information system.* Countries should work to ensure high quality collection, management, analysis and use of data at all levels to make the most informed decisions *(10)*. These activities should focus on training, assessing the data quality of their systems, and exploring the use of new technologies, among others.
   f. *Enhance communication and social mobilization.* Efforts to increase confidence in and uptake of vaccines based on evidence should be made by countries through engaging communities and utilizing new mobile and internet-based technologies.

Action by the Pan American Sanitary Conference

5. The Conference is invited to take note of this report and formulate the recommendations it deems pertinent.

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WHO

III

Progress Report for the Eastern Mediterranean Region

Contents

[1] As of 26 July 2017

1. Introduction

In May 2012, the Sixty-fifth World Health Assembly endorsed the Global Vaccine Action Plan (GVAP) in resolution WHA65.17 as the operational framework for implementation of the vision of the Decade of Vaccines 2011–2020.

The vaccine action plan of the Eastern Mediterranean Region (The Eastern Mediterranean Vaccine Action Plan, "EMVAP") 2016–2020, has been developed and endorsed by the Regional Committee of the Eastern Mediterranean, (Resolution EM/RC62/R.1, October 2015) as a framework for implementation of GVAP in Member States of the Eastern Mediterranean Region (EMR), in order to guide prevention and control of vaccine-preventable diseases, from 2016 to 2020 and beyond, by defining the strategic objectives and priority actions for the immunization programmes, with taking into account the specific needs of and the challenges facing Member States in the Eastern Mediterranean Region (EMRO).

As per Resolution EM/RC62/R.1, a report on the progress made and remaining challenges is to be submitted to the regional Committee (RC) every 2 years starting with 2017. This report is the first in this regards.

UNICEF Morooka

2. Goals of the EMVAP

Goal 1: Meet regional routine vaccination coverage targets at all administrative levels:

- By 2020, achieving at least 90% coverage with the third dose of DTP-containing vaccine (DTP3) and the last dose of all other vaccines provided through the national Expanded Programme on Immunization (EPI) among children less than one year of age at national level and at least 80% coverage of these vaccines in every district among the same age group.

Goal 2: Disease elimination and control, including:

- **Measles elimination:** interruption of endemic measles virus transmission soonest possible and latest by 2020.
- **Elimination of Maternal and Neonatal Tetanus:** achieving and sustaining incidence of neonatal tetanus of less than 1/1000 live births in every district in all countries of the region, soonest possible and latest by 2020.
- **Hepatitis B reduction:** reducing prevalence of chronic hepatitis B virus infection to less than 1% among children less than 5 years of age (EM/RC56/R.5) and verifying achieving the target latest by 2020.

Goal 3: Introducing new vaccines of regional and national priority:

- Introducing new vaccines (Rubella, Pneumococcal conjugate and Rotavirus vaccines) soonest possible in all countries with demonstrated disease burden.

Goal 4: polio eradication:

- Achieving and maintaining polio free status (this goal is dealt with by a separate programme in EMRO).

WHO E. Soteras Jalil 2

3. Current situation in the Eastern Mediterranean region

Goal 1: Routine immunization coverage

In EMR, DTP3 coverage reached 86% in 2010. With the political turmoil in several countries in the region since early 2011, the regional DTP3 coverage dropped to 80% in 2016.(Figure 1). However, in view of the significant challenges facing the immunization programmes due to the internal conflicts and even active war in several countries, this drop could be considered an acceptable drop rather than a failure.

In 2016, 64% (14/22) of the EMR countries met the GVAP/EMVAP target for national DTP3 coverage of 90% or more at national level (Figure 2).

3.7 million infants have missed receiving DTP3 vaccine in the EMR in 2016. More than 93% of these infants are in the conflict affected countries of the region.

Despite the great challenges faced, several countries in the region, including some of those suffering from internal challenging situation, succeeded in maintaining the strong immunization programme and further improving it. Among these, the high commitment of the government of Egypt in allocating more resources in order to maintain all activities and functions of EPI is an example. Egypt has also allocated resources to introduce pentavalent vaccine and conduct national MR campaign in 2015 targeting 23 million children, despite the economic constraints in the country. Similar commitment showed in Tunisia, with allocation of resources for maintain the strength of EPI and introduction of IPV vaccine amidst the internal challenges. The countries surrounding Syria, specially Jordan and Iraq, showed great response in provision of routine immunization to the Syrian refugees while addressing the countries' own EPI programme needs.

The high population demands in the countries facing internal difficulties, such as Egypt, Tunisia and Libya, was instrumental in maintaining the high coverage of routine immunization despite the challenges.

Goal 2: Disease elimination and control

a. Measles elimination

Countries of the Eastern Mediterranean Region adopted measles elimination as a goal to be reached by 2020.

Countries of the EMR have been implementing the regional strategy for measles elimination with variable levels of success. Based on WUENIC 2016, out of the 22 EMR countries, estimated MCV1 coverage was ≥95% in 12 (55%), 90%–94% in 1 (4.6%) and <90% (range 46%–85%) in 9 (41%) countries. Of the 9 countries with ≥95% MCV1 coverage, 5 (23% of all countries) reported >95% coverage in all districts. In the same year, among the 21 countries with a routine second dose of measles vaccine, MCV2 coverage was >95% in 12 (55%), 90%–94% in 1 (4.6%), and <90% (range 39-82%) in 8 (36%) (Coverage score card, annex 1).

During the period 2002–2016, >478 million people were reached through national or subnational SIAs. Measles case-based surveillance has been implemented in 20/22 EMR countries (all except Djibouti and Somalia), with the support of a well-established global and regional laboratory network and national measles/rubella labs in all countries. Measles surveillance performance indicators showed that the majority of countries met surveillance standards.

During the period 1998–2010, reported measles cases decreased by 77%, that's from 89,478 cases in 1998 to 10,072 in 2010. However, during 2011–2016, with the political turmoil and deteriorated security situation in several countries, and the significant decrease in donor funding of measles SIAs to MICs, the regional progress slowed down and the number of reported measles cases reach 6264 cases in 2016 (source : WHO-UNICEF JRF 2016).

The inadequate visibility of the measles elimination target, the inadequate managerial capacity, crisis and the competing public health priorities in most of the countries are major challenges.

Maternal and neonatal tetanus elimination

Six out of the 22 EMR countries (Afghanistan, Djibouti, Pakistan, Somalia, Sudan and Yemen), representing more than a forth (6/23) of the countries that haven't achieved this goal worldwide, are yet to eliminate MNT. However Punjab province of Pakistan (population around 100 million) was validated as having achieved MNT elimination in November 2016. The financial constraints and inability to allocate/mobilize required resources for implementation of the required SIAs in the high risk districts, is the main factor behind the failure in achieving this long delayed goal.

b. Hepatitis B

In October 2009, Regional Committee (RC) of the Eastern Mediterranean passed a resolution adopting a regional Hepatitis B control goal to "reduce prevalence of chronic Hepatitis B virus infection to <1% among children aged <5 years by 2015" (EMRC56R.5).

EMRO has developed a regional strategy for achieving Hepatitis B control target. EMRO has been helping EMR countries in developing and implementation of national strategies to achieve the regional hepatitis B control goal.

The number of countries that are implementing Hepatitis B birth dose has increased from 13 in 2009 to 18 countries in 2016, including 3 countries (Afghanistan, Egypt and Pakistan) that have partially introduced the birth dose. The main challenge behind the delayed introduction of the birth dose lies with the financial implication for the GAVI-supported countries since the HepB vaccine birth dose is not supported by GAVI. Available information, through serosurvey and monitoring the programme performance, indicates that this target might have already been achieved in many countries. EMRO has developed regional guidelines to verify achieving this goal. Verification of reaching this goal, through implementing hepatitis B serosurveys, is still to be done in most of the countries.

Goal 3: Introducing new vaccines of regional and national priority

Introduction of the new life-saving vaccines witnessed remarkable progress in the EMR during the past few years. During the period 2011-2016, 33 new vaccines introductions in total have occurred in the EMR. So far, Haemophilus Influenzae type B (Hib) vaccine has been introduced in the national immunization programme in all EMR countries. Pneumococcal conjugate vaccine (PCV) has been introduced in 14 countries and rotavirus vaccine in 11 countries. IPV has been introduced in 21 countries and introduction in Egypt has been delayed because of the global shortage of IPV. Sudan after completing the national campaign with meningococcal A conjugate vaccine (Men-Afri-Vac) has introduced this vaccine in routine immunization programme in July 2016. Sudan has also implemented 2 phases of the national yellow fever vaccination campaign, while completing the remaining phase is constrained by the global yellow fever vaccine shortage.

The support of GAVI, the Vaccine Alliance, to the eligible countries and the Governments' commitments to fulfilling the co-financing components, has been pivotal in facilitating introduction of new vaccines in those countries. The exceptional commitment of the Governments of the middle income countries to fully finance the introduced new vaccines is commendable.

Nevertheless, middle income countries (MICs) specially the low middle income countries (LMICs) continue to face difficulty in introducing the new vaccines due to the combined effect of the high cost of the vaccine and the inadequate allocation of the necessary domestic resources.

4. Sustaining the immunization programme under the humanitarian emergency situation in the EMR: challenges and success

Many of the EMR countries are currently suffering, either directly or indirectly from acute or protracted humanitarian emergency situation including the massive refugee influx which has resulted in overstretching of the health systems of neighboring countries.

Despite this sad situation, remarkable efforts continued to be devoted to maintaining the immunization programmes in the conflict affected countries and reaching every child with the life-saving vaccines, even under the active war and the life-threatening situations. While concerted partners support has been a key factor for availing the required resources in some countries, governments' commitment and allocation of national resources was exceptional in several countries. The devotion of the health workers at the grass root level and their relentless efforts to reach the children in the hard to reach areas with the life-saving vaccines, and the demand of the communities for vaccines and seeking vaccination services where available remain major success elements. Sustaining the immunization programmes under humanitarian emergency situation in case of Yemen is commendable.

In Syria despite the challenges faced in 2016, 1,641,804 children were reached at least once with immunizations which is a big achievement. Many children were reached for the first time despite of multiple polio rounds in the past. This will be helpful in attaining polio free status and reduction in incidence of measles. Similarly EPI services have been provided in other crisis affected countries/regions.

5. Challenges facing achieving the immunization goals in the EMR

- Security and humanitarian emergency situation in many EMR countries creates difficulties achieving the immunization targets.
- Inadequate managerial capacity, rapid turn-over of national staff that's further constrained by the multiple competing priorities and the needs for facing the humanitarian emergency situation in many countries.
- Inadequate attention to or visibility of the immunization goals and lower priority given by the respective authorities to routine immunization in view of the more pressing needs in some countries.
- Uncertainty about the target population in several countries due to inadequate civil registration systems, poor/old census data and continuous internal and/or external population movement;
- Inadequate financial resources both domestic and partners often lead to below optimum implementation of immunization programmes in may low resource countries and the ones in crisis.
- Global Vaccine shortage that resulted in delayed introduction of some vaccines (e.g. IPV) and delayed implementation of SIAs (e, g, MMR and Yellow fever).

6. Towards achieving the immunization goals in the EMR

Immunization is undeniably one of the most successful and cost-effective public health interventions available. Tremendous progress has been made to improve immunization coverage and introduce new vaccines in countries of the EMR. While many challenges remain, including the acute humanitarian emergency situation

in several countries, there are reasons to be optimistic. Political will and government funding for immunization is growing.

The EMVAP/GVAP provides a strong framework for overcoming challenges toward achieving immunization goals in the EMR. Comprehensive multi-year plans, in line with the EMVAP, are being developed/updated in the countries. While WHO and other development partners should continue to fulfil their commitments to providing the required support, governments, communities and individuals must work collectively to put these plans into action.

Annex 1: score card of vaccination in countries of the EMR, WUENIC 2016

Country	DTP1		MCV1			Drop-out	
	DTP1	DTP3	MCV1	MCV2	MCV1 95% in all districts	Drop out DTP1-DTP3	Drop out MCV1-MCV2
Afghanistan	73	65	62	39	No	8	23
Bahrain	99	99	99	99	Yes	0	0
Djibouti	90	84	75	82	No	6	-7
Egypt	96	95	95	96	No	1	-1
Iran	99	99	99	98	Yes	0	1
Iraq	73	63	66	64	No	10	2
Jordan	99	98	96	99	No	1	3
Kuwait	99	99	93	96	No	0	-3
Lebanon	84	81	79	75	No	3	4
Libya	98	97	97	96	No	1	1
Morocco	99	99	99	99	No	0	0
Oman	99	99	99	99	Yes	0	0
Pakistan	79	72	61	53	No	7	8
OPT	99	99	99	99	Yes	0	0
Qatar	99	98	99	92	No	1	7
Saudi Arabia	98	98	98	96	Yes	0	2
Somalia	52	42	46	NA	No	10	NA
Sudan	97	93	86	69	No	4	17
Syria	61	42	62	52	No	19	10
Tunisia	99	98	96	97	No	1	-1
UA Emirates	99	99	99	99	No	0	0
Yemen	76	71	70	49	No	5	21

DTP
≥90%
70% to <90%
< 70%

MCV
≥90%
70% to <90%
< 70%

Drop out
< 5%
5% to <10%
≥10% or negative DO

Figure 1: DPT3 coverage 1980-2016[2]

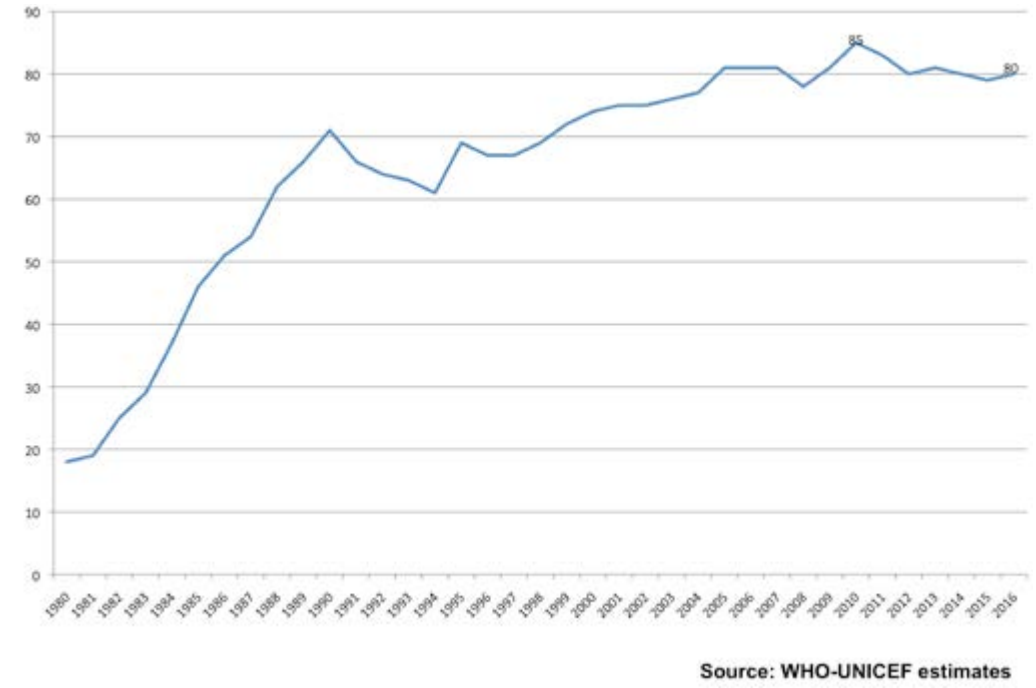
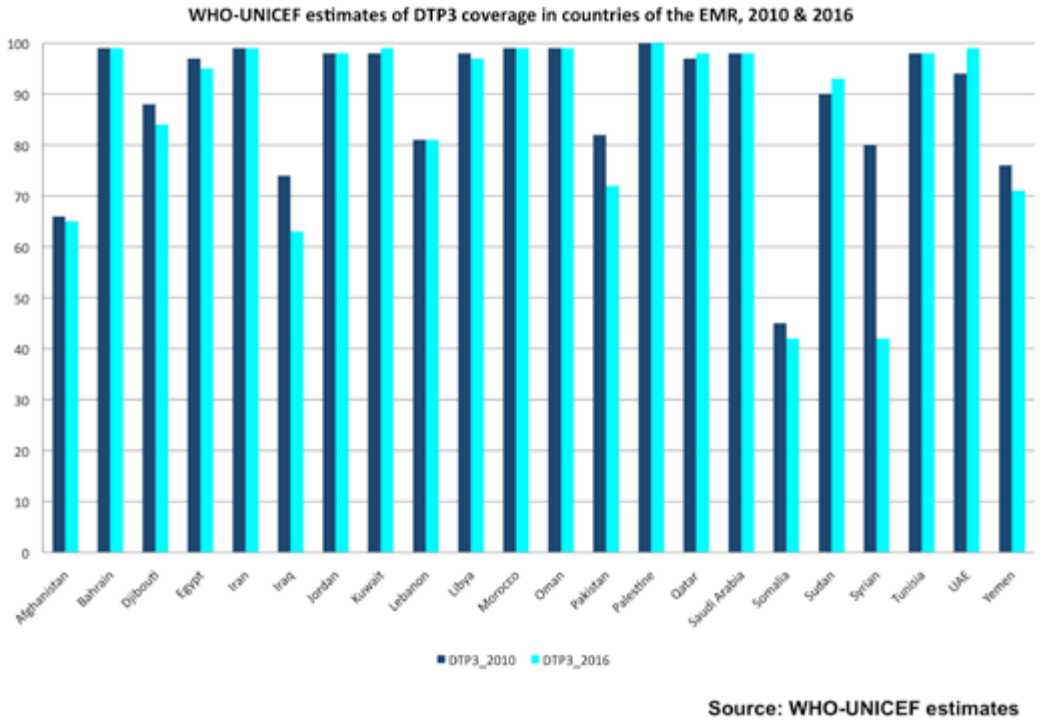
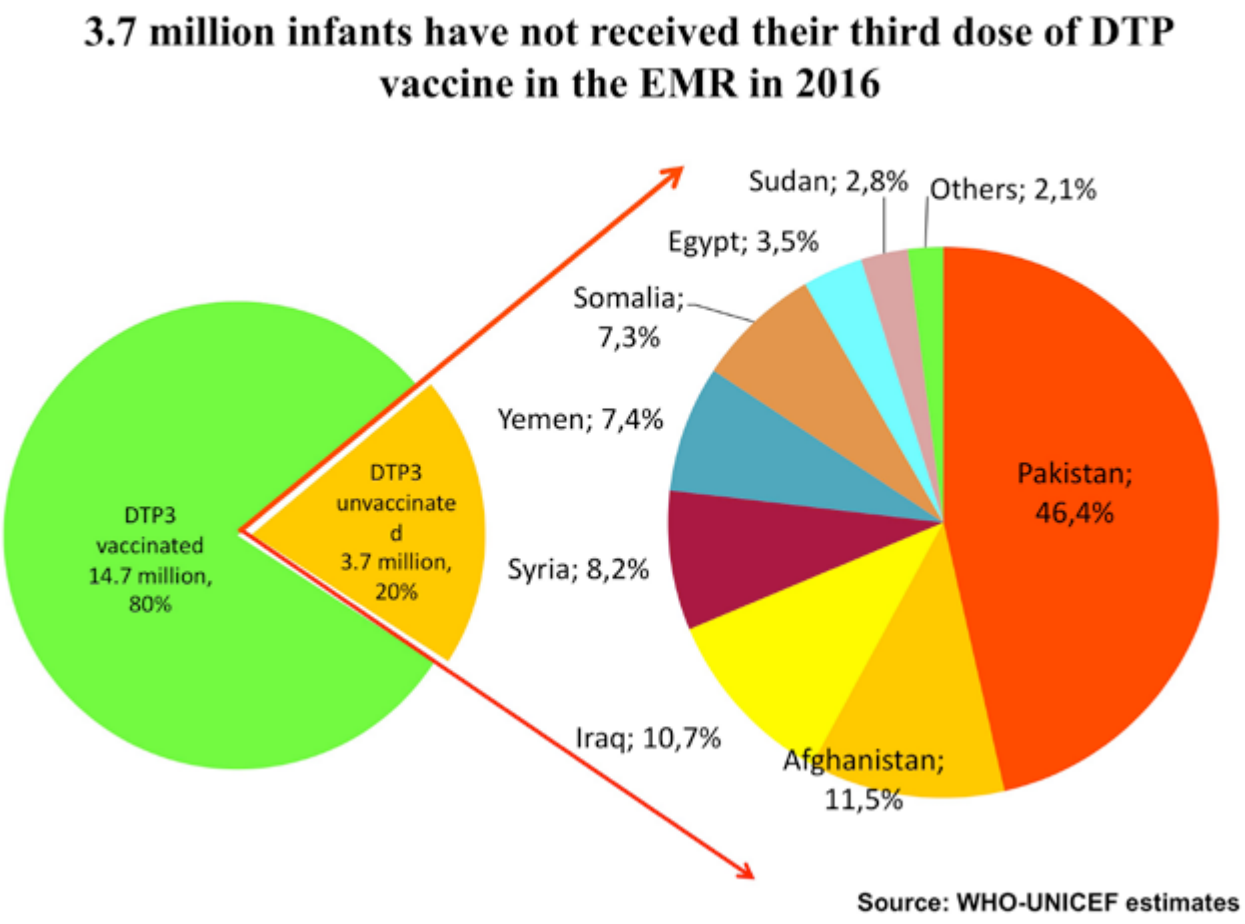


Figure 2: EMR Country specific DPT3 coverage in 2010 & 2016[3]



[2] WHO/UNICEF Estimates
[3] WHO/UNICEF Estimates

Figure 3: Unimmunized children in EMR 2016[4]



[4] WHO/UNICEF Estimates

WHO - J. Jumelet

IV

Progress Report for the European Region

Contents

Foreword by the WHO Regional Director

2016 was a pivotal year in shaping the global health agenda for the coming decade and beyond. As reflected in the 2030 Agenda for Sustainable Development, much has changed in how we view, measure and promote health both as a product and driver of human development. Throughout the global agenda-setting process, recognition of immunization's important role in helping to achieve the Sustainable Development Goals (SDGs) did not waver. Leaving no one behind includes reaching every child or adult with the vaccinations they deserve.

The European Vaccine Action Plan 2015-2020 (EVAP) adopted in 2014 by all Member States of the European Region embodies the principles of equity and empowerment underlying the SDGs. As such it has already laid important groundwork for achieving the SDGs in the European Region.

In reporting on the Region's progress toward the EVAP goals and objectives, I am impressed by the Member States' achievements, and immensely proud of the support provided to them by WHO. While on track for most of our goals, there is still important work to be done by each and every one of us to ensure the Region fulfills its potential and promise. Keeping the people of this Region safe from vaccine-preventable diseases is a shared vision and a stepping stone toward a more sustainable and resilient future.

WHOM. Bring

Executive summary

The European Vaccine Action Plan 2015–2020 (EVAP) was endorsed at the 64th session of Regional Committee for Europe, September 2014, to complement, regionally interpret and adapt the Global Vaccine Action Plan (GVAP) in harmony with Health 2020: the European Health Policy for Health and Wellbeing. By placing health at all ages and reduced inequality at the center of immunization efforts, EVAP set the Region on a course that is fully aligned with the newly established Sustainable Development Goals 3 and 10. This report presents progress made towards the attainment of the vision, goals and strategic objectives of EVAP by the close of 2016.

The WHO European Region remains polio free. In 2016, the European Regional Certification Commission for the Eradication of poliomyelitis (RCC) identified three Member States at high-risk of establishing poliovirus transmission in the event of reintroduction of poliovirus – Bosnia and Herzegovina, Romania and Ukraine. All 20 Member States in the Region that used oral polio vaccine (OPV) successfully switched from trivalent OPV to bivalent OPV or to an inactivated polio vaccine (IPV) only schedule in April 2016, and the Region made substantial progress in implementing the WHO Global Action Plan to minimize poliovirus facility-associated risk (GAPIII).

Member States have made steady progress in measles and rubella elimination, with fewer cases of both disease recorded in 2016 than in any previous year. 51 of the 53 Member States in the Region have established a National Verification Commission for measles and rubella elimination (NVC) and the Regional Verification Commission (RVC) has verified that 42 Member States interrupted endemic transmission of one or both diseases by the end of 2016, compared to 32 in 2014. The number of Member States with endemic measles has dropped from 18 in 2014 to 9 in 2016.

The 'Action plan for the health sector response to viral hepatitis in the WHO European Region' was endorsed by the Regional Committee for Europe at its annual meeting in September 2016. This Plan defines hepatitis B immunization targets and priority activities. The process of validation of hepatitis B control in the Region was also initiated, including establishment of a working group within the independent European Technical Advisory Group of Experts (ETAGE) to review HBsAg seroprevalence and vaccine coverage data in the Region.

Progress towards regional vaccination coverage targets has stalled. Coverage with the third dose of diphtheria-tetanus-pertussis vaccine (DTP3) at national and sub-national levels showed no improvement in 2016 compared with 2014 and 2015, with regional coverage actually declining by 1 percentage point over the two-year period. The number of Member States with >95% national DTP3 coverage decreased from 36 in 2014 and 2015 to 31 in 2016, while the milestone for 2018 is 42 and the target for 2020 is 48. The reported coverage figures at the subnational level show that only 24 Member States have ≥90% DPT3 coverage in more than 90% of their districts in 2016. The 2020 target for this indicator is all 53 Member States.

Member States have made significant progress in assuring that evidence-based decisions are made with regard to new vaccine introduction. By 2016, national (independent) immunization technical advisory groups (NITAGs) had been established in 45 Member States. An increasing number of Member States are applying social science research to identify underserved population groups and their barriers to vaccination.

More and more Member States are taking advantage of the significant health gains offered by new and under-utilized vaccines. By the close of 2016, 40 Member States had introduced pneumococcal vaccine, 32 implemented human papillomavirus (HPV) vaccination, and 18 started universal immunization with rotavirus vaccine, helping to tackle diseases that threaten life at all ages, from pneumonia in infancy to cancer in adulthood.

By 2016, 47 Member States had achieved financial sustainability in procuring vaccines. As reflected in the target for EVAP goal 6, five additional Member States are expected to be financially self-sufficient for procuring routine vaccines by the end of 2020 (Tajikistan and Kyrgyzstan will remain donor dependent).

Nevertheless, financial commitment to immunization is suboptimal in Europe. Member States challenged by competing priorities at home and inaccessibly priced vaccines on the global market experienced several vaccine shortages in 2015–2016, sometimes causing critical disruptions of services. Furthermore, to varying degrees, Member States face difficulties in sustaining programme performance, in part due to poorly understood access and hesitancy issues. These issues are particularly acute in middle-income countries, many of which self-procure vaccines and continue to face significant challenges in achieving financial sustainability of their immunization programmes. Evidence indicates that these Member States pay more for vaccines, have more unstable vaccine supply and

require support in securing and ring-fencing domestic funds for vaccines. All of these factors contribute to the particularly concerning declining trend in coverage with all antigens in the southeastern European middle-income countries.

In 2016, support from the WHO Regional Office for Europe (Regional Office) to national immunization programmes included price transparency projects, vaccine safety management and communications capacity building, resource mobilization tool development, dissemination and training to secure domestic financing of immunization programmes and capacity building on specific elements of vaccine demand, such as awareness raising and measurement of vaccine hesitancy. Furthermore, recognizing the need at country level to prepare for and mitigate potential crises in confidence, the Regional Office developed a comprehensive vaccination and trust library and training package. The Regional Office also continues to support Member States in strengthening capacity on vaccine procurement, vaccine cold chain and immunization logistics, injection safety and waste management, causality assessment methodology, cold chain upgrades and evaluations, laboratory accreditation and training on contraindications as part of the holistic improvement of immunization service delivery.

European Immunization Week in 2016 was actively utilized by national health authorities and civil society throughout the Region. The event's visibility and reach on social media eclipsed all previous years, demonstrating the commitment of Member States to use this event in ever-evolving ways to advocate the importance of immunization among various stakeholders, including parents of unimmunized children.

WHOM. Bring

Introduction

Member States of the European Region consider immunization as a critical tool to reduce health inequality and significantly improve the well-being of populations. These guiding principles are reflected in the European Vaccine Action Plan 2015–2020 (EVAP), the European health policy Health 2020 and the global Sustainable Development Goals. In adopting EVAP in 2014, the 53 Member States of the European Region made an unprecedented commitment to these principles by pledging to ensure the sustainable and predictable investment in immunization and political commitment needed to achieve six goals:

- sustain the European Region's polio-free status;
- eliminate measles and rubella;
- control hepatitis B infection;
- meet regional vaccination coverage targets at all administrative levels throughout the Region;
- make evidence-based decisions about introduction of new vaccines;
- achieve financial sustainability of national immunization programmes.

EVAP proposes innovative strategies to meet these goals, by defining five strategic objectives, priority action areas and a framework to evaluate and monitor progress towards them.

Guided by this comprehensive Plan, Member States are working toward the vision of "a Region free of vaccine-preventable diseases, where all countries provide equitable access to high-quality, safe, affordable vaccines and immunization services throughout the life course."

This report presents activities and progress made towards attainment of the vision, goals and strategic objectives of EVAP in 2016.

Progress towards EVAP goals

EVAP goal 1: Sustain polio-free status

2018 target: No wild poliovirus transmission re-established in the Region (to be confirmed by the Regional Certification Commission at its meeting in 2019)

Progress: On track

In June 2002, the European Regional Certification Commission for Poliomyelitis Eradication (RCC) declared the WHO European Region polio free, with the last case of poliomyelitis having been reported in Turkey in 1998. In June 2017, the European Regional Certification Commission convened its 31st meeting to review the annual status updates of the 53 Member States and concluded that, based on the available evidence, no wild poliovirus was circulating in the WHO European Region in 2016.

Despite this success and the tremendous progress made towards global polio eradication in recent years, the European Region continues to be at risk for the introduction of wild polioviruses and the emergence of vaccine-derived polioviruses.

In 2015–2016, the Region's polio-free status was threatened by an outbreak of circulating vaccine-derived poliovirus in Ukraine. The Regional Office and other Global Polio Eradication Initiative Partners provided technical support to the response in Ukraine, including the initial outbreak coordination, supplementary immunization planning and monitoring, outbreak response assessments, surveillance strengthening, communications and polio surveillance activities. In April 2016, the outbreak was declared over following the 6-month assessment. The Regional Office continues to provide technical support for polio activities in Ukraine to build preparedness and programme resilience.

Until global polio eradication is achieved, the European Region will need to continually assess and mitigate risks to ensure that it maintains its polio-free status. Consequently, the RCC uses the annual status update reports to assess each country's level of risk and the degree to which it is undertaking corresponding mitigation activities. To access risk, the RCC reviews immunization coverage, polio surveillance activities, planning activities and outbreak response capacity. This approach is in line with the anticipated collection and collation of evidence that will be needed to certify global eradication.

In its 2016 risk assessment, the RCC concluded that Bosnia and Herzegovina, Romania and Ukraine continue to be at high risk for sustained transmission following an importation or emergence of a vaccine-derived poliovirus. This is mainly due to suboptimal performance of routine immunization programmes resulting in low population immunity and a large number of susceptible individuals. A more stringent application of all of the components of the risk assessment in 2016 resulted in Greece, Iceland, Italy and San Marino being provisionally assessed as at high risk for the first time, based on inadequate information provided in their 2016 annual status reports.

Risk mitigation and preparedness are an important focus for the Regional Office. Over the past five years, the Regional Office has supported Member States in the development and implementation of Polio Outbreak Simulation Exercises (POSEs). These exercises provide them with the opportunity to test their ability to respond to a polio outbreak at national and international levels. The exercises have been tailored to address specific risks identified in different Member States and geographic areas of the Region, and they will continue to be an important part of regional mitigation activities through 2020.

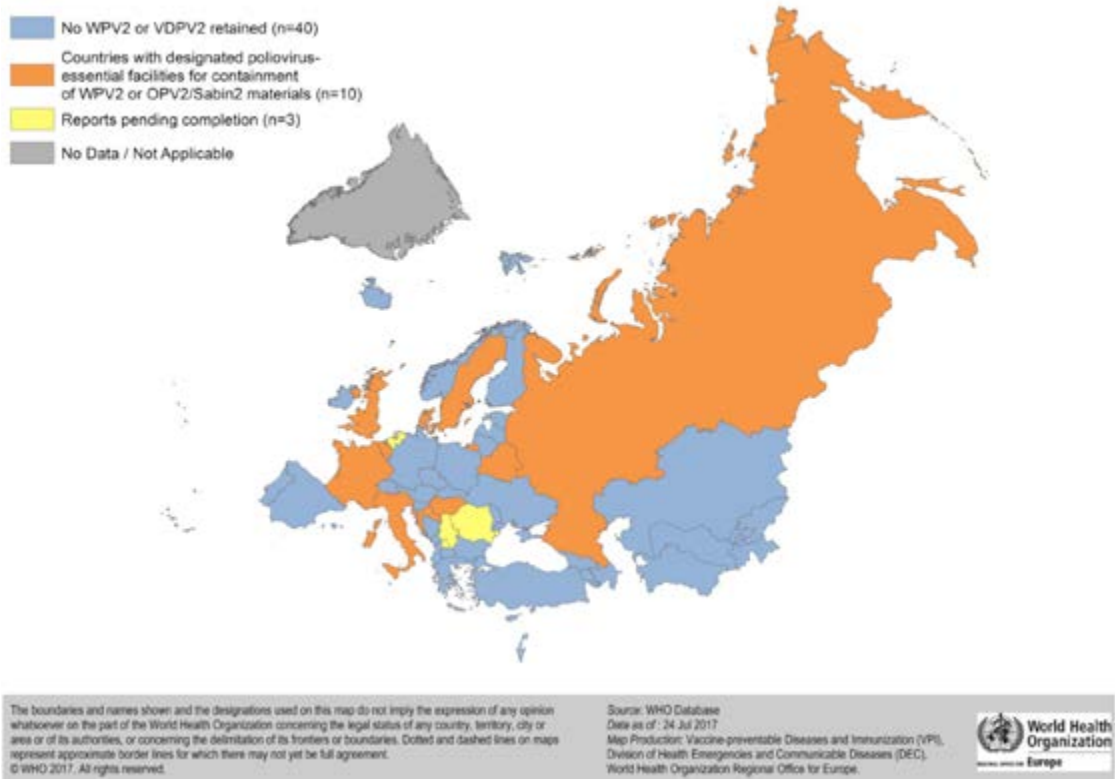
As the number of circulating wild polioviruses decreases globally, the main risk for the WHO European Region could come from a containment breach at a vaccine manufacturer or research facility. Containment activities, as outlined in the third edition of the WHO Global Action Plan to minimize poliovirus facility-associated risk (GAPIII), continued throughout the Region in 2016. Due to the large number of vaccine manufactures and research facilities in the Region, containment activities have focused on minimizing poliovirus facility-associated risk. Several rounds of high-level communication as well as technical assistance have been provided to ensure support for poliovirus containment activities in all Member States. By the end

of 2016, significant progress was made toward achieving phase I, part A of GAPIII, namely:

- preparation for the containment of all type 2 polioviruses in certified polio essential facilities (PEF) in accordance with GAPIII requirements; and
- destruction of all type 2 poliovirus materials in all non-essential facilities.

Special training on GAPIII bio-risk management was organized to ensure compliance with containment procedures.

Figure 1: Progress on completion of GAPIII, Phase 1, Part A, WHO European Region, 2016



EVAP goal 2: Measles and rubella elimination

2018 target: Measles and rubella elimination by all Member States verified by the RVC

Progress: Off track

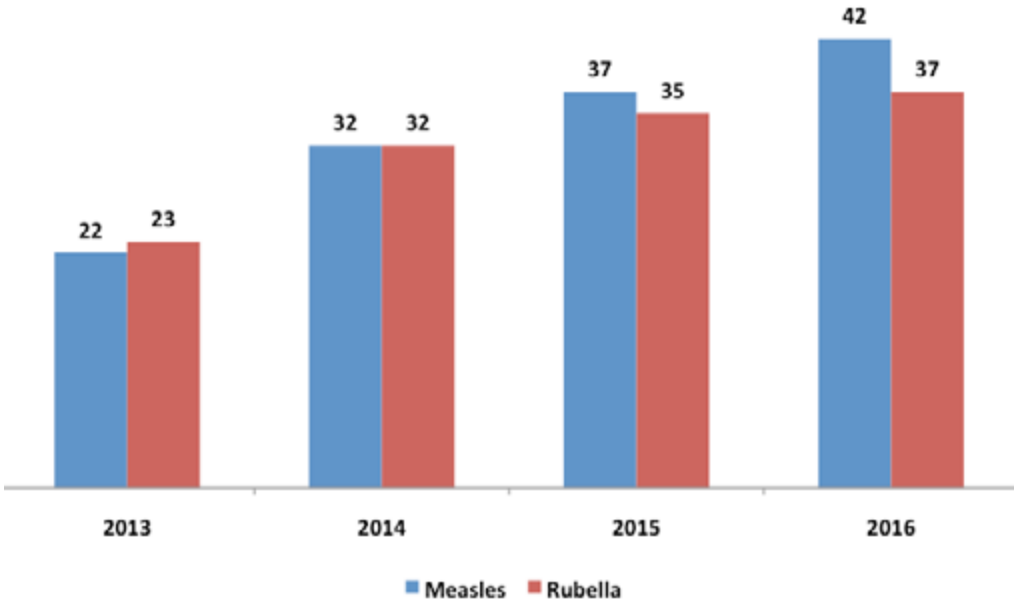
The European Region has seen a dramatic overall decline in measles and rubella over the past two decades, and recorded the lowest-ever number of measles and rubella cases in 2016. However, several measles outbreaks that started in 2015 and 2016 grew into large-scale outbreaks that exposed gaps not only in the vaccination of children, adolescents and adults, but also in countries' ability to prevent and respond to such outbreaks. The lack of quality rubella surveillance in many Member States also remains a significant challenge.

Interrupting endemic measles and rubella transmission is one of the top immunization priorities of the European Region. Following the 2010 decision by the Region's Member States to initiate the process of verifying elimination, the European Regional Verification Commission for Measles and Rubella Elimination (RVC) was established in 2011.
The RVC meets every year to evaluate the status of measles and rubella elimination in the Region based on documentation submitted by each Member State's National Verification Committee (NVC).
The verification process was modified in late 2014 to enable assessment of the elimination status of individual Member States instead of th e Region as a whole.

The RVC convened its sixth meeting in June 2017 to evaluate each Member State's status for 2016. After

reviewing the 2016 annual status reports prepared by the NVCs, the RVC concluded of the 53 Member States in the Region had demonstrated interruption of endemic transmission of measles and rubella, respectively.

Figure 2: Number of Member States that interrupted endemic measles and rubella transmission ≥12 months, WHO European Region, 2013–2016[2]



Compared to the 2014 baseline of 32 for each, this shows incremental progress towards achieving the regional goal.

As of the end of 2016, 11 Member States were considered to be endemic for measles or had not provided the RVC with adequate documentation to demonstrate interruption, and 16 were either endemic or had not demonstrated interruption for rubella. Substantial efforts – at the regional and national levels, in vaccination delivery and disease surveillance, by parents, politicians and health workers – will be needed to achieve the goal of elimination in every Member State.

The Regional Office continued to provide technical support to Member States throughout 2016 for the elimination of measles and rubella. The team focused its efforts on helping the remaining Member States to achieve interrupted status. Activities included country missions to support outbreak response, measles and rubella case-based surveillance activities, regional and national reference laboratory accreditation, and quality improvements in annual status updates documentation. Updating of standard operating procedures and guidelines for measles/rubella case-based surveillance and reporting is ongoing. Joint technical missions were conducted between the Regional Office's disease surveillance and laboratory teams as well as other activities within the Measles/Rubella Laboratory Network workplan (See also EVAP strategic objective 4).

EVAP goal 3: Control hepatitis B infection

2016 milestone: Regional hepatitis B control goal established

2020 target: To be established

Progress: On track

In unanimously adopting EVAP, Member States instructed the Regional Office to guide action against hepatitis B. In line with this mandate, hepatitis B control targets, priority activities and indicators were presented in the 'Action plan for the health sector response to viral hepatitis in the WHO European Region' to the 66th session of the Regional Committee for Europe, and endorsed on 14 September 2016.

The Action plan sets the following targets to be achieved by Members States by 2020:

- 0.5% HBsAg prevalence in vaccinated cohorts;
- 95% coverage with three doses of hepatitis B vaccine in infants;
- 90% coverage with hepatitis B birth dose vaccine or 90% coverage with hepatitis B screening of pregnant women and 95% coverage with post-exposure prophylaxis of newborns.

A WHO Hepatitis B Advisory Group made up of technical experts within and outside of WHO met in December 2016 to establish a regional process for validating hepatitis B control. As part of this process an independent working group of the European Technical Advisory Group of Experts (ETAGE) was established to annually review all submitted HBsAg seroprevalence and vaccine coverage data and validate whether a country has achieved the control targets. The validation will be reported to ETAGE and published on the Regional Office website. The ETAGE working group will meet for the first time in September 2017.

Validation will occur at both the country and regional levels. Once all Member States have been validated as having met the control goals, the Region can be certified to have achieved its regional goal.

The Regional Office will provide support to Member States in strengthening hepatitis B control and demonstrating the achievement of control targets. Priority activities will include improvement in timeliness of hepatitis B birth dose; evaluation and improvement of coverage with screening during pregnancy and post-exposure prophylaxis of newborns; increasing and sustaining high coverage with three doses of hepatitis B vaccine; and conducting serosurveys to demonstrate the impact of hepatitis B vaccination.

EVAP goal 4: Meet regional vaccination coverage targets at all administrative levels throughout the Region

2016 milestone: 42 of 53 Member States with ≥95% coverage with three doses of DTP-containing vaccine at national level

2020 target: 48 of 53 Member States with ≥95% coverage with three doses of DTP-containing vaccine at national level

Progress: Stalled

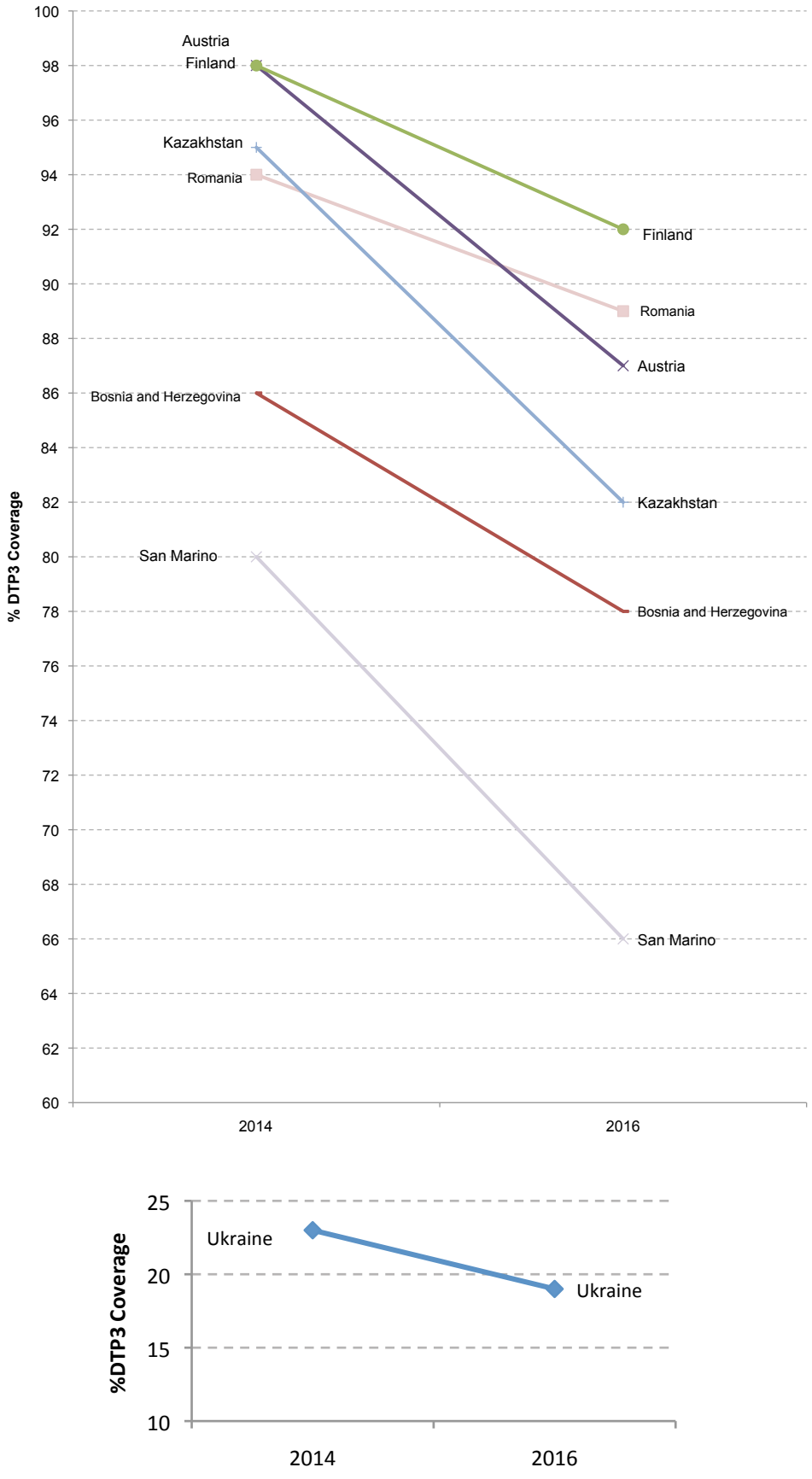
When the Global Vaccine Action Plan (GVAP) was adapted to the regional context, owing to consistently high reported vaccination coverage in the Region, European Member States set the bar high in the EVAP by establishing regional coverage targets that exceeded those of GVAP. Measles outbreaks along with cases of diphtheria and pertussis and mumps in 2016 clearly indicate gaps in immunization programme performance. Coverage with the third dose of diphtheria-tetanus-pertussis vaccine (DTP3) at national and sub-national levels showed no improvement in 2016 compared with 2015 and 2014, with the average regional coverage in 2016 actually declining by 1 percentage point over the two-year period. The number of Member States with ≥95% national DTP3 coverage decreased from 36 in 2015 to 31 in 2016. Stepped-up action will be needed to regain the Region's momentum and reach the 2020 target of 48 Member States with ≥95% DTP3 coverage. According to the available subnational-level data, only 24 Member States had ≥90% DTP3 coverage in more than 90% of districts in 2016. The 2020 target is for all 53 Member States to achieve this subnational coverage target.

WHO-UNICEF vaccination coverage estimates for 2016 show considerable variation in national DPT3 coverage rates and trends across the Region:

- 31 Member States achieved ≥95% DTP3 coverage in 2016;
- 5 Member States with coverage below 95% in 2016 showed an increase in coverage from 2014 to 2016;
- 10 Member States with coverage below 95% in 2016 reported either no change or up to a 2 percentage point decrease in coverage compared to 2014;
- 7 Member States with coverage below 95% in 2016 showed a steep decline in coverage from 2014 to 2016 (Figure 3). Of these, 4 are middle-income countries.

DPT3 coverage data for all 53 Member States (2014–2016) is provided in Annex 1.

Figure 3: Member States in WHO European Region with steep decline in DTP3 coverage, 2014–2016



Middle-income country challenges

(not limited to Goal 4: vaccine coverage target attainment).

The declining trend in coverage with all antigens in most middle-income countries (MICs), particularly in the southeastern European subregion, is concerning. This decline is exacerbated by complacency in translation of political commitments into action at the country level. The challenges that MICs face include a lack of adequate financial resource commitment to immunization due to competing priorities, non-eligibility for external funding (i.e. Gavi, the Vaccine Alliance), difficulty in accessing vaccines at affordable and optimum prices, global supply shortages for vaccines and a growing anti-vaccine agenda and visibility. MICs, many of which self-procure vaccines and rely solely on their domestic financial resources, continue to face significant challenges in expanding their immunization programmes through introduction of new vaccines and sustaining performance of their programmes. These challenges are apparent in the table below. The MIC Member States which receive no Gavi support bear the burden of the highest number of unvaccinated children in the Region and have introduced the lowest number of new vaccines. The Region is committed to support these Member States through development of a more cohesive strategy to addresses the identified challenges.

Table 1: Characteristics of Member States in European Region by income level[a]

Income level category	Average no. of antigens accommodated/ country	Average no. of new vaccines introduced/ country	Coverage with DTP3 (population weighted average)	Unvaccinated infants (DTP3)		Coverage with MCV1[c] (population weighted average)
				% of Region	# of infants	
HIC[b] (n=33)	12.5	2.0	96.5%	24.7%	182,250	94.2%
MIC[b] (no Gavi support) (n=13)	**10.4**	**0.5**	**88.7%**	**70.2%**	**518,850**	**91.8%**
MIC (Gavi support) (n=7)	13.0	2.6	97.3%	5.1%	37,270	97.9%
Regional average or total #	11.9	1.6	93.4%		738,370	93.6%

Source: UNICEF/WHO Joint Reporting Form, 2015 data
aAccording to 2015 GNI, World Bank
b MIC=middle-income countries, HIC= high-income countries
c MCV1=first dose of measles-containing vaccine

EVAP goal 5: Make evidence-based decisions on the introduction of new vaccines

2016 milestone: 45 of 53 Member States have established a NITAG

2020 target: At least 48 of 53 Member States with NITAGs have made an informed decision on a defined set of new vaccines, following the review of the relevant evidence by their NITAGs

Progress: On track

By close of 2016, 45 Member States had officially established a national immunization technical advisory group (NITAG) to provide scientific advice to ministries of health on immunization policy and practice. This signifies a steady increase since 2014 when 39 NITAGs had been established, and 2015 when 42 NITAGs had been established.

Evidence-based NITAG recommendations have helped ministries of health make informed decisions on introduction of new vaccines. By the end of 2016, 40 countries had introduced a pneumococcal conjugate vaccine in their routine immunization schedules, 32 introduced vaccination against human papillomavirus (HPV) and 18 against rotavirus. Four more middle-income countries will introduce HPV vaccines with Gavi support in 2017.

The recently established NITAGs in 10 middle-income countries conducted self-evaluations using a standardized questionnaire. The NITAG representatives discussed the evaluation results and defined future steps to improve NITAG performance at the WHO Regional Meeting for NITAGs on 14 October 2016.

The Republic of Moldova conducted an HPV vaccine cost-effectiveness study to obtain local economic evidence and incorporate it in the decision-making process. The study results demonstrated that introduction of HPV vaccination in this country will be highly cost effective. In line with the NITAG's recommendation, the Ministry of Health decided to introduce the vaccine in 2017, through the Gavi demonstration project modality.

Collaboration between national and regional advisory bodies continued in 2016. Representatives of NITAGs from middle-income countries participated in meetings of ETAGE and the Global Strategic Advisory Group of Experts on Immunization (SAGE). The Joint Committee on Vaccines and Immunization (JCVI), a well-established NITAG in the United Kingdom, supported the recently established NITAG in Albania by hosting its representatives at the 2016 JCVI meeting and by sharing information on the JCVI Secretariat's experience and decision-making processes.

All 45 NITAG chairs are to attend the Regional Office's Immunization Programme Managers Meeting in October 2017 in Montenegro, to share experiences, information and upcoming vaccine decision-making deliberations and meetings with each other. The WHO Regional Director will also be engaging with Member States that do not currently have a NITAG to encourage them to establish one.

EVAP goal 6: Achieve financial sustainability of national immunization programmes

2016 milestone: 46 of 53 Member States have achieved financial sustainability

2020 target: At least 51 of 53 Member States (except two low-income countries as of 2012) are financially self-sufficient for procuring routine vaccines (domestic resources)

Progress: On track

Financial sustainability of immunization programmes is critical for the Region's long-term success in controlling the spread of vaccine-preventable diseases. By the end of 2016, 47 Member States had achieved financial sustainability in procuring vaccines. The Republic of Moldova gained its financial self-sufficiency in 2016 and started successfully funding all vaccines in its routine schedule from domestic resources. Armenia, Azerbaijan and Georgia are expected to follow in 2017, as they transition from donor support. Uzbekistan will be the next country to achieve financial self-sufficiency during the life cycle of EVAP (2015–2020). Only Kyrgyzstan and Tajikistan will continue to receive donor support for procurement of programme vaccines beyond 2020.

For those programmes that still relied on external financial resources in 2016, the Regional Office

continued to provide multi-dimensional programmatic and financial support, and assisted in updating comprehensive multi-year plans (cMYPs). The cMYPs provide a road map for the coming five years, guiding programme strengthening and outlining the steps and measures needed to achieve full financial self-sufficiency. Costing components of the cMYPs provide guidance to decision-makers at the government level on the resources required for their programme to achieve targets set for the planned period. They present an assessment of available funding as well as the predicted funding gap to be filled. The cMYPs are also leveraged as an advocacy tool in ensuring increased and/or sustained funding for national immunization programmes.

For Member States transitioning from donor support, the Regional Office provided support in developing national 'transition plans'. These plans address the challenges the programmes face or expect to face in achieving financial sustainability and ensuring sustained programme performance, after donor support. Transition plans also include intensification of resource mobilization efforts to increase domestic funding for the programmes. In 2016, high-level multi-partner advocacy visits were conducted to all transitioning countries to help ensure sustained political commitment to national immunization programmes, with particular emphasis on financial sustainability.

European Immunization Week in April 2016 was used a platform to maximize ongoing advocacy efforts in all Member States to maintain sustainability of their immunization programmes and to move towards financial self-sufficiency where donor support is utilized to achieve programme targets.

WHOM. Bring

Progress towards EVAP strategic objectives

EVAP strategic objective 1: All countries commit to immunization as a priority

Important reflections of political commitment to immunization include long-term immunization plans that are integrated in broader health plans, evidence-based decision-making incorporating the recommendations of an independent NITAG, financial sustainability of the immunization programme, legislation that anchors in law sustainable funding for immunization and policies at programme level that facilitate equitable access to vaccines. Together these factors point to a generally high level of political commitment to immunization in the European Region. More will be needed, however, to achieve all EVAP targets, including measles and rubella elimination in all 53 Member States (EVAP goal 2).

All cMYPs and transition plans due for development in 2016 were completed with WHO technical assistance. Such plans provide strategic guidance to policy-makers and programme management staff on how to achieve programme objectives, which in turn contribute to achievement of regional goals and objectives. Endorsement of these plans at the highest political level reflects the consensus built in Member States to protect their citizens against vaccine-preventable diseases.

45 of the 53 Member States in the European Region now have a functioning NITAG. The number of countries introducing new vaccines based on NITAG recommendations increased in 2016 (see EVAP goal 5), and significant improvements in financial sustainability were also realized (see EVAP goal 6). Nearly all Member States utilized European Immunization Week 2016 to demonstrate government commitment to immunization and to sustain high public demand for vaccines (see EVAP strategic objective 2).

Immunization legislation is a potentially powerful tool in support of sustainable immunization financing. Legislative action can provide a legal commitment to public funding of immunization, which can help secure adequate financing and promote accountability and transparency. In the European Region, immunization legislation varies across Member States. Some have separate immunization laws, others legislate immunization through provisions within general health acts or public health laws. In 2016, the Regional Office began mapping the legislative environment across the Region and started to review and present best and promising legislation and policy in 2017. This work is ongoing and is being conducted in collaboration with WHO headquarters and the Sabin Vaccine Institute.

Two additional work streams were initiated in 2016 to begin defining and uncovering the dimensions of 'equity' and 'life-course' within the context of the vaccination programmes of the European Region, from a policy perspective. This work will be complemented by parallel enquiry and study on the concepts of 'sustainability', 'integration' and 'citizen-centered'. The overall goal is to have a stronger shared understanding of how policy supports such objectives/concepts and how the immunization community, through policy and planning, can better accommodate more integrated, sustainable, equitable, and citizen-centered immunization services, throughout the life course.

Increasing domestic expenditure for routine vaccines per newborn is another strong indicator of commitment to immunization as a priority. This indicator will be calculated using a dedicated study planned in early 2018 so that it can be used as an additional measure of progress towards EVAP strategic objective 1 as part of the EVAP mid-term review in 2018.

EVAP strategic objective 2: Individuals understand the value of immunization services and vaccines and demand vaccination

Individuals will demand vaccination as their right and responsibility only if they have confidence in the value and safety of vaccines and in the system that provides them. Member States report that maintaining this confidence has become increasingly difficult, due to a general mistrust of public institutions, strong influence of online communications and, in line with these, the growing strength and visibility of anti-vaccine voices. In this changing context, immunization programmes, including those with strong resources and capacities, face new challenges they may not be prepared for. Outbreaks of vaccine-preventable diseases and declining immunization coverage in some countries have confirmed the need for greater public and health worker

resilience to vaccine safety scares and increased capacity building within immunization programmes to respond in the event of a vaccine-safety-related event.

In adopting EVAP, Member States acknowledged that immunization programmes need to monitor public attitudes, knowledge and behavior towards immunization and take action to sustain high demand for vaccines. Preparation is key, and 14 Member States reported having a communication plan in place by 2015 to respond to any vaccine safety-related event with the potential to erode confidence in vaccines. This number will serve as the baseline for future assessment of progress toward this strategic objective.

In addition, Armenia, Georgia and Republic of Moldova have conducted target group research as part of preparations for HPV introduction, and England (in the United Kingdom) continues to closely monitor public opinion to enable a quick response to any relevant signals that may arise. Other Member States have stepped up communication efforts in response to a crisis, such as Denmark and Ireland, which faced a drop in HPV coverage, and Romania where a large-scale measles outbreak began in 2016. European Immunization Week was also utilized across the Region as an opportunity to raise awareness among public, policy-makers, health workers and journalists.

The Regional Office works with Member States to sustain vaccine confidence and demand by providing guidance and training on responding to anti-vaccine lobbyists, preparing for and responding to crises in confidence, identifying barriers to immunization and tailoring immunization programmes to address them, preparing for new vaccine introductions and targeting communications to sub-populations. In addition to developing new publications and communication tools on these topics in 2016, WHO trained representatives from five Member States to respond to vocal vaccine deniers in public, participants from 15 Member States to communicate effectively about vaccine safety and conducted communication reviews in two Member States.

EVAP strategic objective 3: The benefits of vaccination are equitably extended to all people through tailored, innovative strategies

Despite relatively high regional vaccination coverage, outbreaks and deaths caused by vaccine-preventable diseases in both the eastern and western parts of the Region in 2016 bear witness that not everyone benefits from the protection of vaccination. Inequitable extension of vaccination services may affect any population subgroup; however, the consequences of not being protected against diseases often affect the poorer and marginalized groups more seriously.

An increasing number of Member States are applying social science research to identify underserved population groups and their barriers to vaccination, particularly with the WHO Tailoring Immunization Programmes (TIP) approach. These processes unravel complex barriers, often related to system challenges and less accessible or user-friendly services, including among marginalized population groups. The insights gained in countries allow immunization programmes to tailor their systems and services to the needs of the unprotected.

Taking stock of TIP implementation and health impact, an external committee of six leading global experts conducted an evaluation in June to December 2016, informed by country assessments in Bulgaria, Lithuania, Sweden and the United Kingdom, a review of national and regional documents and an online regional survey. The evaluation committee concluded that there is strong demand in the European Region for research to understand enablers and barriers to vaccination in susceptible population groups.

Barriers to vaccination are indeed poorly understood in many settings, and challenges persist to identify underserved populations. Integrated electronic immunization registries have great potential to close this gap by identifying individuals or groups that are not being reached. Their use should therefore be actively encouraged.

EVAP strategic objective 4: Strong immunization systems are an integral part of a well-functioning health system

Strong health systems are needed to deliver and scale-up the use of new vaccines and to improve immunization coverage and equity. Inadequate infrastructure, lack of trained healthcare workers, interruption in

the supplies of essential commodities, lack of data to track and manage progress and limited capacity to store vaccines represent critical barriers to achieving sustainable progress in immunization. With WHO support, all Member States are building or maintaining the necessary capacities to ensure high-quality and sustainable surveillance and vaccine delivery.

A comprehensive health system strengthening support portfolio, financed through Gavi, was finalized in 2016 for Kyrgyzstan, Tajikistan and Uzbekistan. The Regional Office will facilitate and deliver key deliverables as part of these work packages. The duration and activities of the country projects are aligned with EVAP strategic objectives, providing an opportunity to resolve Member States' health system constraints in a comprehensive manner through a closer technical assistance partnership with the United Nations Children's Fund (UNICEF) and the World Bank.

A strong immunization system includes a fully functional national monitoring and reporting system for vaccine safety and a system that can deal with public concerns and rapidly evaluate the risk to public safety when adverse events following immunization (AEFI) occur. In 2016, 15 of 21 middle-income Member States worked to upgrade their capacities for AEFI surveillance, causality assessment and communications. WHO training and support focused on classification of AEFI cases, sharing of best practice, review of WHO guidance and tools, self-assessment of national vaccine pharmacovigillance systems and developing action plans to address country-specific challenges and build minimum capacity for vaccine pharmacovigilance. Member States were also supported in developing effective vaccine management (EVM) improvement plans (Romania, Uzbekistan) to strengthen immunization supply chains. Advocacy and technical assistance to institutionalize best vaccine management practices through policy, regulatory frameworks and quality management systems was provided to countries transitioning from Gavi support (Armenia, Georgia, Republic of Moldova). Georgia strengthened the temperature monitoring system in the immunization supply chain at national and subnational level using cloud-based technology. Kyrgyzstan and Uzbekistan conducted comprehensive cold chain inventories and needs assessment, developed cold chain rehabilitation plans, and identified funding opportunities for Cold Chain Equipment Optimization Platform support.

Highly proficient and well-integrated reference laboratories are an essential component of surveillance systems, playing a critical role in monitoring the achievements of immunization programmes against EVAP targets. A desk review of the performance of the 67 national and subnational laboratories of the European Measles and Rubella Laboratory Network (MR Labnet) was conducted in 2016 with 64 laboratories fully accredited and the remaining 3 provisionally accredited. The annual quality assurance programme for MR Labnet laboratories was upgraded with the implementation of the first round of the new molecular External Quality Assurance (mEQA) for 34 laboratories of the network.

The WHO Regional Polio Laboratory Network (Polio Labnet), the largest component of the global network, consists of 47 laboratories in 37 Member States. All laboratories underwent a process of WHO annual accreditation and were fully accredited in 2016. Four laboratories had difficulties with the most recent virus isolation proficiency panel and will require technical assessment and follow up in 2017. By the close of 2016, all polio laboratories in the Region had transitioned fully to the new WHO virus isolation diagnostic algorithm in accordance with the regional implementation plan. Throughout 2016, the network in Europe was preparing to upgrade to poliovirus intratypic differentiation (ITD) capacity. All laboratories that implement this technique and successfully pass a proficiency test will be able to differentiate between wild, vaccine and vaccine-derived polioviruses in their own laboratories.

In 2016, seven Member States in the European Region (Armenia, Azerbaijan, Georgia, Republic of Moldova, Tajikistan, Ukraine and Uzbekistan) participated in the WHO-coordinated Global Rotavirus Sentinel Surveillance Network (GRSN). Five Member States in the European Region (Armenia, Azerbaijan, Georgia, Ukraine and Uzbekistan) participated in the WHO-coordinated Global Invasive Bacterial Vaccine-preventable Diseases (IB-VPD) Surveillance Network (GISN), which gathers demographic, clinical and laboratory data on children under 5 years of age hospitalized for bacterial meningitis caused by *Streptococcus pneumoniae, Haemophilus influenzae* or *Neisseria meningitidis*. Four of these (Armenia, Azerbaijan, Georgia, and Uzbekistan) have introduced pneumococcal conjugate vaccine in their national immunization programme. All five have introduced Haemophilus influenza type b (Hib) vaccine.

EVAP objective 5: Immunization programmes have sustainable access to predictable funding and high-quality supply

Shortages of vaccines were reported by 28 Member States in 2015 and by 21 Member States in 2016, sometimes causing critical disruptions of services. Multiple vaccines were involved, including Bacillus Calmette–Guérin (BCG), DTP, acellular-pertussis-containing vaccines and IPV. Member States have expressed their concerns to the Regional Office and partners, and requested more information and solutions in order to mitigate the effects of vaccine shortages and prevent them in future. Collaborative efforts with partners at regional and global levels to address global cross-cutting vaccine procurement challenges included inputs to the SAGE discussion on pre-empting and responding to vaccine supply shortages in April 2016, which was followed in June 2016 by the World Health Assembly (WHA) resolution "Addressing the global shortage of medicines and vaccines" (WHA 69.25). This resolution calls for specific actions from Member States, manufacturers and WHO.

Vaccine costs are an important element of health budgets and vaccine price is a major factor in deciding when to adopt and whether to sustain new vaccines. Vaccine price transparency, with the aim of increasing affordability, has expanded in the Region, with 34 Member States having shared vaccine price information through the WHO Vaccine product price and procurement (V3P) initiative by the end of 2016. Review of the price trends for the available 3-year datasets show encouraging progress and a potential impact of vaccine pricing transparency: in the period since data have been collected through this project, large discrepancies between vaccine prices paid by individual countries have begun to decrease, and an overall trend of declining vaccine prices has been observed for a range of products.

Lessons learned from establishing the regional vaccine price transparency mechanism were shared with ETAGE and national health product procurement experts (WHO Workshop on strategic procurement of new medicines) in 2016.

The first successful inter-country joint vaccine procurement in the Region took place in 2016. A partnership agreement on joint procurement and lending of medicinal products and medical devices signed by health authorities of Estonia, Latvia and Lithuania resulted in joint procurement of rotavirus vaccine by Latvia and Estonia and in securing vaccine supply and gaining important cost savings. It was preceded by improvements in the procurement process, expansion of the supplier base by harmonizing procurement, programmatic and market authorization requirements, and strengthening purchasing power by improving knowledge on vaccine market and product prices (using the V3P website) as well as by improving predictability of demand through multi-year contracting.

National regulatory authorities (NRAs) also play a critical role in ensuring sustainable access to quality-assured vaccines in Member States, particularly in terms of their market authorization (vaccine registration) and pharmacovigilance (AEFI surveillance system) functions. WHO provided technical assistance to priority Member States to strengthen their national regulatory mechanism through implementation of NRA improvement plans through 2016. Workshops and assessments were also conducted to help strengthen regulatory mechanisms, market authorization and licensing of medicinal products, including registration of vaccines.

Annex 1: WHO/UNICEF DPT3 coverage estimates by Member State, WHO European Region, 2014–2016

Country	2014	2015	2016
Albania	98	99	98
Andorra	97	97	98
Armenia	93	94	94
Austria	98	93	87
Azerbaijan	94	96	97
Belarus	97	99	98
Belgium	99	99	98
Bosnia and Herzegovina	86	82	78
Bulgaria	88	91	92
Croatia	95	94	93
Cyprus	99	97	97
Czech Republic	97	97	96
Denmark	94	93	94
Estonia	93	93	93
Finland	98	97	92
France	98	98	97
Georgia	91	94	92
Germany	95	95	95
Greece	99	99	99
Hungary	99	99	99
Iceland	90	92	91
Ireland	96	95	95
Israel	95	95	94
Italy	95	93	93
Kazakhstan	95	98	82
Kyrgyzstan	96	97	96
Latvia	92	95	98
Lithuania	93	93	94
Luxembourg	99	99	99
Malta	99	97	97
Monaco	99	99	99
Montenegro	91	89	89
Netherlands	96	95	95
Norway	93	95	96

Country	2014	2015	2016
Poland	98	98	98
Portugal	98	98	98
Republic of Moldova	90	87	89
Romania	94	89	89
Russian Federation	97	97	97
San Marino	80	76	66
Serbia	93	95	92
Slovakia	97	96	96
Slovenia	95	95	94
Spain	97	97	97
Sweden	98	98	98
Switzerland	96	97	97
Tajikistan	97	96	96
The former Yugoslav Republic of Macedonia	95	91	95
Turkey	96	97	98
Turkmenistan	98	99	98
Ukraine	23	23	19
United Kingdom of Great Britain and Northern Ireland (the)	95	96	94
Uzbekistan	99	99	99
Regional average	**93**	**93**	**92**

Notes:

Data source: WHO-UNICEF DPT3 coverage estimates; http://www.who.int/immunization/monitoring_surveillance/data/en/

Highlighted cells indicate DTP3 coverage level less than the target of ≥ 95%

Publications and meeting reports

Immunization and trust library
Theoretical background and evidence plus practical guidance for national immunization programmes to prepare for and respond to potential crises in vaccine confidence

Best practice guidance: How to respond to vocal vaccine deniers in public
Basic, broad principles for a spokesperson of any health authority on how to respond to vocal vaccine deniers

Immunization Highlights 2015
0The WHO/Europe annual report on its immunization activities in 2015 provides an overview of the support provided to Member States of the WHO European Region in pursuing the goals and objectives of the European Vaccine Action Plan 2015–2020 (EVAP).

European Immunization Week 2016 Narrative Report
Summary of the activities and materials that made European Immunization Week visible across the European Region in 2016

Meeting of the Polio Laboratory Network
June 2016

30th Meeting of the European Regional Certification Commission for Poliomyelitis Eradication (2016)
October 2016

5th meeting of the European Regional Verification Commission for Measles and Rubella Elimination
October 2016

16th meeting of the European Technical Advisory Group of Experts (ETAGE)
October 2016

WHO EpiBrief and **WHO EpiData**
Periodical reports and monthly surveillance data for selected vaccine-preventable diseases

Acknowledgements

All staff of the Vaccine-preventable Diseases and Immunization programme of the WHO Regional Office for Europe made valuable inputs to the progress report of the European Vaccine Action Plan. In particular we would like to thank Robb Butler, Niyazi Cakmak, Patrick O'Connor, Siddhartha Datta, Oleg Benes, Simarjit Singh, Theodorus Kaloumenos, Liudmila Mosina, Katrine Bach Habersaat and Catharina de Kat for compiling and finalizing the report.

V

Progress Report for the South-East Asia Region

Contents

Introduction

The 11 countries of the World Health Organization's (WHO's) South-East Asia (SEA) Region are home to more than 1.8 billion people, with a combined annual birth cohort of more than 37 million infants. All countries in the Region give high importance to their national immunization programmes (NIPs). Over the past few decades, immunizations have prevented millions of deaths and disabilities, achieved dramatic declines in once highly-endemic diseases, stopped the transmission of wild poliovirus across the Region, eliminated maternal and neonatal tetanus (MNT) and reduced the transmission of measles, Japanese encephalitis (JE) and hepatitis B viruses.

High-quality regional surveillance and accredited laboratory networks have been established to measure disease burden, detect outbreaks and evaluate vaccination impact for many vaccine-preventable diseases. The Region was declared 'polio-free' in March 2014 and achieved MNT elimination in May 2016. The Sixty-sixth SEA Regional Committee adopted the resolution on elimination of measles and control of rubella/congenital rubella syndrome (CRS) in the SEA Region by 2020.

The South East Asia Regional Vaccine Action Plan (SEARVAP) 2016-2020 has been developed and endorsed by the SEA ITAG in 2017 along with the framework for monitoring the progress against SEARVAP goals. The Regional ITAG has recognized the initiatives of National EPI programmes to implement recommended activities to meet the goals and has acknowledged that NITAGs of all countries have begun to complete the annual reports on implementation. All countries in the Region have added at least two new antigens, since 2010, to their existing routine immunization programmes, thereby expanding the lifesaving benefits of new and underutilized vaccines. More importantly, this Region is a key vaccine manufacturing hub that exports high-quality vaccines worldwide.

Photo credit WHO Bangladesh

South-East Asia Regional Vaccine Action Plan Goals

The SEARVAP has eight goals (Box 1) and a set of strategic objectives and recommended activities to achieve SEARVAP goals.

Box 1: SEARVAP GOALS

GOAL 1 Routine immunization 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 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

The progress in implementation of activities targeted towards the achievement of the SEARVAP goals and objectives is described below.

WHO Indonesia Suryani

Goal 1: Routine Immunization Systems and Services are strengthened

Background

Strengthening the routine immunization systems and services is the overarching goal of the Regional Vaccine Action Plan 2016-2020 with the following targets:

- By 2015 all countries have ≥90% national coverage and ≥80% coverage in every district or equivalent with the third dose of DTP-containing vaccine (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.

Achievements/Progress

As per the recent WHO-UNICEF estimates for 2016 (released in July 2017), the overall DTP3 coverage in the Region is estimated to be 88%, with seven countries (Bangladesh, Bhutan, Democratic People's Republic of Korea, Maldives, Myanmar, Sri Lanka, Thailand) achieving >90% coverage (Table 1).

Table 1: DTP3 coverage by country, 2012-2016

Country	DTP3				
	2012	2013	2014	2015	2016
Bangladesh	94	96	97	97	97
Bhutan	97	97	99	99	98
DPR Korea	96	93	93	96	96
India	82	83	85	87	88
Indonesia	83	85	78	78	79
Maldives	99	99	99	99	99
Myanmar	84	75	88	89	90
Nepal	90	92	92	91	87
Sri Lanka	99	99	99	99	99
Thailand	99	99	99	99	99
Timor-Leste	83	82	77	76	85
SEAR	**84**	**85**	**86**	**87**	**88**

Source: WHO-UNICEF estimate for DPT3 coverage

Immunization a priority in countries: Countries have demonstrated commitment to immunization by setting attainable national targets, allocating adequate financial and human resources to achieve these targets, ensuring that national immunization plans are fully integrated into national health plans, and demonstrating good stewardship in implementation of their national health plans.

All countries in the Region have legislation or a legal framework that upholds immunization as a priority. In Nepal, the parliament has approved an Immunization Act to secure domestic funds for immunization after GAVI support ends. All countries are implementing comprehensive multi-year plans for immunization. All countries have developed micro plans to improve immunization coverage in all districts or equivalent levels. All countries in the Region have established NITAGs. In April 2016, the SEA Region established a NITAG network to encourage collaboration among NITAGs in the Region. The NITAGs in the Region are being monitored to assess whether or not they meet the WHO criteria (Table 2).

Table 2: NTAG/NCIP assessment on whether meeting WHO criteria, 2016

Indicator	BAN	BHU	DPRK	IND	INO	MAV	MMR	NEP	SRL	THA	TLS
Formal TOR	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Legislative basis	✓	No	✓	✓	✓	✓	No	✓	✓	✓	✓
Availability of all proposed expertise	✓	✓*	✓	✓	✓	✓	✓	✓	✓	✓	✓
Number of meeting of NITAG in 2016	1	3	1	1	3	4	3	2	4	4	3
Agenda and documents distributed prior to meetings	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Annual action plan	No	No	✓	✓	✓	✓	✓	No	✓	No	✓
Members required to disclose conflict of interest	✓	No	No	✓	No	✓	✓	No	✓	✓	✓

Source: NTAGI reports of countries for regional ITAG 2017

Individuals and communities understand the value of vaccines and demand immunization as both their right and responsibility

Countries in the Region engage communities in effective discussions about their knowledge, attitudes, and practices as they relate to immunization and health services in general. Countries in the Region are implementing and evaluating strategies to increase community demand for immunization. All countries are building capacity by training front-line health workers in effective communication techniques and recruiting new voices to champion immunizations. In the EPI coverage evaluation surveys knowledge of care takers on immunization, sources of immunization and reasons for not vaccinating or partial vaccination are evaluated.

The ITAG in 2017 appreciated the efforts of NIPs and NITAGs on evaluating the confidence of vaccination at national and subnational levels (Table 3). However, the ITAG recognized the potential issues of vaccine hesitancy in some areas of the Region and recommended that countries should understand the importance of data on confidence of vaccination and if adequate information is not available countries should conduct assessment with support from WHO and UNICEF and develop communication strategies to address vaccine hesitancy.

Table 3: NTAGI observations on assessment of the confidence in vaccination at subnational level

	Assessment on confidence	NTAGI comments
Bangladesh	Not done	Vaccination well accepted
Bhutan	Not done	Country has not faced any lack of confidence
DPR Korea	Yes	IEC for vaccination done through various methods
India	ND	ND
Indonesia	Yes	
Maldives	Not done	
Myanmar	Not done	
Nepal	Not done	Immunization seems acceptable to communities. Propose a study in the future
Sri Lanka	Yes	
Thailand	Part of CES	Issues related to migrants and refusal of vaccination in some southern areas
Timor-Leste	Small scale studies to find reasons for non-vaccination and missed opportunity study	No evidence to show lack of confidence or fear on vaccination No anti-vaccine lobbies

Source: NTAGI reports of countries for regional ITAG 2017

Achieving and sustaining greater equity in immunization coverage

Countries in Region are involved with assessing coverage at district and sub district levels to identify pockets of low coverage and taking appropriate actions to improve coverage and reach the un-immunized. EPI coverage evaluation surveys and EPI and VPD surveillance reviews have been conducted in the Region to identify areas of low coverage, barriers for immunization and take appropriate actions. Bangladesh and India have been regularly conducting EPI coverage evaluations surveys to ascertain the district level coverage. Bhutan, Myanmar and Nepal have relied on demographic and health surveys. DPR Korea, Indonesia, Myanmar and Timor Leste are planning to conduct coverage evaluation surveys using new WHO methodology in 2017/2018.

Some of the initiatives taken in the priority countries of the Region during 2016-2017 to improve coverage include initiatives such as Mission Indradhanush (India), fully immunized districts initiative (Nepal), community registration and outreach sessions (Timor Leste), high risk districts initiative (Indonesia).

Indonesia, Bhutan, Sri Lanka and Thailand have been successfully implementing school-based immunization programmes, including the school-entry immunization requirements. Global training modules developed by WHO and UNICEF for mid-level managers for planning, implementing and supervising immunization activities have been adapted to regional needs. All countries in the Region have adapted these modules according to the country's specific needs. The field training component of these modules has been useful in training sessions for officials at the district and sub-district level.

Seven countries in SEAR have achieved more than 90% national coverage with DTP3 while five countries have achieved more than 80% coverage in all districts.

The capacity of countries were developed through regional workshop conducted in September 2016, to assess data quality of immunization coverage and VPD surveillance using WHO assessment tools and to develop, implement and monitor data quality improvement measures in response to the assessments, and develop surveillance data management systems to ensure that case-based data on Acute Flaccid Paralysis (AFP), Measles and Rubella and other priority vaccine-preventable diseases, are collected as per WHO protocols.

Gavi is supporting eligible countries to strengthen their health systems and immunization supply chain systems to better deliver vaccination services in an integrated and efficient manner. Currently there are active Gavi health system grants in Bangladesh, DPR Korea, India, Myanmar and Nepal. Gavi support is transitioned in Indonesia and Timor Leste. Bangladesh, DPR Korea, Myanmar and Timor Leste have linked findings of EPI reviews, post introduction evaluations of new vaccines to joint appraisals to optimize the support

to address the challenges in health system to improve immunization coverage.

Immunization programmes have sustainable access to predictable funding, quality supply and innovative technologies

All 11 Countries in the Region have a line item for vaccines in the national budget. Maldives and Thailand are fully funding routine immunization programme including vaccines. Indonesia, Sri Lanka and Timor Leste are funding more than 50% of the routine immunization activities including vaccines.

Key challenges:

- Despite the increase in the regional coverage for DPT3 to 88% in 2016 an estimated 4.4 million children in SEA Region do not receive DTP3 vaccine with an estimated 3.1 million of these being in India and 1 million in Indonesia. Outbreaks of vaccine preventable diseases continue to occur in many countries of the Region, indicating low coverage pockets, even in countries/ provinces/districts with high coverage.
- Important recommendations are coming from EPI and surveillance reviews and post introduction evaluation of new vaccines. A lack of appropriate follow-up on these recommendations remains a challenge in the countries.
- Quality of data at sub national/district/sub districts levels need to be reviewed regularly with data quality improvement plans.
- Need to work on communication strategies to overcome vaccine hesitancy.
- The Global Polio Eradication Initiative (GPEI) is providing funding to various countries for polio eradication activities. Polio-funded human resources are supporting overall immunization activities and an estimated 50% of their time is being utilized for these non-polio activities. GPEI has indicated that polio funding will decline from 2017 to 2019 and eventually stop in 2020. This could potentially inhibit progress towards the achievement of immunization goals unless alternative sources of funding are identified.
- A substantial GAVI support goes to low income countries. However some Low-middle income countries (examples: Indonesia and Timor Leste in SEAR) are in GAVI transition phase and also have sub-optimal immunization coverage. This poses a risk for the immunization coverage improvement in these countries unless alternative funding sources, including from national government are quickly mobilized.

WHO Sri Lanka K Reidy

Goal 2: Measles is eliminated and rubella/CRS controlled

Background

In 2013, the Sixty-sixth SEA Regional Committee adopted the goal of measles elimination and rubella/CRS control by 2020 following rigorous prior consultations. To provide impetus to the progress towards this goal, in 2014 the Regional Director included Measles Elimination and Rubella Control by 2020 as one of her Flagship Priorities for the Region.

Significant progress has been made in the last decade. In 2016, two countries, Bhutan and Maldives, were verified as eliminated endemic measles. There has been a 66% reduction in mortality due to measles in 2015 compared to 2000 with approximately 91% reduction in mortality due to measles in all countries of the Region excluding India where the reduction was around 51%. The reported incidence of measles has declined by 61% in the Region for the same time frame.

A Regional Strategic Plan for measles elimination and rubella control in the South-East Asia Region, 2014-20, was developed in 2015 with four strategic objective and the progress towards each of the objectives are outlined below.

Progress/Achievements

Achieve and maintain >95% population immunity with two doses against measles and rubella within each district of each country in the region through routine and/or supplementary immunization.

All Member States in the Region have introduced two doses of measles-containing vaccine in their routine immunization program. Nine Member States have introduced rubella-containing vaccine in their routine immunization schedule- Indonesia is expected to introduce the vaccine in August 2017 and the Democratic People's Republic of Korea is planning soon.

Between 2000 and 2016, immunization coverage in the SEA Region for first dose of measles containing vaccine (MCV1) has increased from 63% to 87% while the second dose of measles containing vaccine (MCV2) coverage increased from 27% to 73% in the same period (Figure 1). In 2016, five of the 11 SEA Region countries reported >95% coverage for MCV1 (Table 1). However, large variations continue to remain in the sub-national coverages with only three countries achieving more than 95% coverage in 95% of the districts (Figure 2).

Supplementary Immunization activities were conducted in Indonesia and Nepal in 2016 and nearly 5.8 million children were reached with an additional dose of measles-containing vaccine through mass vaccination campaigns, and an additional 500 million children are planned to be reached through mass campaigns in 2017 and 2018.

Table 1: Reported measles cases and MCV1 and MCV2 coverage, SEAR 2003 - 2015

Country	2003			2016		
	WHO / UNICEF estimated coverage		No. of reported measles cases (JRF)§	WHO / UNICEF estimated coverage		No. of reported measles cases (JRF)
	MCV-1	MCV-2		MCV-1	MCV-2	
Bangladesh	76	-	4,067	94	93	972
Bhutan	88	-	0	97	90	45
DPR Korea	95	-	0	99	98	0
India	60	-	47 147	88	76	15 263
Indonesia	74	21**	24 457	76	56	6 396
Maldives	96	-	75	99	99	0
Myanmar	80	-	830	91	86	266
Nepal	75	-	13 344	83	25	1 269
Sri Lanka	99	90	65	99	99	76
Thailand	96	92	4 519	99	95	652
Timor-Leste	55	-	94	78	22	2
SEAR	**63**	**27**	**94 598**	**87**	**73**	**24 941**

Abbreviations: MCV=Measles containing vaccine; M=Measles; MR=Measles-Rubella; MMR=Measles-Mumps-Rubella; m=month; y=year; hyphen used (-) when MCV is not introduced in routine immunization `

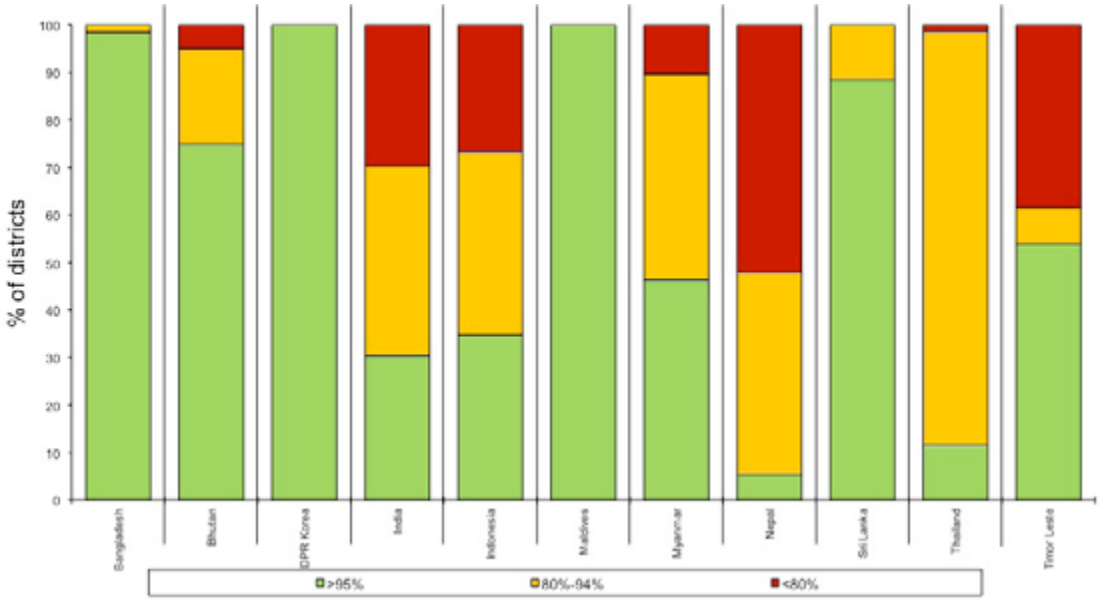
Source of data: WHO/UNICEF estimates of national immunization coverage. In: World Health Organization. Immunization, Vaccines and Biologicals. Immunization coverage (online database).Geneva: World Health Organization; 2016. (http://www.who.int/immunization/monitoring_surveillance accessed 17 May 2017).

§ The Joint Reporting Form (JRF) is submitted to WHO and UNICEF by countries annually and reports, among other data, the number of measles cases in the country for the year.

** Sub-national introduction in schools of West Java at 7 yrs

WHO Mynmar cEPI unit Dept. of Public Health Ministry of Health and Sports

Figure 2: Reported MCV1 coverage at dsitrict level, SEAR 2016



Source: Annual Epidemiological Reporting Form received by all countries in WHO SEARO for 2016.

Immunization activities in the Region has averted nearly 620 000 deaths due to measles in 2016. However more than 4.6 million children are still not reached by the first dose of measles containing vaccine , mostly in India (~3.1 million) and Indonesia (~1.1 million).

Develop and sustain a sensitive and timely case-based measles and rubella and CRS surveillance system in each country in the region that fulfils recommended surveillance performance indicators

All Member States in the Region have initiated case-based surveillance for measles and rubella. The surveillance standards in the Region have been revised to meet elimination standards. The surveillance performance indicators are gradually being strengthened with non-measles non rubella discarded rate (a proxy to the sensitivity of surveillance) at 0.50, much below the target of two per 100,000 populations indicating that the sensitivity of the surveillance is still around 25% or less (Table 2). CRS surveillance is conducted in all countries - eight as sentinel site surveillance and in three countries as part of integrated disease surveillance. An estimated 52 thousand children are born every year with CRS in the Region.

Table 2: Key Field SURVEILLANCE PERFORMANCE indicators, SEAR 2016

Country	Number of suspected measles cases	Adequate investigation within 48 hours	Discarded non-measles non-rubella incidence per 100,000 total population	subnational units with two discarded non-measles non-rubella cases per 100,000 total population
Bangladesh	4 297	94	1.96	80 %
Bhutan	149	63	8.05	55 %
DPR Korea	73	100	0.27	ND
India	41 025	0	0.17	10%
Indonesia	8 099	44	0.72	ND
Maldives	11	100	3.22	30%
Myanmar	587	0	0.60	12%
Nepal	1 050	13	2.79	53%
Sri Lanka	340	63	1.10	27%
Thailand	1 431	25	0.64	ND
Timor Leste	122	75	8.25	46%
SEAR	**57 184**	**15**	**0.48**	-

Source: 2016 Weekly reports from countries, updated 22 May 2017

Develop and maintain an accredited measles and rubella laboratory network that supports every country or area in the region

Measles-rubella surveillance in the region is supported by a WHO accredited network of measles-rubella laboratories with at least one proficient laboratory in each of the countries. The Measles Rubella (MR) Laboratory Network in the Region has expanded from 23 laboratories in 2013 to 39 WHO-accredited laboratories in 2016, and it is proposed to include six additional laboratories in the network in 2017. Of the 57,184 suspected measles cases in the Region in 2016, around 19,992 (35%) were tested in the MR laboratory network for serology of which 7,759 (39%) were IgM (Immunoglobulin M) positive for measles and 2,850 (14%) positive for rubella IgM. Around 95% of serology specimen received in the laboratory within 5 days of specimen collected and in 48% of the cases serology results were reported within 4 days of the receipt of the samples by the laboratory (Table 3).

Table 3: Key Laboratory surveillance performance INDICATORS SEAR 2016

Country	Number of suspected measles cases	Laboratory confirmed Measles	Laboratory confirmed Rubella	serum specimen received in within 5 days	serology result within 4 days	measles cases with virology
Bangladesh	4 297	619	165	99	94	12%
Bhutan	149	10	0	82	82	55 %
DPR Korea	73	0	0	100	100	ND
India	41 025	3 672	1 631	94	45	10%
Indonesia	8 099	2 367	1 005	31	57	ND
Maldives	11	0	0	100	100	30%
Myanmar	587	194	10	96	100	12%
Nepal	1 050	136	22	14	97	53%
Sri Lanka	340	64	1	100	94	27%
Thailand	1 431	695	7	55	99	ND
Timor Leste	122	2	9	100	100	46%
SEAR	**57 184**	**7 759**	**2 850**	**58**	**55**	-

Source: 2016 Weekly reports from countries, updated 22 May 2017

Strengthen support and linkages to achieve the three strategic objectives listed above

All countries have developed a national plan for measles elimination and rubella control by 2020. A Regional Verification Commission was established to review progress on measles elimination and rubella control in the Region. All 11 Member States have a functional National Verification Committee for Measles Elimination and Rubella–CRS control. An outbreak preparedness and response plan is in the process of being developed in Bangladesh, Bhutan and Maldives

The overarching goal of universal health coverage and the core theme of "leaving no one behind" in the Sustainable Development Goals provide a renewed opportunity to improve national immunization programmes, enhance access to new vaccines, and help strengthen health systems to sustain the gains made thus far.

Key challenges:

- Immunization: The coverage of MCV2 (second dose of measles containing vaccine) has remained at around 76% (provisional) in 2016 and the sub-national coverages are not uniform. The coverage of rubella containing vaccine in routine immunization is reported at around 12% for the Region in 2016.
- Surveillance: There is a need to enhance the sensitivity of the surveillance system by either broadening the case definition of suspected measles and/or increasing the number of reporting sites which requires additional training and resources. Virology done only in very few chains of transmissions which needs to be enhanced.
- Linkages: Cross border collaboration and synchronized outbreak response plan needs to be developed in all countries in the Region.
- Human resources: Polio-funded human resources and systems have been established in five Member States of the Region over the past two decades to support polio eradication activities. This workforce has been increasingly supporting surveillance and immunization activities for measles elimination and rubella control over the past few years. The Global Polio Eradication Initiative has now indicated a ramp down of polio funding between 2017 and 2019, followed by an eventual cessation of this funding. This poses a huge risk to the goal of achieving measles elimination and rubella control in the Region.

Goal 3: Polio-free status is maintained

Background

The South East Asia Region reported the last polio case due to wild poliovirus on 13 January 2011 and was certified polio-free on 27 March 2014. However, the risk of spread of wild poliovirus following importation from one of the currently polio-infected countries remains. Countries in the Region also remain at risk of emergence of vaccine derived polioviruses (VDPV) in areas with low immunization coverage as long as oral poliovirus vaccine (OPV) continues to be administered. An outbreak due to circulating vaccine derived poliovirus type 2 (cVDPV2) was detected in Myanmar in 2015, to which an aggressive response was mounted to curtail virus transmission. The second ooutbreak response assessment (OBRA) conducted in October 2016 concluded that VDPV transmission had been interrupted in Myanmar.

Achievements/Progress:

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

The overall non-polio AFP rate in the Region in 2016 was 8.36 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 2016 in seven countries, namely Bangladesh, Bhutan, India, Maldives, Myanmar, Nepal and Thailand, while it was between 1 and 2 in the remaining four countries. In 2016, adequate stool samples were collected from 87% of the reported AFP cases in the Region, as against the globally recommended target of at least 80%. Adequate stool samples were collected from seven countries, namely Bangladesh, DPR Korea, India, Indonesia, Myanmar, Nepal and Sri Lanka in 2016.

ES activities in the Region have been expanded to include additional sites in Indonesia and India during 2016. Environmental surveillance has been initiated in Thailand in 2016. A total of 45 sites in four SEAR countries - namely Bangladesh, India, Indonesia and Thailand - are currently conducting ES. Efforts to initiate ES in Myanmar and Nepal during 2017 are in progress. ES data has provided important evidence for the disappearance of Sabin like poliovirus type 2, following the switch from tOPV to bOPV during 2016, and has also helped to investigate and respond to VDPVs detected in sewage samples.

During 2016, the Regional polio laboratory network (RPLN) tested 101,334 stool specimens and timeliness of reporting primary culture results within 2 weeks of receipt of samples was 95% as against the global requirement of ≥80%. This indicates a very high level of competence in the RPLN in accordance to global quality standards. Accreditation visits reaffirm that the laboratories in the network have updated standard operating procedures for safe handling of AFP specimens, viral isolates and are meeting the global benchmarks for polio virus diagnostics.

Population immunity through routine immunization (RI) and supplementary immunization activities (SIAs)

Six countries - namely Bangladesh, Bhutan, DPR of Korea, Maldives, Sri Lanka and Thailand - have reported OPV3 coverage above 90% while India, Indonesia, Myanmar, Nepal and Timor Leste have coverage between 80-90% in 2016 (data source: WHO and UNICEF estimates of national immunization coverage, July 2017 revision). Mass polio-vaccination activities with OPV were conducted in Bangladesh, India, Indonesia, Myanmar and Nepal in 2016 to close immunity gaps against polio.

Switch from tOPV to bOPV

During a two-week period in April 2016, all 11 countries in the WHO SEAR Region switched from using the trivalent oral polio vaccine (tOPV) to bivalent oral polio vaccine (bOPV). ES data was closely monitored for detection of Sabin like polio virus 2, specifically after the switch, and it provided crucial epidemiological information to guide the programme. Six VDPV type 2 were detected in sewage samples during 2016 in the Region, as a part of routine ES. All six VDPVs were reported from India, two reported prior to the switch and four after; one each during the months of April and

May, and two in June. All VDPVs detected in ES were adequately investigated for evidence of circulation in Region. A mass vaccination campaign was conducted in India with fractional IPV subsequent to detection of VDPV 2 in 2016. Sabin-like type 2 polioviruses were reported in ES samples collected from two sites in India between August and December 2016 following which massive search operations for tOPV were conducted and the left over tOPV vials were detected, removed and destroyed.

IPV introduction, challenges and actions to mitigate the risks

All Member States in the Region have introduced IPV between 2014 and 2016. As part of risk mitigation strategies associated with the global IPV shortage, the available IPV supplies are being prioritized towards countries of the Region that are at a higher risk of poliovirus resurgence, namely India, Indonesia, Myanmar and Timor-Leste. Two countries in the Region, India and Sri Lanka, have replaced the full dose IPV schedule with two-fractional (one-fifth) doses in their routine immunization schedule, in order to stretch the available IPV supplies. Another two countries, Bangladesh and Nepal, are in the process of shifting to the fractional IPV dose schedule, instead of a full dose schedule, before end-2017.

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 (NAC) 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, NAC 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. The RPLN has conducted several bio-risk management capacity building activities. Countries are being supported with direct technical assistance to prepare their activity plans for containment of Sabin2/OPV2 materials.

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 for polio eradication activities. The 9th meeting of the South East Asia Regional Certification Commission for Poliomyelitis Eradication (SEA-RCCPE) was successfully conducted from 07-09 December 2016 in Colombo, Sri Lanka. The RCCPE reviewed progress in each country in the Region and concluded that the Region has remained polio-free.

Transition planning

The transition planning process has been initiated in five countries of the Region that have substantial polio assets. These countries include Bangladesh, India, Indonesia, Myanmar and Nepal. A country-by-country approach is being adopted due to a difference in the scope and type of support being provided by polio networks in different countries, as well as variability in the capacities of different countries to absorb and support functions that are currently supported by polio networks.
The transition planning process has progressed well in India and an incremental increase in funding support for the polio network from the domestic budget of the government is being worked out. Transition plans are also being developed in Bangladesh, Indonesia, Myanmar and Nepal, with alternative funding options being explored in these Member States.

Key challenges:

- Maintaining high-quality AFP surveillance and sustaining high population immunity against polioviruses will become increasingly difficult during the post-eradication phase as countries turn towards other priorities and become complacent in implementing activities targeted to maintain polio-free status.
- All countries in the SEA Region are affected and are facing difficult decisions in how to manage the global shortfall of IPV supply.
- Funding from the GPEI for polio assets (human resources, systems and processes) is expected to decline from 2017 to 2019 and eventually stop, making it increasingly difficult to sustain activities required to maintain the polio networks that are not only

supporting activities to maintain polio-free status but are also supporting other public health initiatives in the Region. The involvement of the national governments and identification of alternative sources of funding to manage the polio-funded networks remains a challenge to mitigate the programmatic risks associated with the ramp-down of polio funding.

- Although containment activities have been agreed upon and are in process, decreased funding and the need to address other priorities may distract countries from completing poliovirus containment activities in accordance with GAPIII to minimize poliovirus facility-associated risk after type-specific eradication of wild polioviruses and sequential cessation of routine OPV.

WHO Timor Leste K Reidy

Goal 4: Elimination of maternal and neonatal tetanus (MNT) is sustained

Background

By the end of 1999, when a renewed initiative was launched by WHO and its partners, UNICEF and the UN Population Fund, the group of 57 countries yet to achieve the MNT elimination target included Bangladesh, India, Indonesia, Myanmar and Nepal. Timor Leste joined this grouped when the country became independent. Following many years of strong routine immunization and quality surveillance systems it could be assumed that Bhutan, the Democratic People's Republic of Korea, Maldives, Sri Lanka and Thailand had already achieved MNT elimination before 2000.

With the globally recommended strategies, the Nepal, Bangladesh, Myanmar and Timor Leste reached the elimination goal and were validated by WHO in 2005, 2008, 2010 and 2012 respectively. Recognizing the high NT burden in the country, estimated at 150,000 to 200,000 cases annually based on studies, India committed to achieve MNT elimination through strengthening of routine immunization activities, including increasing tetanus toxoid containing vaccine (TTCV) coverage, improving clean delivery practices through institutional births, and training of birth attendants. The launch of the National Rural Health Mission (NRHM) in 2005 helped to strengthen these initiatives. India approached MNT elimination in a phased manner and on 15 April 2015, WHO confirmed that India had successfully eliminated MNT. This landmark achievement was the conclusion of an in-depth data review and community-based validation surveys, the last of which was conducted in Nagaland in April 2015, confirming that this state had reached the target.

Achievements

Indonesia following a phased approached like in India and on 19 May 2016 the last region of the country achieved validation, following extensive data review and field surveys in Papua, considered the lowest performing province. By extension MNT elimination was concluded to have been reached in Indonesia as a whole. Indonesia's success is based on a combination of routine TTCV immunization of pregnant women and "brides-to-be", school based immunization (BIAS) with DT/Td as well as targeted supplemental TTCV immunization of all women of child bearing age in areas considered high risk for neonatal tetanus and also clean and safe deliveries.

In May 2016, the WHO South-East Asia Region was the second among the six WHO Regions (the European Region being the first) to have achieved MNT elimination. At the 69th Regional Committee meeting of the WHO South-East Asia, Regional Director Dr Poonam Khetrapal Singh – in the presence of Director General Dr Margret Chan - felicitated Member States for this as well as other remarkable public health achievements in 2015 and 2016. The Regional Director also highlighted how this historic public health milestone followed more than two decades of collective efforts by governments, front line health workers, volunteers, communities and a strong international partnership spearheaded by UNICEF, UNFPA and WHO. A respective advocacy document and video were produced and are available on the SEARO website.

All countries in the Region follow the WHO recommendation on vaccinating pregnant women with TTCV. Over 80% coverage with two or more doses of TTCV in pregnant women (TT2+) has been reported by seven countries for several years (source: WHO UNICEF Joint Reporting Forms). Regional TT2+ coverage improved from 64% in 2014 to 77% in 2016 and has been maintained at this level. Lower coverage does not necessarily indicate weak programme performance; as women of child bearing age (WCBA) accumulate repeated vaccine doses during multiple pregnancies and supplementary immunization, they become non-eligible during future pregnancies while still contributing to the target denominator. Various field surveys during validation exercises indicated much higher protection at birth than reported TT2+ coverage suggests.

Infant immunization against tetanus (DTP and Penta vaccines) rose from 56% in 2000 to 88% in 2016 (Source: WHO UNICEF official estimates of national immunization coverage, July 2017 revision). Several countries (Bhutan, India, Indonesia, Sri Lanka, Thailand,

Timor Leste) have booster doses in early childhood or integrated TTCV vaccination into their school health programmes. Seven national immunization programmes also provide a combination of tetanus and diphtheria toxoid as late childhood booster doses and/or for pregnant women; for further benefits.

As a result of immunization efforts and improved neonatal tetanus (NT) surveillance, often integrated with other vaccine preventable disease (VPD) surveillance, 366 NT cases were so far reported in 2016; from five countries (Source: JRF; no data included for Bhutan and Indonesia and India figures provisional). None of the countries exceeded the "elimination" definition of <1 NT case per 1,000 live births (LB) in each district (3rd administrative level of a country).

Key challenges:

- Maintaining MNT elimination status is challenging throughout the Region due to (a) the existence of areas of low immunization coverage, (b) the occurrence of a significant number of births without skilled attendants and (c) an inadequate focus on NT surveillance.
- In areas with suboptimal antenatal care, the protection of pregnant women against tetanus has not been fully achieved. Providing an adequate number of booster doses of tetanus vaccine is still demanding for some NIPs.
- Better overall maternal and neonatal care requires access to SBAs and clean delivery and cord care practices, both out of the direct control of the immunization programme.
- Despite improvements, it can be challenging to assess the quality of NT surveillance and NT cases may still occur unreported, and therefore difficult to monitor elimination status and identify areas where MNT is still occurring.

Goal 5: Control of Japanese Encephalitis is accelerated

Background

Currently, 10 out of 11 countries in the SEA Region are endemic for JE with the exception of Maldives. In the mid-1980s, the disease was reported in Sri Lanka and Thailand predominantly as outbreaks. Both countries introduced mouse-brain-derived inactivated JE vaccines (MBDJEV) in high-risk areas in the late 1980s, and noted a significant reduction in the number of disease outbreaks and cases. Subsequently, both countries added JE vaccine to the national childhood immunization schedule to expand access to all children, nationwide. Large outbreaks were reported in India and Nepal, and JE vaccine was introduced in high-risk areas as a control strategy with newly-developed live-attenuated JE vaccine (LJEV) in in 2005 and 2006 respectively. In 2009, Sri Lanka shifted from MBDJEV to LJEV. Thailand is currently replacing the MBJEV with the LJEV.

With the introduction of the JE vaccine, either nationwide or in selected high-risk areas as SIAs followed by routinely for infants, JE is under control in Sri Lanka and Thailand and the incidence is gradually declining in Nepal. In these countries, the disease appears only sporadically, with small outbreaks occurring among unvaccinated adults.

In India, despite SIAs in 204 high-risk districts and the inclusion of JE vaccine for infants in the NIP for almost a decade, certain states still experience seasonal outbreaks, perhaps due to low immunization coverage. Since the disease is reported in significant numbers among unvaccinated adults, several sates in India have now expanded JE vaccination to include adults.

Achievements/Progress:

Develop and sustain AES surveillance through integrated national surveillance system or sentinel surveillance in endemic countries:

DPR Korea, Myanmar, Nepal, Sri Lanka and Thailand and Timor Leste have national surveillance for JE. India and Indonesia have extensive sentinel surveillance network. Bangladesh plans to start national surveillance. In 2016, a total of 2 209 AES cases, including laboratory confirmed JE, were reported in the SEA Region. While 91% of AES cases were reported in India and Nepal, it is estimated that only about 10% to 20% of AES cases in those countries could be JE.

Table 3: Number of JE cases reported by each country from 2006 to 2016 are mentioned below

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Bangladesh		204	702	15	15	103	52	23	183	76	44*
Bhutan				0	0	3	27	0	2	5	5
DPR Korea	0	0	124	10		0	0	0	0	0	0
India		4017	427	653	555	1214		1078	1657	1620	1627
Indonesia									72	39	ND
Maldives				0	0	0	0	0	0	0	0
Myanmar	0	28	5	8	18	20	14	3	50	113	393
Nepal	290	435	329	146	183	126	75	118	1304	937	98
Sri Lanka	29	45	118	72	27	30	60	70	21	17	20
Thailand	49	43	64	36	40	52	54	59	31	23	21
Timor-Leste		0	0	3	0	0	0	5	0	0	1
SEAR	**368**	**4772**	**1769**	**943**	**838**	**1548**	**282**	**1356**	**3217**	**2830**	**2209**

Source: WHO/UNICEF joint reporting forms from member countries
*Provisional data to be confirmed

Developing accredited national laboratories in endemic countries:

There are 14 laboratories in the SEA region. In 2016, 12 labs were accredited. These include 6 laboratories in India and one each in Bhutan, Indonesia, Myanmar, Nepal, Sri Lanka and Thailand.

Analysing the disease burden for JE and risk factors for transmission of the disease:

For several years India, Nepal, Sri Lanka and Thailand have analysed risk factors and initiate vaccination programmes. Following comprehensive analysis of national data Myanmar is planning for introduction of JE vaccine.

ITAG 2017 recommended that WHO should set-up a subcommittee to conduct a desk review of the JE situation in the Region and propose strategic directions to identify and vaccinate people living in JE endemic areas. Findings of the subcommittee should be submitted to next ITAG

Achieve more than 90% coverage in all existing JE immunization programmes in countries and introduce JE vaccination through routine immunization in countries with demonstrated JE risk:

Table 4: Characteristics of JE immunization programs in SEAR countries

Country	JE immunization program	Strategy	Age of immunization	Vaccine used in national program
Bangladesh	None	----	----	----
Bhutan	None	----	----	----
DPR Korea	None±±	----	----	----
India	In 216 Endemic Districts out of 676 districts	Routine	9-11 months	CD-JEV
Indonesia	Planned in Bali in 2017	----	----	----
Myanmar	Planned nationally in Jan 2018	----	----	----
Nepal	National	Routine	12 months	CD-JEV
Sri Lanka	National	Routine	12 months	CD-JEV
Thailand	National	Routine	12 months	CD-JEV, JE-CV
Timor Leste	None	----	----	----

Abbreviations: CD-JEV = live attenuated JE vaccine; JE-CV = live recombinant JE vaccine; MB = inactivated, mouse brain-derived JE vaccine; VC= inactivated, Vero cell culture-derived JE vaccine. ±± DPR Korea conducted a JE vaccination campaign in 2016.

Conducting wide age rage immunization campaigns based on the disease burden:

Nepal has conducted JE immunization campaigns for children 9 months-15 years in several phases. Similarly India conducted campaigns targeting children 9 months -15 years in 216 endemic districts. Myanmar is planning to conduct national campaign targeting children 9 moths -15 years in November and December 2017. The Democratic People's Republic of Korea identified high-risk provinces and conducted SIAs with JE vaccine in those areas in 2009/2010 and in 2014. The country has yet to include the JE vaccine in their routine immunization programme

Creating partnership for advocacy and resource mobilization of JE Control:

PATH, WHO, CDC and UNICEF supported governments of India and Nepal in AES surveillance and JE vaccine introduction. Gavi has opened the funding opportunity for JE supplementary immunization campaigns. Gavi supported expansion of JE vaccination in Nepal and will be funding the national JE campaign in Myanmar.

Key Challenges:

- JE/AES surveillance and laboratory confirmation of JE cases is suboptimal in all JE-endemic countries in the SEA Region. JE sentinel surveillance is carried out in some countries by WHO-supported surveillance systems. With the exception of India, the Sri Lanka and Thailand, the remaining JE-endemic SEA countries are still dependent on WHO support for the supply of laboratory test kits.
- In countries with limited primary health care facilities and insufficient laboratory support, a large number of non-JE cases and deaths are labelled and reported as JE/AES cases.
- JE-endemic countries that have not had outbreaks find it difficult to prioritize JE vaccine introduction given other priority vaccine-preventable diseases.
- Countries such as the Bhutan and Indonesia which are potentially endemic for JE have lost the opportunity to obtain Gavi support for JE vaccine introduction because their economic status means that they are no longer eligible or are becoming ineligible for Gavi support. If JE disease burden is not assessed and vaccination programmes initiated as appropriate, Bangladesh and the Democratic People's Republic of Korea will also miss the opportunity for Gavi support for JE vaccine introduction

Goal 6: Control of hepatitis B is accelerated

Background

In 2015 prevalence of chronic hepatitis B in the SEAR was estimated to range between 3-5% depending on the sources. Subsequently, WHO estimated that there are approximately 100 million persons with chronic hepatitis B virus (HBV) infection (~5%) resulting in an estimated 300,000 deaths as a result of its consequences such as liver cirrhosis and hepatocellular cancer each year across the region. The prevalence of chronic hepatitis B infection varies by country and target population. In addition, intra-country variability of infection rates has also been observed.

In 2016, the SEAR ITAG recommended a Regional goal of reaching a ≤1% prevalence of hepatitis B surface antigen (HBsAg) among 5 year old children in 2020; in line with the Global Health Sector Strategy on Viral Hepatitis (GHSSVH).

Achievements

In 2016, all 11 countries in the Region had introduced hepatitis B vaccine (HepB) into their routine immunization schedules as part of combination vaccines, and eight countries (Bhutan, DPR Korea, India, Indonesia, Maldives, Myanmar, Thailand, Timor-Leste) had introduced universal HepB birth dose (HepB-BD).

The overall HepB3 coverage in the Region increased from 53% in 2010 to 88% in 2016 (Source: WHO and UNICEF estimates of national immunization coverage, July 2017 revision). Although HepB3 coverage is reported to be >90% in seven countries, it does not yet reach these levels in India (88%) and Indonesia (79%) which account for the largest births cohorts in the region.

Among the eight countries that included HepB-BD in their vaccination schedule in 2016, coverage was >90% in four (Bhutan, DPR Korea, Maldives, Thailand). India which contributes 70% of the births annually in the Region reported a HepB-BD coverage of 47% and Indonesia 83%. Figures relate to vaccination within 24 hours of birth in the DPR Korea and India and within 7 days in the other countries reporting (data source: WHO UNICEF Joint Reporting Form). Timor Leste introduced the HepB-BD in February 2016 and reported 32% coverage while no relevant coverage figures were yet available for Myanmar due to the recent introduction in the last quarter of 2016.

As the 2016 ITAG meeting had also recommended developing an action plan for accelerating hepatitis B immunization towards the regional control goal, the updated RVAP 2016-2020 details strategic objectives, recommended activities and key monitoring indicators for accelerating hepatitis B control. The RVAP also provides frameworks under goals of strengthening of routine immunization systems (goal 1) and introduction of new vaccines (goal 7) for future hepatitis A and E vaccination as part of comprehensive national hepatitis prevention strategies.

Nationally representative serosurveys among children at least 5 years of age to estimate post-vaccination estimates are available in Bangladesh, Nepal and Thailand; with a survey currently ongoing in Bhutan. In India, there are a number of studies, but all focused on one area or state. In Nepal, subnational studies have shown geographic variability in HBsAg prevalence. DPR Korea, Maldives and Timor Leste have no serosurvey data yet but planning has commenced.

IVD SEARO has developed draft country profiles on hepatitis B control with relevant and available data sources from IVD, CDS (viral hepatitis control) and CAH (MNCH) as well as a general information / communication / advocacy package. The 2016 analysis on status and progress of hepatitis B control through vaccination in the SEAR is being updated; in consultation with WHO HQ and US CDC and their respective modelling work.

Key challenges:

- Countries lacking prevalence and surveillance data on hepatitis B may have difficulties in prioritizing its control and marshalling sufficient political and financial support.
- High immunization coverage for HepB BD has not been attainable in countries where home births and unskilled birth attendance are the norm.
- Monitoring private-sector immunization with HepB BD requires new systems for communication and data sharing between private providers and the government.

Goal 7: Introduction of new vaccines and related technologies accelerated

Background

New and increasingly sophisticated vaccines have become available in the last decade for diseases that have not traditionally been targeted by national immunization programmes.

In the process of a new vaccine introduction specific activities that are considered include integrating surveillance of the disease targeted with a new vaccine with national surveillance or establishing sentinel surveillance, analysing disease burden, involvement of national technical advisory group decision taking, conducting cost effectiveness of the introduction, review the sustainability, develop comprehensive plans based on the experiences of previous new vaccine introduction, monitoring after introduction and conducting post introduction evaluations. Priority vaccines for the consideration based on the disease burden of the countries were PCV, HPV, JE vaccine and rotavirus vaccine.

Introduction of new vaccines in the South-East Asia Region, as of June 2017

SEA countries	Hep B	Hib	IPV	Rubella	JE	HPV	Mumps	PCV	Rota
Bangladesh	2003	2009	2015	2012	-	2016*	-	2015	-
Bhutan	1997	2009	2015	2008	-	2010	-	-	-
DPR Korea	2003	2012	2015	-	-	-	-	-	-
India	2002	2011	2015	2017	2007	2016@	-	2017@	2016@
Indonesia	1997	2013	2016	2017	-	-	-	-	-
Maldives	1993	2013	2015	2006	-		2007		
Myanmar	2003	2012	2015	2015	-	-	-	2016	-
Nepal	2005	2009	2014	2015	2007	2016*	-	2015	-
Sri-Lanka	2003	2008	2015	1996	1998	-	2013	-	-
Thailand	2008	-	2015	1986	1990	2014	1997	-	2011$
Timor Leste	2007	2012	2016	2015	-	-	-	-	-

*Bangladesh and Nepal commenced demonstration introduction of HPV in 2016

@India has introduced HPV in one state, PCV in in four states and Rota vaccine in six states

#Thailand has introduced HPV in one provide

$ Thailand has introduced Rota vaccine in one province and plans for national expansion from 2018-2020

Achievements/Progress

All Gavi eligible countries have added three or more new vaccines to the national immunization schedule during the last decade, and have strengthened their NIPs in the process. Even countries in the SEA Region not eligible for funding from Gavi, such as Maldives and Thailand, have introduced new vaccines.

All countries in the SEA Region have introduced HepB-containing vaccines in the national immunization schedule, and seven countries (Bhutan, the Democratic People's Republic of Korea, India, Indonesia, Maldives, Thailand and Timor-Leste) have introduced HepB birth dose as well. All countries in the Region, except Thailand, have introduced Haemophilus influenza b vaccine (Hib) in a pentavalent formulation.

Bhutan has introduced human papillomavirus (HPV) vaccine. Bangladesh and Nepal have conducted HPV vaccination demonstration projects with Gavi support and have plans for national introduction. Bangladesh, Nepal and Myanmar have introduced pneumococcal conjugate vaccine (PCV). India has introduced in four states and is planning to introduce PCV on a state-by-state basis. India has introduced Rota vaccine in six states and planning to introduce in two more states in 2017. Thailand has introduced rotavirus vaccine in one province and is planning for national introduction from 2018-2020. As a part of the polio eradication end-game strategy, all SEA Region countries have introduced IPV and switched from trivalent OPV (tOPV) to bivalent OPV (bOPV) in their national immunization schedules.

There are sentinel surveillance sites in countries for invasive bacterial disease and rotavirus surveillance. Data obtained from these sites have allowed the introduction of PCV in Bangladesh, India, Nepal and Myanmar and the introduction of rotavirus vaccine in India.

These new vaccines in the National Immunization Program confirm the strong commitment of SEA countries toward children and adolescents vaccination. However, all countries reported shortages of vaccine in the Joint Reporting Form (JRF) for the period 2014-2016. This same year IPV shortage started with one country. In 2016, the situation of IPV supply further deteriorated affecting all countries except Indonesia as well as in countries which shifted to fractional dose of IPV. SEA countries responded with a two prong approach to address issues of IPV shortages and improve access to quality vaccine at affordable price:

- strengthening regional cooperation to supply vaccine
- reducing vaccine requirement with intradermal fractional dose (1/5 of 0.5 ml) of IPV referred as fIPV, and enforcing compliance to Multi-Dose Vial Policy (MDVP).

Key Challenges:

- Several countries in the SEA Region have delayed or declined the introduction of one or more new vaccines because of questions regarding the long-term sustainability of maintaining the new vaccine in the national immunization schedule given the implications of this for the national budget. Even countries eligible for Gavi support for at least five years following the introduction of some new vaccines had difficulties to justify the costs associated with these vaccines. These countries are missing out on the opportunity to add new antigens to their national immunization schedules.
- Some countries lack reliable disease burden information on which evidence-based decisions can be made to introduce a new vaccine. Countries need to strengthen their vaccine-preventable disease surveillance and make special efforts to generate disease burden information.
- Despite demonstrated disease burden, policy makers would like to know the economic benefits and cost effectiveness of a new vaccine before deciding to include the vaccine in the national immunization schedule; this is particularly the case when there are competing demands for funding of public health programmes in the country.
- Sustaining immunization financing for MICs and previously Gavi-eligible countries that are currently self-financing (Sri Lanka and Bhutan) and on transition (Indonesia and Timor Leste) will be a challenge for the region and the countries themselves.

Goal 8: Access to high quality vaccines is ensured

Background

Recognizing that access to affordable vaccines of assured quality is central to the performance of immunization programmes, the South East Asia Regional Vaccine Action Plan 2016-2020 has identified ensuring access to high quality vaccine as one of the 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, representing a significant supply to the global market. The People's Republic of Bangladesh has established significant vaccine manufacturing capacity, and is currently positioned to manufacture cholera vaccine for the UN, which could help address a global shortage situation and needs to be assessed on its functionality. At present, only the Republic of Indonesia, the Republic of India and the Kingdom of Thailand have NRAs assessed as functional by WHO.

The key strategy to ensure access to high quality vaccines is by enhancing regional cooperation through the expansion of centers of excellence (WHO-GLO) to provide training and technical support to countries in the region in the areas of vaccine regulatory and immunization supply chain management. In April 2017 the Regional Office for SEA supported the first South East Asia Regulatory Network meeting in New Delhi to promote regional cooperation in the areas of vaccine regulatory and immunization supply chain management.

There is a strong need in the Region to invest in research, development and manufacturing techniques to identify 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 NRA, manufacturers by communicating regularly and working in partnership with researchers, biotech companies and universities to develop new vaccines and technologies.

Progress/Achievements

An initiative of the National Vaccine Institute under the MOPH in Thailand brought the ASEAN countries together in 2015 to pave the way to include vaccine security and self-reliance in the ASEAN-Post 2015 Health Development Agenda. In 2016, "ASEAN Vaccine Security and Self-Reliance" (AVSSR) is officially included by approval of the 11th Senior Officials Meeting on Health Development in 2016, under the Health Priority Issue XVII. The ASEAN is now looking for a group procurement mechanism to buy selected vaccine in bulk to supply the NIP in the 10 ASEAN country members.

Adapting to vaccine shortage

The shortage of IPV left a growing birth cohort unprotected against Type 2 polio. In March 2015, WHO SAGE recommended countries to shift to a two-dose schedule with intradermal 0.1 ml fractional dose of IPV in routine to mitigate supply shortages. In 2016, Sri Lanka, India Bangladesh have shifted from one dose of 0.5 ml intramuscular IPV to two doses Intradermal 0.1 ml before the child reach 1 year of age. The 3 SEA countries, today the only countries in the world administering fIPV in routine, will continue with this schedule even though the global supply resume.

Immunization supply chain management strengthening

Immunization supply chain management assessment was conducted in all SEA countries. Findings highlight the needs to upgrade existing cold chain infrastructure and investments in human resources and staff training. Through HSS and other funding sources including domestic funds equipment and cold chain equipment were procured to upgrade existing cold chain in several countries. In the other hand, investments in HR and to strengthen national training capacity were more limited in several countries. MOHFW in India invested in a comprehensive action plan to strengthen the national Immunization Supply Chain Management system. Substantial quantity of cold chain equipment was supplied to upgrade existing infrastructure according to a national cold chain and vaccine logistics

action plan. The MOHFW in Delhi invested in setting up two resources centers, one in Delhi and one in Pune fully equipped and staff to manage courses on Immunization Supply Chain Management and to organize workshops to train technicians on installation, operating and maintenance of cold room and other cold chain equipment.

WHO supported activities to the National Regulatory Authority Strengthening

2016 was marked with the global switch from tOPV to bOPV. SEA region was the first region to complete the licensing of the bOPV before April 2016. This is an important achievement given major challenges National Regulatory Authorities (NRA) in South East Asia region are confronted to regulate the safety, quality and efficacy of medicines and vaccine with increasing number of novel and more complex products and technologies.

WHO Regulatory Strengthening Support (RSS) strategy promotes reliance e.g.: take into account product assessment done by others including the WHO pre-qualification and; to support collaboration to avoid divergences[1] The Launch of the South Asia Region Regulatory Network (SEARN) 11-12 April, 2017 in New Delhi illustrates WHO support towards fostering through collaboration a regulatory environment that enhance access to medicine and vaccine of assured quality at affordable price and support technology transfers. Another WHO supported regional initiative is the National Control Laboratory Network which is a bi-regional mechanism with WHO Western Pacific region to produce reference material for vaccine testing. The Network which includes in SEA region India, Thailand and Indonesia met in August 2016.

WHO SEA with SEA NRAs have established several centers of excellence that provide training courses and technical support to NRA in the region. In 2015-2016 SEA National Regulatory technicians participated in a number of Global and Regional training workshops and experts meetings:

- The Central Drug Laboratory in Kasauly, India under the MOHFW in New Delhi is part of the WHO Global Learning Opportunity (GLO) network and conducted a 5-day course on vaccine lot release for SEA regulators in New Delhi in September 2015.
- SEA NRA managers participated in WHO workshop on sensitization towards quality management systems for national regulatory authorities Bangkok Thailand 13-17 June 2016 and;
- GLO course on product evaluation for marketing evaluation of influenza vaccines, Athens Greece 7-12 November 2016. In September 2017
- GLO center with the National Agency for Drugs and Food Control (NADFC) in Jakarta will provide a 5-day course for regulators on Good Clinical Practices Inspection in September 2017.

Enhancing regional cooperation for training, capacity building and technical support

Since 2015, WHO SEARO developed hand-on training workshops for regulators through twining programmes with assessed functional NRAs. Through a twining programme Thailand Food and Drug Agency (TFDA) provided training support and technical assistance to the National Directorate for Pharmaceutical and Medicines (NDPM) in Bhutan to implement new Standard Operating Procedures (SOP) and regulatory practices for vaccine. Similar twinning programme is being developed between the NADFC and the Department of Drugs Administration (DDA) in Nepal. These twining programmes offer a complement of hand-on practices and technical follow-up supports to implement new procedures in the country.

In 2016, new tools for AEFI monitoring and causality assessment were developed to expedite reporting through existing DHIS e.g. Bangladesh using core variables and a standardized algorism for causality assessment. The immunization safety expert committees of two countries India and Zimbabwe have jointly drafted a study protocol for the assessment of anonymized AEFI reports related to serious cases reported in both countries. A total of 250 AEFI cases from both countries with all identifier details and fully anonymized cases will be assessed and level of agreement between both countries on the findings will be evaluated for agreement. The study will evaluate the assessment methodology recommended by WHO also determine the utility of the electronic assessment tool. It will have an impact on future systematic AEFI causality assessments carried out by countries on a global scale.

Key Challenges:

- With new and more complex technologies being used to manufacture vaccines, it has become increasingly complicated, costly and time-consuming to maintain a positive enabling environment for manufacturers, to convince them to maintain focus on traditional vaccines that address public health priorities, and to ensure that NRAs remain fully functional.
- Manufacturers have invested in quality control system to enable them to expand their market and sell medicines and vaccines outside of their country.

[1] e.g.: International Generic Drugs Regulatory Programme, WHO collaborative registration, Article 58, ASEAN harmonization programme.

However, in low and middle income countries the public sector financing that NRAs have access to often requires a lengthy clearance process to obtain an amount of financing that is not commensurate with the regulatory requirements of ever more sophisticated products and technologies to manufacture medicines.

- Countries that do not rely on UNICEF for group procurement lack sufficient vaccine price transparency, procurement expertise or bargaining power to purchase vaccines. Alleviating these challenges will require more active global support.
- Sustaining financing for vaccines and immunization is always difficult in the face of competing demands and the need to respond to outbreaks and emerging or re-emerging pathogens.

WHO EPI

VI

Progress Report for the West Pacific Region

Contents

1. Background

In 2012, World Health Assembly endorsed the Global Vaccine Action Plan (GVAP) 2011-2020, which set 5 broad goals to achieve the Decade of Vaccine (DoV) vision through 28 strategies and 85 activities. Successful implementation of GVAP will avert millions of additional deaths due to vaccine preventable diseases (VPDs) by 2020. The Regional Framework for Implementation of the GVAP in the Western Pacific (hereinafter the Regional Framework) is aimed to translate strategies and activities recommended by the GVAP into the context of the Western Pacific Region. The Regional Framework has been endorsed by the Regional Committee for the Western Pacific (WPR/RC65.R5) and the Technical Advisory Group (TAG) on Immunization and VPD for the Western Pacific in 2014.

The Regional Framework has 8 goals for implementing GVAP in the Western Pacific and as of the first half of 2017,the region is making progress and is on track towards achieving many of its set goals, including:

1. **Sustaining polio-free status**
   All 36 countries have maintained polio-free status.
2. **Maternal and neonatal tetanus (MNT) elimination**
   All countries in the region have achieved the MNT elimination except two; the Philippines have planned for MNTE validation by the end of 2017. The tetanus toxoid supplementary immunization activities (TT SIA) are underway in Papua New Guinea.
3. **Measles elimination**
   Six countries and two areas were verified to have achieved measles elimination (interrupted endemic measles virus transmission for more than 36 months), but progress is slow towards the remaining countries. Out of six countries, one county that had been verified in March 2014 has re-established endemic transmission in 2015-2016.
4. **Accelerated control of hepatitis B**
   Based on any evidence, 21 countries have achieved the 2017 hepatitis B <1% target among 5 year old children. This has been verified for 18 countries. Progress is slow in Gavi-eligible countries (one country has reached the target).
5. **Rubella elimination**
   All countries have introduced Rubella containing vaccine (RCV) in routine immunization programmes.
6. **Introduction of new vaccines**
   The Western Pacific Region is on track with new vaccine introduction overall. All 36 countries have introduced RCV. Japanese encephalitis (JE) vaccine has been introduced in 3 of the 4 JE endemic Gavi-eligible countries.
7. **Meeting regional vaccination coverage targets**
   Since 2009, the region has sustained >95% coverage with 3 doses of diphtheria-tetanus-pertussis vaccine (DTP3), despite a slight drop in 2015. Twenty-two countries and areas had reached the GVAP target of DTP3 ≥90% coverage by 2016. Fourteen countries and areas had reached ≥95% coverage target by 2016.
8. **Accelerated control of Japanese encephalitis (JE)**
   JE vaccine has been introduced in 3 of the 4 JE endemic Gavi-eligible countries.

Despite the observed progress towards the achieving goals of RF, the region still has challenges: (a) inadequate use of available strategies to improve and strengthen immunization services to reach set coverage targets; (b) uneven immunization coverages, particularly at subnational levels leading to population immunity gap and resulting in outbreaks such as polio, measles, diphtheria; (c) gaps in surveillance and data management which challenge immunization programme monitoring and timely responses; and (d) financial sustainability.

The relevance of the 9 recommendations made by the Strategic Advisory Group of Experts on Immunization (SAGE) in the 2016 midterm review of the GVAP is varied across the region, as most recommendations are already in place in a majority of countries. However, all countries should give due attention to these recommendation to ensure the sustainability of progress achieved and to overcome remaining challenges towards the goals of GVAP and RF. Sections 2 and 3 of this report provide more details in regional progress related to each of the 9 recommendations provided by the SAGE.

2. Regional progress towards Regional Immunization Goals

2.1 Sustaining polio free status

2.1.1 Rationale and targets

The WPR was certified as being polio-free in 2000 and since then has successfully maintained this status. In line with the global Polio Eradication and Endgame Strategic Plan 2013–2018, the following targets were set in the WPR: sustain regional polio-free status; ensure timely detection and response to any poliovirus; eliminate vaccine-derived poliovirus (VDPV) risk; and implement the poliovirus laboratory containment.

2.1.2 Progress and achievements

In 2015, 15 out of 17 eligible countries in WPR have introduced at least one dose of IPV into their national immunization schedules. Sixteen countries, using any OPV in 2016, switched from trivalent oral polio vaccine (tOPV) to bivalent (bOPV) from 17 April–1 May 2016. In addition, 3 countries/areas (Malaysia, Tokelau and Tuvalu) stopped using OPV completely and switched to an all-IPV schedule in 2015. A high quality polio laboratory network has been maintained throughout the years and in 2016, 41 out of 43 network laboratories have ITD detection capacity. No isolation of Sabin type 2 poliovirus from human or environmental samples has occurred in the Region since August 2016. To strengthen surveillance for poliovirus, surveillance reviews have been conducted in priority and underperforming countries (based on the results of the annual risk assessments).

Box 1: Commitment and flexibility to shift from tOPV to bOPV within a specified short period

Declaration in September 2015 by the Global Certification Commission of eradication of type 2 wild poliovirus created an opportunity for countries using tOPV to switch to bOPV. As a part of this global exercise all 16 countries in the Western Pacific Region, using OPV in 2016, switched from tOPV to bOPV from 17 April–1 May 2016. In addition 3 countries/areas (Malaysia, Tokelau and Tuvalu) stopped using OPV completely and switched to an all-inactivated polio vaccine (IPV) schedule in 2015. This achievement is a tribute to the extraordinary leadership and engagement of all Member States. The level of commitment from countries to meet this goal was exceptional.

2.1.3 Remaining/emerging challenges

Due to the global supply shortage, Mongolia and Viet Nam did not introduce IPV in 2015 and will not be able to do so before 2018. Supply to other countries that already introduced IPV is still uncertain and interruptions might happen at any point. Limitations of global supply of IPV will lead to accumulation of populations susceptible to type 2 poliovirus.

Environmental surveillance (ES) has been used successfully in monitoring enteric virus circulation and assessing the extent and duration of epidemic poliovirus circulation in specific populations. The need for ES expansion may be necessary during the late stages of the polio end-game to supplement AFP surveillance with identifying any residual poliovirus transmission. Expansion of ES sites in the Region will require additional human and financial resources.

Implementation of Global Action Plan (GAP III) for polio laboratory containment has been ongoing in the Region. All poliovirus-essential facilities handling and storing type 2 poliovirus must be certified by its National Authority for Containment (NAC) in line with bio risk management requirements as described in GAP III. Countries are experiencing delays in nomination of members of NAC and proceeding with certification process.

In light of polio transition planning, it is uncertain how anticipated decrease in polio resources (human, financial etc.) will affect sustainability of polio programme in the Region, as well as other health programmes/activities that benefitted from polio assets for many years.

2.1.4 Responses to overcome challenges

To address global shortage of IPV supply, countries are encouraged to consider introduction of two-dose fraction IPV schedule into routine immunization schedule until supply situation improves. In line with the global plan on expansion of ES, several priority countries will have to initiate establishment of ES for polioviruses as supplemental for AFP surveillance. Countries should nominate NAC and identify members to start the certification process.

2.1.5 Support to be provided by WHO

The WHO Western Pacific Regional Office and Country Offices are providing technical and financial support to the countries for implementation of activities to sustain polio-free status and address existing and emerging gaps (e.g. response to cVDPV1 outbreak in Lao). WHO is closely working with countries affected by delayed supply of IPV (i) to manage the situation in initiation of environmental surveillance for poliovirus; (ii) to provide technical support for the implementation of GAP III requirements; and (iii) to organize trainings for members of NAC and auditors to assist with the certification process. WHO has prepared a guidance document for identification of potentially infectious materials that may contain Sabin type 2 and will submit it for endorsement by the Containment Advisory Group, during their meeting scheduled June 2017.

2.2 Maternal and neonatal tetanus elimination

2.2.1 Rationale and targets

The targets for achieving maternal and neonatal tetanus (MNT) elimination as per the Regional framework for Implementation of the Global Vaccine Action Plan are;

- By 2015, to achieve maternal and neonatal tetanus elimination in the WPR, defined as < 1 neonatal tetanus (NT) case/1000 live births in each district.
- Maintain elimination in every country and area (based on annual WHO/UNICEF District Data Spreadsheet).

2.2.2 Progress and achievements

By the end of 2016, all except 2 countries (Papua New Guinea and Philippines) in the Region have achieved MNT elimination (MNTE).

2.2.3 Remaining/emerging challenges

One of the major issues is not meeting the 2015 timeline for achieving MNTE goal in this Region as per the Regional Framework. There may be an urge to set the timeline in Papua New Guinea and Philippines to achieve MNTE in this Region.

The new WHO position paper[1] on tetanus vaccines in February 2017 recommends 6 doses of Tetanus Toxoid Containing Vaccine (TTCV) with 3 primary and 3 booster doses. Harmonizing the national vaccination schedules in line with the new recommendations may be a challenge in some countries, particularly in term of time interval for booster doses. Other challenges include targeting areas where immunization fails to reach a substantial proportion of pregnant women with 3 properly spaced doses of TTCV through SIAs; clean deliveries to effectively reduce MNT; and strengthening NT surveillance system in the countries.

2.2.4 Responses to overcome challenges

The Philippines conducted a lot quality assurance-cluster sampling (LQA-CS) survey in February 2015 in which 16 of 17 regions were validated as having achieved MNT elimination. In the last remaining region, the Autonomous Region of Muslim Mindanao (ARMM) district completed 3 rounds of tetanus-diphtheria supplementary immunization activities (Td SIAs). The validation for this ARMM region is to be done in 2017.

In June 2016, a joint assessment with WHO, UNICEF and National Department of Health (NDOH) was conducted in PNG to review situation on MNT. The plan of action was developed to achieve elimination with a proposed implementation of TT SIA in 2 phases in 2016-2017. However implementation has been delayed, and there is continued collaboration with NDOH and partners at each level to keep the efforts underway.

[1] Tetanus vaccine WHO position paper. WER. No. 6, February 20017, 81, 53– 76.

2.2.5 Support to be provided by WHO (WPRO and COs)

WHO provides support to the countries to harmonize the national schedules for TTCV in line with WHO recommendations with consideration to focus on school-based immunization of tetanus-diphtheria vaccinations for both boys and girls to provide protection against tetanus and diphtheria. Further support is provided to integrated service delivery of maternal and child health and immunization services in field settings.

2.3 Measles elimination

2.3.1 Rationale and targets

In 2003, the Regional Committee resolved to eliminate measles in the Western Pacific Region [WPR/RC54.R3] and, in 2005, established 2012 as the target year for elimination [WPR/RC56.R8]. The target year was reaffirmed in 2010 [WPR/RC61.R7] and 2012 [WPR/RC63.R5]. In the 2012 resolution, the Regional Committee urged Member States to interrupt all residual endemic measles virus transmission as rapidly as possible and establish national verification committees that regularly report to the Regional Verification Commission.

2.3.2 Progress and achievements

In 2012, the Region marked its historically lowest measles incidence and, in 2014-2016, six countries and two areas[2] in the Region were verified to have achieved interruption of endemic measles virus transmission for more than 3 years.

2.3.3 Remaining/ emerging challenges

During the region-wide measles resurgence in 2013 to 2016, the following new challenges were identified in countries experiencing massive resurgences of endemic measles virus transmission or nation-wide, large scale outbreaks after importation from endemic countries: (i) increased measles virus transmission among adolescent and young adults not targeted by the present immunization strategy and among infant too young to be vaccinated (e.g. <9 months of age); (ii) measles epidemiology has become more diverse within countries with large population; (iii) delayed and improper outbreak response; (iv) serious nosocomial transmission; (v) surveillance and laboratory activities lacking resilience during outbreaks in some countries; and (vi) insufficient involvement, partnership and collaboration of communities and other ministries, sectors and partners in several countries.

2.3.4 Responses to overcome challenges

Having been verified as having eliminated measles in March 2015, Cambodia has been affected by multiple importations of measles virus from other countries, followed by small scale measles outbreaks with 65 cases since early 2016 to February 2017. Aggressive outbreak responses were carried out with enhanced surveillance and a nation-wide mass immunization campaign with measles-rubella containing vaccine from March to May 2017. These efforts have led to a sustained period since February 2017 with no new confirmed measles cases.

Reviews on vaccine-preventable diseases surveillance including measles surveillance were carried out in Lao People's Democratic Republic *(2015)* and Philippines *(2016)* with international partners. Mongolia, Cambodia and Viet Nam have started developing a new national measles strategy and plan of action with technical support provided by WHO.

2.3.5 Support to be provided by WHO

In response to TAG's recommendations in 2015, WHO prepared and submitted to the 2016 TAG meeting a draft new regional strategy and plan of action for purposes of supporting countries in (i) preventing resurgence of endemic measles virus transmission, (ii) interrupting ongoing measles transmission in endemic countries, (iii) achieving and sustaining interruption of measles virus transmission in countries and areas approaching or having reached measles elimination, and (iv) preventing large-scale outbreaks after importation.

WHO continues to work with other international partners in supporting countries to develop and implement new national strategies and plans of action for measles and rubella elimination to address emerging challenges.

[2] Australia, Macao, Mongolia and the Republic of Korea (2014), Cambodia, Brunei Darussalam and Japan (2015), and Hong Kong (2016)

2.4 Accelerated control of Hepatitis B

2.4.1 Rationale and targets

Before hepatitis B vaccine was introduced, hepatitis B transmission was hyperendemic throughout most of the Region, with an estimated prevalence among 5-year-old children above 8% in 1990. Member States agreed in 2003 on a goal to reduce HBsAg prevalence to < 2% by 2012 as an interim goal towards reducing prevalence to < 1% among children ≥ 5 years by 2017. In 2016, the World Health Assembly adopted WHO's Global Health Sector Strategy on Viral Hepatitis, calling to eliminate viral hepatitis as a public health threat by 2030 by decreasing the HBsAg prevalence in children to 0.1% by 2030.

2.4.2 Progress and achievements

The 2017 regional seroprevalence target of 1% among immunized cohorts of children at least 5 years of age was met and immunization programmes in this Region have averted an estimated 7 million deaths and 37.6 million chronic hepatitis B cases among children born between 1990 and 2014.[3] As of June 2017, 18 countries have been verified as meeting the 2017 goal. In addition, 26 countries and area, including China, (see Box 5) have serosurvey evidence of HBsAg prevalence among 5-year-olds and work towards further hepatitis B control through immunization.

2.4.3 Remaining/ emerging challenges

Current challenges includes (i) increasing hepatitis B birth dose and third dose coverage in all countries and areas to over 95%; (ii) having countries use the hepatitis B vaccine outside the cold chain (OCC) where infrastructure and cold chain equipment are lacking and home deliveries are high; (iii) using innovative methods for sero-surveillance among children in low prevalence settings; improving communication strategies; (iv) strengthening laboratory networks to ensure nationally manufactured and imported lab tests are quality controlled and validated; and (v) integrating hepatitis B elimination activities with efforts towards elimination of mother-to-child transmission of HIV and syphilis, other Expanded Programme on Immunization (EPI) programmes and maternal, newborn and child health (MNCH) programmes to strengthen health systems.

Box 2: Hepatitis B immunization is significantly improved in LMIC

Cambodia is an example of a country that has dramatically improved their hepatitis B control through immunization. Since including hepatitis B vaccine into their national immunization schedule for all infants in 2005, birth dose coverage has steadily increased from 22% in 2007 to 90% in 2016, with three dose hepatitis B vaccine remaining above 90% since 2008. Having performed numerous communication efforts to reach target families and to train midwives and new health facility staff on the importance of hepatitis B vaccination; health facility births have nationally increased from less than 20% in 2006 to 85% in 2016. Concerted efforts to improve Cambodia's health infrastructure and transportation have helped to encourage families to deliver in these health facilities. In addition, midwives are given a $15 USD financial incentive to bring newborns into a health facility to receive their hepatitis B birth dose. From May-April 2017, Cambodia conducted their first nationally representative serosurvey after having introduced hepatitis B into their national immunization programme. Preliminary results from this serosurvey indicate that they have likely met the 2017 control goal of <1% among 5-year old children.

2.4.4 Responses to overcome challenges

The Member States have focused on all the aforementioned challenges and progress has been achieved in the following areas: (i) increasing health facility deliveries and conducting national birth dose assessments to identify barriers to HepB-birth dose (Cambodia, Lao People's Democratic Republic, Philippines and Viet Nam) (see Box 2); (ii) increasing hepatitis B education during antenatal care (Kiribati), improving links with communities and outreach vaccination (Kiribati, Papua New Guinea and Viet Nam); and (iii) advocating the use of and national policy guidelines for hepatitis B vaccine OCC where needed.

[3] Wiesen E, Diorditsa S, Li X. Progress towards hepatitis B prevention through vaccination in the Western Pacific, 1990–2014. Vaccine. 27 May 2016; 34(25):2855–62. doi:10.1016/j.vaccine.2016.03.060.

2.4.5 Support to be provided by WHO

The Regional Office for the Western Pacific remains poised to assist countries with projects, serosurveys and direct assistance to help move countries towards improve control through immunization. The Fifth Hepatitis B Expert Resource Panel consultation in February 2017 has proposed new accelerated regional goals to reach the Global Health Sector Strategy for Viral Hepatitis goal of reducing HBsAg prevalence in 5-year-old children to 0.1% by 2030. In addition, EPI is partnering with MNCH and HIV, Hepatitis and Sexually Transmitted Infections Units at the Regional Office for the Western Pacific to develop a framework for triple elimination of mother-to-child transmission of HIV, hepatitis B and syphilis in Asia and the Pacific 2018-2030 (hereinafter triple elimination). This framework proposes an integrated and coordinated approach towards triple elimination using the shared maternal, newborn and child health interventions and platform employed for EMTCT of HIV and syphilis such as antenatal screening, treatment and postnatal follow ups.

2.5 Rubella elimination

2.5.1 Rationale and targets

Despite control efforts in most countries in the WPR, modelling estimates for 1996 and 2008 indicated that the number of infants born with CRS was stable at approximately 10 000 cases each year in the Region, according to unpublished data. In 2014, the Regional Committee endorsed regional rubella elimination as 1 of 8 Regional Immunization Goals specified by the Regional Framework [WPR/RC65.R5]. GVAP calls for 2 WHO regions by 2015 and 5 WHO regions by 2020 to eliminate rubella in all their countries and areas. However, the Western Pacific Region has not yet established a regional target year for rubella elimination.

2.5.2 Progress and achievements

From 2007 to 2015, 9 countries[4] in the Region introduced rubella-containing vaccine (RCV) into their national immunization programmes. Consequently, all countries in the Region now have RCV in their national immunization programme. From 2008 to 2016, 7 countries[5] in the Region carried out nine nationwide, wide-age-range mass vaccination campaigns with RCV. Rubella reporting has been incorporated into the case-based measles surveillance in many countries. Only a few countries have established CRS surveillance.

2.5.3 Remaining/Emerging challenges

From 2014 to 2016, the proportion of adolescents and young adults aged 15-24 years affected by rubella infection has been significantly increasing in China, the Philippines and Viet Nam. As these birth cohorts are entering peak fertility years, this creates high risk for an increase in CRS cases due to infection of pregnant women. Prevention of CRS is the most important reason for introduction of rubella-containing vaccine; elimination of rubella by interrupting circulation of endemic rubella virus remains the sole means to prevent all CRS cases.

2.5.4 Responses to overcome challenges

All countries and areas in the Western Pacific Region should urgently address immunity gaps among current adolescents and young adults while they are reachable for immunization. For this, all countries and areas in the Region should set a regional target year for rubella elimination as soon as possible and develop and implement a national strategy and plan of action for rubella elimination, including establishment of national CRS surveillance, so as to benefit from increased political commitment, coordinate effort between government sectors and mobilize resources by governments and partners.

2.5.5 Support to be provided by WHO

WHO submitted to the 2016 TAG meeting a draft new regional strategy and plan of action for purposes of supporting countries (i) to set a national target year for rubella elimination; (ii) to develop national strategies and plans of action for rubella elimination; and (iii) to establish CRS surveillance.

WHO continue to work with other international partners in supporting countries to develop and implement national strategies and plans of action for rubella elimination using the new regional strategy and plan of action for measles and rubella elimination in the Western Pacific.

[4] Australia, Macao, Mongolia and the Republic of Korea (2014), Cambodia, Brunei Darussalam and Japan (2015), and Hong Kong (2016)
[5] Japan (2008-2012), Lao People's Democratic Republic (2011 and 2014), Philippines (2011 and 2014), Mongolia (2012 and 2016), Cambodia (2013), Viet Nam (2014-2015) and Papua New Guinea (2015-2016)

2.6 Introduction of new vaccines

2.6.1 Rationale and targets

New and underutilized vaccines have the potential to greatly increase the impact of national immunization programmes in the Region and prevent millions of additional illnesses and deaths. Substantial disease burden has been documented for JE, rotavirus and human papillomavirus (HPV) in countries of the Western Pacific Region, and pneumococcus is estimated to cause substantial proportions of childhood pneumonia and meningitis cases.

Achievement of the part of the goal targeting vaccine introduction will be measured by the number of low- and middle-income countries that have introduced one or more new or underutilized vaccines. Targets for this global indicator are 90% low- and middle-income countries by 2015 and all low- and middle-income countries by 2020. The Regional Framework calls for the introduction of one or more new or underutilized vaccines in all low-and middle-income countries by 2020.

2.6.2 Progress and achievements

At the midpoint in the timeline, the Western Pacific Region appears to be on track to achieving the Regional Framework objective for new vaccine introduction.

Six of 36 countries and areas had introduced all 4 new vaccines by 2010; 17 (57%) of the remaining 30 countries and areas have introduced at least one new vaccine since 2010. Of 19 middle-income (10 are low-middle income) countries and areas, 3 (1 lower-middle income and 2 upper-middle income countries and areas) had introduced all 4 new vaccines by 2010. Of 16 middle income countries that had not introduced all 4 new vaccines by 2010, 8 (50%) introduced at least one new vaccine since 2010; 7 (78%) of 9 low-middle income countries and areas that had not introduced all 4 new vaccines by 2010 introduced at least one new vaccine since 2010.

As of June 2017, Haemophilus influenzae type b (Hib) vaccine has been introduced into the national immunization programmes of 34 of the 36 countries and areas of the Region with available data [China and Hong Kong (China) have not introduced Hib vaccine and data on new vaccine introductions are not available for the Pitcairn Islands]. Pneumococcal Conjugate Vaccine has been introduced in 24 countries and areas. Rotavirus vaccine has been introduced in 9 countries and areas.

2.6.3 Remaining/ emerging challenges

Challenges include the need to define strategies to support countries to achieve the new vaccines introduction goal (including engagement of experts in vaccine-preventable disease epidemiology and surveillance, economic evaluation of vaccines and other areas, as well as resources to support this engagement); the need to collect more comprehensive country-specific data on the burden of diseases targeted by new vaccines; and reduced support for new vaccine introductions as more countries and areas in the Region graduate from Gavi eligibility.

2.6.4 Responses to overcome challenges

Human papilloma virus (HPV) vaccine has been introduced in 19 countries and areas, 2 countries are planning to apply for Gavi funds for HPV vaccine introduction in September 2017, and HPV vaccine demonstration projects have been conducted or are ongoing in several countries.

2.6.5 Support to be provided by WHO

The Western Pacific Regional Office is providing technical assistance to countries and areas to improve surveillance, assist with applications for Gavi support for rotavirus vaccine introduction (Lao PDR and Solomon Islands), Gavi support for HPV vaccine introduction (Lao PDR and Solomon Islands), and monitoring and evaluation of Cambodia's HPV vaccine demonstration project. The Western Pacific Regional Office is also collaborating with partners to promote uptake of new vaccines in a timely and equitable manner.

2.7 Meeting regional vaccination coverage targets

2.7.1 Rationale and targets

The Regional Framework for GVAP implementation maintained the key GVAP indicators to monitor progress towards vaccination coverage goal; however, based on the analysis of regional baseline situation, has established more ambitious targets compared to the global level. The targets for the Western Pacific Region include reaching 95% national coverage and reaching >90% in every district for all vaccines used in the national immunization programmes. Due to challenges in standardizing the definition of "coverage for all vaccines" across countries and obtaining good quality data, the coverage is monitored using 3 doses of diphtheria-tetanus-pertussis vaccine (DTP3) as the proxy for the coverage of all routine immunization vaccines.

2.7.2 Progress and achievements

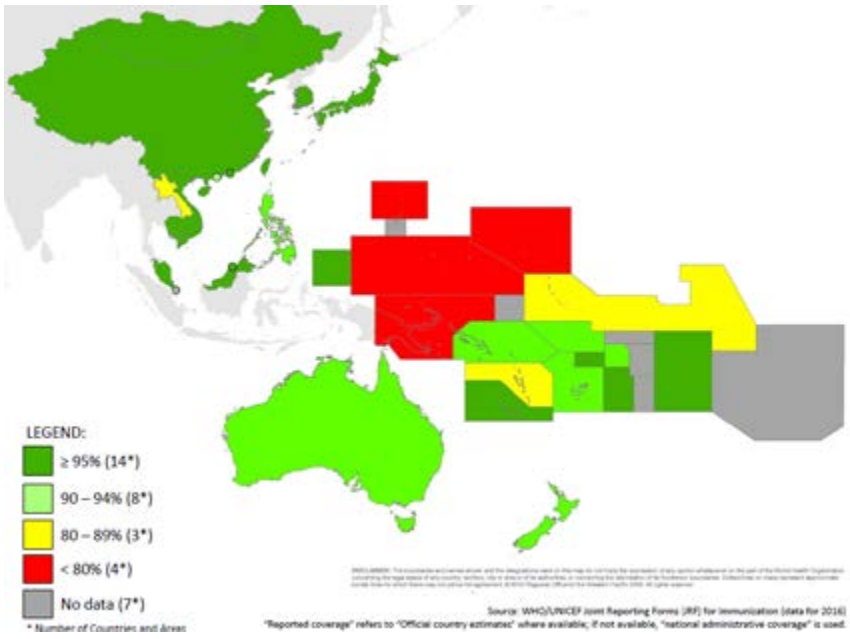
Since 2009, the Region as a whole has sustained coverage above 95% with DTP3, except in 2015 when the coverage dropped slightly to 94.4%; in 2016, the reported regional coverage was 97.5%. As of 2016, 14 countries and areas in the Region have achieved DTP3 coverage of 95% or above and 10 countries and areas have reached at least 90% DTP3 coverage in all districts.

Compared to 2015, progress in 2016 has been observed, particularly due to increased coverage in the Philippines, Solomon Islands and Palau. The Philippines reported an increase from 60% to 91% DTP3 coverage. Although 2016 data are affected by pooled reporting of catch-up vaccination and routine immunization, the Philippines has made remarkable progress.

2.7.3 Remaining/ emerging challenges

Vaccination coverage is still uneven across countries and unequal coverage persists among districts within the same country. Official coverage estimate of DTP3 is less than 80% in the Federal States of Micronesia, Papua New Guinea, Marshall Islands and Norther Mariana Islands; coverage is between 80%-90% in Kiribati, Vanuatu and Lao People's Democratic Republic. At the sub-national level, 8 countries have at least one quarter of their districts with immunization coverage less than 90%. Uneven coverage negatively impacts the efforts to achieve regional and national elimination goals and to control impact of vaccine preventable diseases. In 2016, VPDs outbreaks continued to occur in several countries of the region. Although reasons for uneven coverage vary from country to country, common challenges are represented by inequitable access to immunization by mobile/migrant populations, people in informal settlements in large urban areas, population living in remote hard-to-reach areas, and minority ethnic groups.

Figure 1: Reported DTP3 coverage of 36 countries and areas in the Western Pacific Region, 2016.



2.7.4 Responses to overcome challenges

In 2016, efforts have been made to address these challenges. Lao People's Democratic Republic, as response to 2015 cVDPV outbreak, strengthened immunization coverage of ethnic minorities and developed communication and social mobilization strategies tailored on these groups, setting useful example also for countries facing similar challenge. Other countries like Cambodia, Mongolia and Papua New Guinea are continuing implementation of specific strategies for hard-to-reach and high-risk communities.

With regards to mobile population and population in urban areas, efforts are being made to monitor the coverage and identify most suitable strategies. Better coordination between EPI and local administrative authorities and integration of immunization in urban health planning is necessary.

2.7.5 Support to be provided by the WHO

The Regional Office for the Western Pacific is supporting priority countries in ensuring strengthening overall planning and management of immunization programmes, including vaccines supply and distribution in priority countries and improving data quality. Capacity of all countries has been strengthened in vaccine regulatory capacity, safety surveillance and communication. The Regional Office for the Western Pacific is developing a guidance document to address vaccine hesitancy to foster vaccine demand.

2.8 Accelerated control of Japanese encephalitis

2.8.1 Rationale and targets

Japanese encephalitis (JE) is a leading cause of viral encephalitis in the Western Pacific Region and is highly fatal with a proportional case fatality ratio of 20-30%; an additional 20-25% of patients with encephalitis survive the illness but have long-term neurological sequelae. The Western Pacific Region accounts for more than half of the 68,000 cases estimated to occur globally each year. The regional framework proposed the following targets:

- Accelerate the control of JE by extending vaccination to all JE risk areas where JE incidence exceeds very low levels;
- Reach regional vaccination coverage targets with the primary series of JE vaccine in routine immunization programmes, and ≥ 90% coverage for a primary series of JE vaccine among children under 15 years old in each country's JE risk area overall, by a year to be determined; and
- Consider an incidence target of less than 0.5 per 100 000 children under 15 years old in every national or subnational JE risk area, by a year to be determined.

2.8.2 Progress and achievements

Elimination of JE transmission is not possible due to the zoonotic cycle of infection. However, experiences in Japan and the Republic of Korea have demonstrated that the incidence of human disease can be reduced to very low levels by a vaccination programme with high coverage among young children. Nine of the 12 countries with endemic JE transmission have introduced JE vaccine in some (Malaysia) or all (Australia, Cambodia, China, Japan, Lao People's Democratic Republic, Republic of Korea and Viet Nam) JE risk areas or have very low levels of disease without vaccination (Singapore). Of the remaining 3 countries, Brunei has used outbreak response immunization only, the Philippines plans to introduce the vaccine in 2018, and Papua New Guinea is collecting burden of disease data.

2.8.3 Remaining/ emerging challenges

Challenges to further progress and achievement of the accelerated JE control goal include the resource requirements for implementing wide age-range campaigns and national scale-up of vaccine introduction; the need for additional immunogenicity and safety data for co-administration of live attenuated or recombinant JE vaccine with MR or MMR vaccine; and the weakness of JE surveillance systems that are critical for estimating disease burden, defining target populations and monitoring progress.

2.8.4 Responses to overcome challenges

JE surveillance data are important to define the burden and geographic range of JE and to monitor the impact of vaccination. Sentinel or national JE surveillance with laboratory confirmation has been established in all countries in the Region with known or suspected endemic JE transmission.

The 2015 JE Expert Resource Consultation (ERC) on Accelerated Control of JE in the Western Pacific Region suggested strategies to achieve the Region's accelerated JE prevention and control goals. The ERC proposed the following strategies: 1) follow the strategy outlined in the WHO position paper of catch-up vaccination in children under 15 years age, followed by routine immunization for incoming birth cohorts; 2) consider phased approach to introduction depending upon country; 3) review surveillance standards and develop an evaluation tool to evaluate current standards; 4) WHO should provide technical assistance to countries to develop action plan for accelerated control of JE through immunization; and 5) encourage sharing of surveillance data on adverse events following immunization with JE vaccine between countries in the Region.

2.8.5 Support to be provided by WHO

WPRO in collaboration with SEARO organized the Seventh Bi-regional Meeting on Prevention and Control of JE in Manila in 2016. The objectives of the meeting were to review the status of the disease and surveillance and identify the necessary steps for strengthening surveillance in the Western Pacific and Southeast Asia Regions; to update participants on new developments in the prevention and control of JE; and to strengthen bioregional communication and efforts to prevent and control JE.

WHO EPI

3. Implementation and Progress on GVAP Strategic Objectives

The Regional Framework has identified priority actions for each of the 6 GVAP strategic objectives and here we reported progress of selected priority actions under the each strategic objective to reflect the overall progress in the region.

3.1 All countries commit themselves to immunization as a priority

3.1.1 Establish and strengthen independent national bodies (or an intercountry body for small countries and areas if necessary and feasible) to formulate evidenced-based national immunization policies (the Regional Framework Priority Action 3.1.3.2)

The National Immunization Technical Advisory Groups (NITAGs) in the Western Pacific Region operate at varying levels of quality. Some are advanced with clear policies and processes and make use of best evidence-based decision making practices; and these countries include Australia, China, Hong Kong, Japan, Malaysia, New Zealand, Republic of Korea and Singapore. NITAGs have recently been established in Mongolia, Vietnam, Lao PDR and Philippines.

NITAGs throughout the Region face common challenges. Often the benefit of an independent body for formulating immunization recommendations is not understood by all stakeholders, leading to lack of legitimacy and allocation of resources. Some countries are concerned by having too many committees which tend to utilize the same human resources and may add additional bureaucratic layers. Limited resources, such as technical capacity and finances to run a NITAG or conduct research, make it difficult for NITAGs to develop high quality recommendations. A lack of local data and challenges in accessing neighbouring, regional and global data also hinder NITAG processes.

In supporting NITAGs in the Region, the Regional Office for the Western Pacific has been working to ensure that NITAGs fit well within the local decision making processes and work efficiently. Efforts have concentrated on strengthening operational capacity, such as developing terms of reference and standard operating procedures, as well as building capacity in the specific skills used for evidence-based decision making.

3.1.2 Develop comprehensive multi-year plans for the national immunization programme with accurate estimates of costs and financial commitments needed to achieve national immunization goals (the Regional Framework Priority Action 3.1.3.3)

The GVAP recommended that countries develop comprehensive national immunization plans to support the strategy of establish and sustain commitment to immunization. Countries' comprehensive multi-year plans (cMYP) for the national immunization programme (NIP) are aimed across all vaccine delivery goals, by helping countries to better plan and address new vaccine introduction, achieving immunization coverage targets, preparing for financial sustainability and ensuring required resources. Eighteen countries in the region reported in JRF 2016 to have either cMYP or equivalent planning document. The content of these cMYPs are varied across countries. For Gavi supported countries, having an updated, costed cMYP is a requirement for applications for Gavi support. All Gavi-eligible countries in the Western Pacific Region have updated cMYP for 2016-2020 and include Cambodia, Lao PDR, Papua New Guinea, Solomon Islands and Viet Nam.

3.1.3 Involve local civil society organizations and professional associations to contribute to national discussions on immunization and health (the Regional Framework Priority Action 3.1.3.6)

In the Western Pacific Region, Civil Society Organizations (CSOs) play different roles and engagements in providing public health services including immunization. While the majority of CSOs provide ad-hoc, events based support, some provide

more systematic, define support to the programme. Also, CSOs involvements depend and vary by the countries. Given below in Box 3, two examples, where in Papua New Guinea (PNG), the Catholic Health Services plays a unique 'partner' role. In Lao People's Democratic Republic (PDR), the role of Lao Front National Construction is a classic CSO with limited, event based involvement.

Box 3: Civil Society Organizations (CSOs) are actively involved in immunization.

Catholic Health Services (CHS) in PNG: The CHS in PNG is a strong partner of health care delivery system in the country. Unlike most CSOs, the CHS in PNG functions differently as a 'quasi CSO' because it receives a significant recurrent fund from the government to deliver the health care services. However, this model seems cost effective in the country, where government resources are limited particularly in human resources. The CHS delivers immunization services within a public health intervention package in larger part of the country, particularly where the government health service delivery is difficult.
(Source: https://sites.google.com/a/nchspng.org/www/Home/health_facilities/vunapope-rural-hospital/catholic-health-services

Lao Front for National Construction: Between October 2015 and January 2016, Lao PDR experienced an outbreak of circulating Vaccine Derived Polio Virus. From the very beginning of the outbreak response, the Lao Front for National Construction CSO extensively contributed to the social mobilization and communication activities. Successful implementation of these activities resulted in significantly increased uptake of polio vaccination and other health interventions by the communities, and finally led to interruption of circulation of polio virus in the country.

These examples are evident that the involvement of CSO in immunization in the region at varies by extent of involvements and more align with the SAGE 2016 midterm review recommendations on CSO role and contribution towards enhance accountability mechanisms to monitor implementation of global and regional vaccine action plans.

3.2 Individuals and communities understand the value of vaccines and demand immunization both as a right and a responsibility

3.2.1 Evaluate the results of social media efforts during Immunization Week and develop a plan to use the most effective tools in countries with the capacity to use social media (the Regional Framework Priority Action 3.2.3.1)

During the World Immunization Week (WIW), countries conducted several activities including supplementary immunization activities, activities to increase awareness about immunization and social mobilization through local initiatives. In previous years, at the regional level the support to countries was mainly provided through development of reference key messages and advocacy material around annual theme. Communication to the general public was mainly relying on publication of a press release. In 2016, besides the usual activities, communication through social media (WPRO Facebook and Twitter accounts) was strengthened. In fact in countries in the Western Pacific Region, the use of social media is high and increasing annually; for example in countries like the Philippines, Malaysia and Australia, 60-80% of the population is estimated to have a Facebook account, and the Asia-Pacific region has 40% of the global Twitter users. Social media represent the primary source of information for increasing proportion of population.

Photo: Some of the materials prepared for the WIW social media campaign

- These campaigns resulted in reaching more than 250,000 people through social media with almost 5,500 reactions/engagements.

The social media campaigns used: 1) visuals and infographics developed with region specific statistics and regional branding to illustrate the theme "Vaccination is everyone's job. Protect our children, protect our community"; 2) feature stories and pictures from Western Pacific Region countries; and 3) interactive quizzes on immunization. The response was 138,422 people reached through Facebook with almost 4,000 reactions, comments and shares; 112,522 people reached through Twitter with 690 engagements; and 728 people took a quiz on immunization. Materials will be posted beyond the WIW, including materials still under development, to give continued visibility to immunization. Given the initial good impact in terms of visibility, the communication through social media will be strengthened by timely development of contents that could be translated and used by countries through national social media platforms. Coordination with countries to develop feature stories on several topics will be enhanced.

3.2.2 Develop a curriculum for healthcare workers on effective communication techniques (the Regional Framework Priority Action 3.2.3.6)

Effective and open communication of evidence-based information about the importance of vaccination is crucial for public confidence. Aimed at increasing concerns on vaccine safety and addressing vaccine hesitancy, healthcare workers need to be prepared with communications resources and build skills for effective communication. In this regard, the Regional Office for the Western Pacific developed in 2015 a regional guideline for immunization programme managers and national regulatory authorities on vaccine safety communication. This guidance includes both communication techniques and practical aspects which can be used by the countries for further developing country specific curriculums for healthcare workers.

In March 2017, the Regional Office for the Western Pacific conducted a regional communication workshop for countries national level staff to introduce new communication techniques and available newly developed vaccine safety communication resources such as vaccine safety e-library developed by the Global Vaccine Safety Initiative (GVSI).

Photo: 2017 Regional Vaccine Safety Communication Workshop

3.3 The benefits of immunization are equitably extended to all people

3.3.1 Further develop, improve and expand national initiatives for Reach Every District (village, community and/or child) (the Regional Framework Priority Action 3.3.3.2)

Inequitable access to vaccines continues to be a major deterrent to achieving Regional goals. The Region as a whole has maintained high coverage of traditional vaccines over recent years; however, there are clear disparities at national and sub-national level. According to 2016 JRF data, 12 countries are still not reaching the GVAP indicator on the benefits of immunization are equitably extended to all people (percentage of districts with 80% or greater coverage with DTP3 containing vaccine) while 5 countries did not report any JRF data. Therefore, to ensure equitable access to all people, countries have taken innovative strategies to reach every district. Papua New Guinea introduced a new strategy to refocus routine immunization and revitalize outreach efforts through the Special Integrated Routine Expanded Programme of Immunization Strengthening Program (see Box 4).

Box 4: Intensified approaches: lesson learned from the Special Integrated Routine EPI Strengthening Program (SIREP) in Papua New Guinea

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

Photo 1: IEC material developed for SIREP

Photo2: Hon Prime Minister launched the activity

3.3.2 Introducing IPV, bivalent OPV, rubella, JE and other new vaccines into national immunization programmes shown to be cost-effective (the Regional Framework Priority Action 3.3.3.5)

Since 2014, Cambodia, Republic of Korea and the Solomon Islands have introduced PCV; Kiribati and New Zealand have introduced rotavirus vaccine; Macao, the Republic of Korea and the Philippines have introduced HPV vaccine; and Lao PDR and Cambodia have introduced JE vaccine. In the case of JE vaccine, PCV, and rotavirus vaccine, the countries have introduced the vaccines into their national immunization schedules and made attempts to cover all children in the target age groups, including those in hard-to-reach groups such as ethnic minorities and those living in isolated areas. In the case of HPV vaccine, the Republic of Korea offers the vaccine to all girls aged 12-13 years using a health facility-based approach. The Philippines began vaccination among all girls 9-10 years old using a health-facility based approach in 20 priority provinces (priority based on high estimated cervical cancer burden and high prevalence of poverty) and they expanded the program to include 46 provinces and cities.

Box 5: Implementation of hepatitis B birth dose in China

Historically, about 10% of China's population were chronically infected with hepatitis B virus (HBV) and the majority of transmission occurred perinatally. Beginning in 1985 with the licensure of plasma-derived hepatitis B vaccine (HepB), China started to prevent and control HBV infection through a 3-part strategy of source control, transmission interruption, and prevention. Central to China's strategy has been the implementation of the timely birth dose (TBD) of HepB, followed by 2 more doses during infancy. In cooperation with the Jiang Xiao program that brought childbirth into hygienic facilities and with the principle of "whoever delivers the baby, vaccinates the baby;" TBD increased rapidly to its current level of over 90%. Key milestones include introduction of HepB into EPI management in 1992, making HepB vaccination free of charge in 2002 and implementing nationwide HBV screening of pregnant women in 2015. China decreased the prevalence of chronic HBV infection among young children by 97%, from 9.8% in 1992 to 0.32% in 2014, meeting the Western Pacific Region 2017 goal of <1% among five year olds. Challenges include eliminating vertical HBV transmission, which requires strengthening the program and prevention strategies, implementing post-vaccination serological testing as a standard and maintaining confidence in HepB immunization

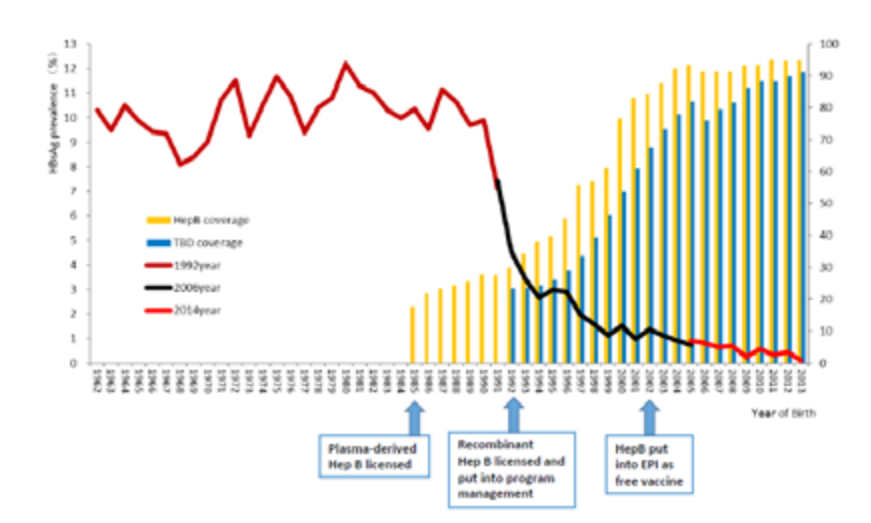


Figure modified from: Cui FQ, et al. Prevention of Chronic Hepatitis B after 3 Decades of Escalating Vaccination Policy, China. *Emerging Infectious Diseases*, 2017;23(5):765-772.

Prevalence of HBcAg and HepB immunization coverage from 1992-2013, China

3.3.3 Strengthen regional and national capacity for prediction, prevention, preparedness and response for outbreaks of vaccine-preventable diseases (the Regional Framework Priority Action 3.3.3.6)

Outbreak response to circulating vaccine-derived poliovirus (cVDPV) in Lao PDR

From the outset of their cVDPV1 outbreak in 2015, the Government of the Lao PDR showed high level of ownership and commitment to the outbreak response activities by mobilizing and engaging central and local level government institutions, CSOs and communities. With support from WHO and other partners, the government of the Lao PDR was able to strengthen national capacities in outbreak preparedness and response. Rigorous response activities led to significant improvement in population immunity (not only against polio, but other vaccine-preventable diseases, e.g. measles); enhanced AFP surveillance; strengthened routine immunization activities; identifying and addressing challenges of different ethnic population groups; and increased capacity in cross-border coordination with neighbouring countries. Currently the government of the Lao PDR is working with WHO support to develop a law on immunization

to commit government financial support to the national immunization programme which is important in the light of anticipated challenges related to the polio and GAVI transition.

Outbreak response to measles in Cambodia

Cambodia has been affected by multiple importations of measles virus from other countries, followed by small scale measles outbreaks since early 2016 after having been verified to have achieved measles elimination in March 2015. The government with partners carried out aggressive outbreak responses (e.g. field investigation, risk assessment and nation-wide supplementary immunization activity), enhanced surveillance and planned and implemented a nation-wide mass immunization campaign with measles-rubella containing vaccine from March to May 2017. The total number of confirmed measles cases was maintained at very low level, with 65 confirmed cases from January 2016 to February 2017.

3.4 Strong immunization systems are integral part of well-functioning health system

3.4.1 Further strengthen monitoring and surveillance systems (the Regional Framework Priority Action 3.4.3.2)

Surveillance with laboratory confirmation is critical to provide disease burden evidence and to measure the impact of vaccination, but high-quality surveillance requires substantial technical and financial support in low-resource settings. Sentinel surveillance for rotavirus diarrhoea is in place in eight countries (Cambodia, China, Fiji, Lao PDR, Mongolia, Papua New Guinea, Philippines, Viet Nam) of the Western Pacific Region and is of generally high quality. Sentinel surveillance for invasive bacterial vaccine-preventable diseases (IBVPD), including Hib, pneumococcus and meningococcus, is in place in five countries (Fiji, Mongolia, Papua New Guinea, Philippines, Viet Nam) and has been gradually improving in quality with WHO support. Strengthening laboratory capacity with continuous training, introducing standardized testing methods and implementation of quality assurance systems resulted in good quality of data reported. Despite evident improvement, continuous efforts are needed to further strengthen and sustain both surveillance procedures and laboratory testing to make the data valuable for disease burden, vaccine introduction and impact assessments (see Box 6).

Box 6 : Regional Laboratory Surveillance

The WHO Regional Office for the Western Pacific-Expanded Programme on Immunization (EPI) coordinates over 500 public health laboratories in 18 Member States in the Western Pacific Region to achieve global and regional immunization goals, covering poliomyelitis, measles /rubella, Japanese encephalitis, rotavirus, invasive bacterial diseases and hepatitis B. These laboratories are fully integrated into a WHO Global Laboratory Network of more than 800 laboratories, one of the largest structured public health laboratory networks in the world. All laboratories follow standardized, validated procedures and share accurate and timely data on EPI-related VPD surveillance to their national programmes and to WHO. Implementation of quality control and assurance systems ensure that standards of quality are being met. However, challenges remain in areas such as maintaining high proficiency of laboratory testing that may arise from complacency and sustaining laboratory surveillance capacity with decreased funds. The Western Pacific Region EPI laboratory networks play a very crucial role in providing evidence for surveillance, disease control and elimination program and have made major contributions to the Western Pacific Region's diseases control goals, including polio eradication and measles and rubella elimination programmes.

3.4.2 Conduct effective vaccine management assessments, develop improvement plans and implement country-specific activities (the Regional Framework Priority Action 3.4.3.4)

In 2015, 11 countries have reported one or more events of vaccine stockouts either at national or subnational level. In 2016, stockouts were reported in only 9 countries. Reported vaccine shortages may be in part due to the lack of effective vaccine managment (EVM) in some countries and areas. Monitoring supply and demand both at national and subnational levels is important. The EVM initiative provides materials and tools needed to monitor and assess vaccine supply chains and help countries to improve their supply chain performance through a comprehensive assesment. Therefore, EVM assessments are an opportunity for countries and areas to identify and address gaps through improvement plans and other actions that will promote equitble immunization services. The EVM assessment is recommended to be conducted once in every 3 years and WHO in collaboration with UNICEF provides technical assistance to countries for these EVMs.
In 2015, EVM assessments were conducted in four countries (Cambodia, Kiribati, Mongolia, and Viet Nam) and in one country (PNG) in 2016. EVM assesments are planned to be conducted in the Philippines and Solomon Islands in 2017.

3.5 Immunization programmes have sustainable access to predictable funding, quality supply and innovative technology

3.5.1 Conduct comprehensive international reviews of the national immunization programme in priority countries to further strengthen government commitment to invest in immunization, engage new potential domestic and international development partners, and diversify sources of funding (the Regional Framework Priority Action 3.5.3.1)

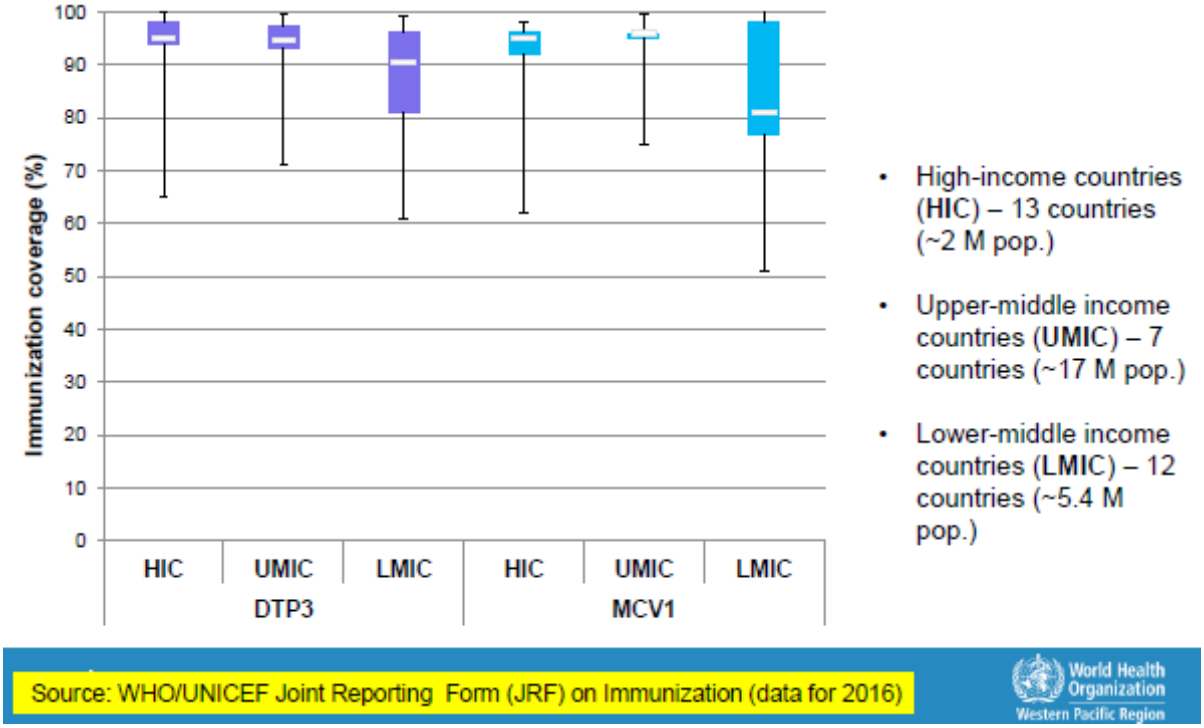
The SAGE 2016 mid-term progress review recommendation on securing necessary investments to sustain immunization during polio and Gavi transitions is necessarily important to the Region.
As of 2016 WB statistics, 19 countries in the Western Pacific Region belong to the Middle Income Countries (MIC) category. This equates to approximately 85% of the regional population within MIC. In the Western Pacific Region, only 5 countries receive Gavi support and the majority of MIC in the Region are necessarily relying on domestic financing. Further, disparities in routine immunization services resulting in differing coverage performances can be observed by country income level (see Figure 3). The WHO lead first MIC Task Force mission in the Western Pacific Region was successfully carried out in the Philippines in November 2016, and recommendations made by the mission were well received by the country. As a result of this mission, an ongoing change in the country vaccine supply and distribution system has emerged which looks to rectify the chronic vaccine stock out issues coverages in the past few years that have led to low VPD coverage.

3.5.2 Strengthen regulatory capacity in countries through the Regional Alliance for National Regulatory Authorities for Vaccines in the Western Pacific; conduct National Regulatory Authority (NRA) self-assessments of the current status (strengths and gaps); and support institutional development planning to further strengthen national regulatory systems and regionally harmonize regulations. (the Regional Framework Priority Action 3.5.3.6)

The Regional Alliance for NRAs for vaccines in the Western Pacific Region was established in 2011 and meets annually to provide opportunity for Member States to discuss issues in vaccines regulation commonly experienced in the Region. The 5th NRA workshop conducted in 2016 provided a venue to discuss the WHO reforms on regulatory systems, to strengthen policy and process and to reach a consensus on adopting the WHO NRA global benchmarking tool (GBT).

Among 5 vaccine-producing countries (Australia, China, Japan, Republic of Korea and Viet Nam), 4 actively contribute global quality supply of vaccines. The Viet Nam NRA was declared as functional until their next reassessment at the end of 2017. Regulatory system assessment is an essential step of NRA strengthening.

Figure 3: DTP3 coverages by country income level



3.6 Country, regional and global research and development, innovations maximize the benefits of immunization

3.6.1 Support pilot testing of new vaccine delivery technologies and new diagnostic tools for surveillance of vaccine preventable diseases (the Regional Framework Priority Action 3.6.3.4)

The Western Pacific Region has a long-standing history of successfully increasing hepatitis B birth dose (HepB-BD) coverage by administering this heat-stable monovalent vaccine outside of cold chain (OCC) in China (see Box 7), Papua New Guinea, Cambodia, Viet Nam, Lao PDR and Solomon Islands. Despite an increasing body of evidence to support the thermostability of the hepatitis B vaccine and the contribution of OCC to significantly increasing timely HepB-BD coverage; progress has stalled in scaling up successful OCC pilots to a national level among countries that have high rates of home births or lack adequate cold chain capacity. Countries in the Western Pacific that still have low HepB-BD coverage and have not reached regional control goals may consider nationwide implementation of an OCC HepB-BD policy, especially since the 2016 SAGE recommendation encourages use of the OCC policy for HepB-BD if countries follow IPAC recommendations.

Box 7 : Hepatitis B vaccine use in Outside Cold Chain in Lao PDR for delivering timely birth dose

The Lao People's Democratic Republic is planning to scale up the use of OCC HepB-BD to districts that lack cold chain equipment. The implementation will be evaluated within a year. The Regional Office for the Western Pacific looks to support the country's development of national guidelines on OCC and the development of standard operating procedures for healthcare workers and district managers for review by the national regulatory authority and the Ministry of Health. Training of healthcare workers on OCC is ongoing. Lessons learned from this work will be shared with WHO Headquarters and among countries that have fully functional regulatory bodies. WHO Headquarters looks to simultaneously draft reports synthesizing findings and conclusions of available thermostability data for hepatitis B vaccines that could be used OCC, including suggested peak temperatures and the number of days at maximum temperature. This compiled information would serve as a resource for EPI programmes, regulatory authorities and national immunization technical advisory groups.

4. Conclusion and recommendations

At the beginning of the second half of the Decade of Vaccine (DoV), the Western Pacific Region is steadily making progress towards achieving 7 out of 8 regional immunization goals. Also, the region has made significant progress in implementing many Priority Actions proposed by the Regional Framework. In summary, the regional progress is in line with the DoV Goals at the global level and has made good progress towards achievement of GVAP Strategic Objectives. All these achievements are greatly contributed by government commitments, public interest and partners support.

The potential risk of resurgence of VPDs such as measles, diphtheria and pertussis and emergence of VDPVs due to the population immunity gaps area is a high concern in the Region. Therefore, intensifying all available strategies to strengthen immunization services; to close existing population immunization gaps through reaching unreached populations; to ensure availability and access to vaccine and other supplies; and to support laboratory enhanced surveillance are essentially necessary. Further, the highest proportion of population representativeness of MICs in the Western Pacific Region require new strategies such as the WHO-initiated MIC approach, where focus is dedicated to sustaining achievements and financial affordability. The Region is moving to encourage further government commitments to ensure sustainable domestic financing for all public health programmes including immunization. It is expected that partners will continue their highest support to the countries by all means as deemed necessary to reach regional and global immunization goals by 2020.

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ANNEX

Table 1 Progress towards the Regional Framework immunization goals (using indicators as given in the Regional Framework)

Immunization goal	Indicators and targets	Regional progress as of 31 May 2017
1. Sustaining polio-free status	• Sustain regional polio free status until global certification.	**On track.**
	• Ensure timely detection and response to any wild, vaccine-related and Sabin polioviruses.	**On track.**
	• Eliminate vaccine-derived poliovirus (VDPV) risk by introducing in OPV-using countries at least one dose of IPV by end-2015, and withdraw the type 2 component of trivalent OPV by April 2016.	**On track.** Due to the global supply constraint of IPV two countries (Mongolia and Viet Nam) will not be able to introduce IPV vaccine into routine immunization until 2018.
	• Initiate and implement the other phases of the poliovirus laboratory containment.	**Delayed.** Implementation of the Phase 1 part 2 for identification of potentially infectious materials that may contain Sabin 2 is pending further global guidance.
2. Maternal and neonatal tetanus elimination	• By 2015, achieve maternal and neonatal tetanus elimination in the Western Pacific Region, defined as <1 neonatal tetanus (NT) case/1000 live births in each district.	**Delayed.** Two countries in the Western Pacific Region are remaining to achieve elimination; • In the Philippines, 16 of 17 regions have been validated in 2015; 3 rounds of Td SIA have been implemented in the last remaining province of the Autonomous Region of Muslim Mindanao (ARMM). • Papua New Guinea has planned for two phases of TT SIA in 4 high risk and 9 medium risk provinces. The first phase of TT SIA is underway in the 4 high risk provinces.
	• Maintain elimination in every country and area (based on annual WHO/UNICEF District Data Spreadsheet).	**On track.**
3. Measles elimination	• By 2012, the Western Pacific Region should eliminate measles.	**Delayed.** In 2012, the Western Pacific Region achieved historically low measles incidence. However, the Western Pacific experienced region-wide measles resurgence in 2013-2016.
	• National Verification Committees should annually submit progress reports to the Regional Verification Commission describing progress towards measles elimination	**On track.** Since 2013, NVCs started submission of progress reports to the Regional Verification Commission describing progress towards measles elimination. For the 4th RVC meeting in March 2015, all NVCs of 16 countries and areas in the Western Pacific Region and Sub Regional Verification Committee for the Pacific submitted progress reports.
4. Accelerated control of hepatitis B	• Reduce the seroprevalence of chronic hepatitis B infection, measured through hepatitis B surface antigen (HBsAg), to less than 1% in 5-year-old children by 2017.	**On track.** A 2016 Vaccine study that was endorsed by the WPRO Hepatitis B Expert Resource Panel showed the Regional prevalence of HBsAg among children born in 2012 was estimated to be 0.93%, indicating that the 2017 target of reducing HBsAg in children ≥ 5 years to <1% was met.

Immunization goal	Indicators and targets	Regional progress as of 31 May 2017
5. Rubella elimination	• All Member States that have not yet introduced rubella-containing vaccine in their routine immunization programmes should do so as soon as possible.	**On track.** Before 2017, all countries and areas had introduced RVC into the national immunization programme.
	• Rubella case-based data should be submitted to the WHO Regional Office for the Western Pacific.	**On track.** All of 36 countries and areas in the Western Pacific Region have developed and run rubella case-based surveillance. 32 out of 36 countries and areas in the Region submit rubella case-based data to WPRO.
6. Introduction of new vaccines	• All low- and middle-income countries introduce one or more new vaccines during 2010 to 2020.	**On track.** • Of 18 middle-income (10 are lower middle-income) countries, 2 (both upper middle-income countries) had introduced all new vaccines (Hib, HPV, JE, PCV, rotavirus vaccines, and rubella vaccines) except JE vaccine (because neither country has endemic JE transmission) by 2010. • Of 16 middle income countries that had not introduced all new vaccines by 2010, 10 (62%) have introduced at least one new vaccine since 2010; 9 (90%) of 10 low-middle income countries introduced at least one new vaccine since 2010; only 1 (17%) of 6 upper middle-income countries introduced at least one new vaccine since 2010.
7. Meeting regional vaccination coverage targets	• Reach >95% national coverage for all vaccines used in the national immunization programmes, unless otherwise recommended, by 2020.	**In Progress.** • While the WP Region as whole has achieved 97.3% DTP3 coverage, there are disparities among countries. • 14 of 36 countries and areas have achieved >95% DTP3 coverage in 2016, and additional 8 countries achieved at least 90% coverage. 7 countries report coverage of <90% and the information is missing for 7 countries.
	• Reach >90% coverage in every district or equivalent administrative unit for all vaccines used in the national immunization programmes, unless otherwise recommended, by 2020.	**Slow Progress.** • Subnational coverage information from 2016 is incomplete, as only 23 countries and areas reported sufficient data. Based on available information, 90.6% of all districts in WP region reached coverage of >90%. • However, in terms of countries achieving this target, only 10 reported DTP3 coverage of >90% in all districts, showing that disparities persist at subnational level.

Immunization goal	Indicators and targets	Regional progress as of 31 May 2017
8. Accelerated control of Japanese encephalitis (JE)	• Accelerate the control of JE by extending vaccination to all JE risk areas where JE incidence exceeds very low levels.	**On track.** • 10 of 12 countries with endemic JE transmission have introduced JE vaccine in some (Malaysia) or all (Australia, Cambodia, China, Japan, Lao People's Democratic Republic, Republic of Korea and Viet Nam) JE risk areas or have very low levels of disease without vaccination (Brunei-Darussalam; Singapore). Of the two remaining countries with JE virus transmission risk, Philippines is planning a subnational JE vaccination campaign in 2018 and plans to introduce JE vaccine before 2020.
	• Reach regional vaccination coverage targets with the primary series of JE vaccine in routine immunization programmes, and ≥90% coverage for a primary series of JE vaccine among children under 15 years old in each country's JE risk area overall, by a year to be determined.	**On track.** • Most countries in the Region that have JE virus transmission risk and which have introduced JE vaccine reported ≥90% coverage for primary series of JE vaccine among children under 15 years old in 2015 JRF. 2016 JRF data will be available soon. New regional target was proposed during the Expert Resource Consultation: ≥95% with primary series among children <15 years.
	• Consider an incidence target of less than 0.5 per 100 000 children under 15 years old in every national or subnational JE risk area, by a year to be determined.	**On track.** • In March 2016, JE Expert Resource Consultants proposed an incidence target of 0.5 cases per 100,000 children under 15 years. TAG recommended this incidence target in effected areas (national or subnational) at 2016 TAG meeting. Target year to be determined in 2017 or 2018.

Acknowledgements

We would like to acknowledge the work of the following experts and colleagues who worked on this report:

- **TAG members:** Dr Robert Geoffrey Hall, Dr Hiroshi Yoshikura, Dr Jong-koo Lee, Dr Kimberley Fox, Dr Ichiro Kurane, Associate Professor Helen Oh
- **EPI staff:** Dr Sergey Diorditsa, Dr Yoshihiro Takashima, Dr James Dawson Heffelfinger , Ms Varja Grabovac, Dr Ananda Amarasinghe, Dr Nyambat Batmunkh, Dr Roberta Pastore, Dr Tigran Avagyan, Dr Zhang Yan, Dr Santosh Gurung, Mr Benjamin Bayutas, Ms Kayla Mariano, Ms Josephine Logronio